

SUPPLEMENTAL INFORMATION HANDOUT

MATERIALS INFORMATION

SITE INVESTIGATION REPORT, Dated March 27, 2001

ADDENDUM TO FOUNDATION RECOMMENDATION, Dated June 7, 2012

FOR:

- A. DUTCHMAN CREEK BR (BR NO 39-0238 L/R)
- B. DUTCHMAN CREEK BR (EAST FRONTAGE ROAD) (BR NO 39-0239 L/R)

ROUTE: 10-Mer-99-0.0/4.6

REVISED PER ADDENDUM No. 5 DATED JUNE 15, 2012



IT CORPORATION

A Member of The IT Group

Data

SITE INVESTIGATION REPORT
AOL
STATE ROUTE 99 UPGRADE PROJECT
MER-99 PM 4.5/10.5
MERCED COUNTY, CALIFORNIA

March 27, 2001

Prepared for:

California Department of Transportation
1976 East Charter Way
Stockton, California 95201

Prepared by:

IT Corporation
1326 North Market Boulevard
Sacramento, California 95834

Task Order No. 10-415800-NW
EA No.: 10-415700
Caltrans Contract No.: 43A0012

IT Project No.: 818667

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Executive Summary

IT Corporation (IT) conducted a lead in soil investigation along State Route 99 (SR 99) in Merced County, California. Work was conducted within the unpaved shoulder from post mile (PM) MER-99 PM 10.5 to Duck Slough (PM 9.44) and in the shoulder and median of SR 99 between PM MER-99 PM 4.5/9.44. The investigation was conducted to evaluate the presence and concentration of lead in shallow soil prior to upgrade along State Route 99.

Lead was reported in soil samples collected from the site. The source for the lead is not known, however, it is thought to be related to accumulation of dust and debris containing lead from leaded gasoline emissions.

Lead concentrations were compared to Total Threshold Limit Concentration (TTLC) and Soluble Threshold Limit Concentration (STLC) values to evaluate whether the soil would be considered a hazardous waste, should it become a waste. Soil samples from various portions of the site were reported to contain lead at concentrations that exceeded the STLC. One soil samples was reported to contain lead at concentrations in excess of 350 mg/kg, a level requiring waste disposal in a Class I facility.

Statistical evaluation of the data found that the mean concentration of total lead in the entire data set was 47.8 milligrams per kilogram (mg/kg) with a corresponding 90% Upper Confidence Level (UCL) value of 53.1 mg/kg. An acceptable correlation was not found between the total lead data and soluble lead data by the Waste Extraction Test (WET). Therefore, the 90% UCL value for soluble lead by the WET was calculated and found to be 2.72 milligrams per liter (mg/l). An acceptable correlation was also not found between the total lead data and soluble lead data by the WET using a de-ionized water extraction solution (DI WET). Therefore, the 90% UCL value for soluble lead by the DI WET was calculated and found to be 0.219 mg/l.

The California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), issued Caltrans a variance for soil considered hazardous due to the presence of elevated lead concentrations. The variance allows Caltrans to re-use lead-contaminated soil within Caltrans right-of-way in the roadway corridor boundaries under certain conditions.

Based on the statistical analysis, the soil, if treated as a whole and sampled on a composite basis from stockpiles generated during construction activities, may not be considered a hazardous waste. However, if management of the soil within the variance is required, the statistical data indicate that the soil may be able to be handled within condition 1 of the variance. This condition requires that the soil be used as fill beneath at least one foot of clean (non-hazardous)

soil fill and five feet above the water table. This conclusion is based on the calculated 90% UCLs for DI WET data within the 0 to 0.6 meter (0 to 2 foot) data set. The 90% UCL for DI WET is 0.219 mg/l.

1.0 Introduction

This report presents the results of the soil investigation conducted along State Route (SR) 99 in Merced County, California (Figure 1). The investigation was conducted by IT Corporation (IT) in December, 2000. This investigation was conducted at the request and authorization of Mr. Michael Robinson of the California Department of Transportation (Caltrans) under Task Order No. 10-415800-NW, Expenditure Authorization No. 10-415700. The investigation was conducted for soil characterization prior to Caltrans' upgrade of State Route 99.

1.1 Project Description

The site comprises the unpaved portions of the shoulder from post mile (PM) MER-99 PM 10.5 to Duck Slough (PM 9.44) and the shoulder and median of SR 99 between PM MER-99 PM 4.5/9.44. Unpaved shoulder and median areas of SR 99 will be affected by construction activities. State Route 99 within the limits of the proposed project is a four-lane highway. Improvements of SR 99 will consist of the conversion of the highway to a freeway, and will include the expansion from four to six lanes, construction of interchanges and frontage roads, and loss of turning access onto SR99 from secondary roads except at interchanges.

IT is not aware of any previous environmental investigative work conducted within the project area.

1.2 Project Objective

The objective of this investigation was to evaluate the presence of aerially deposited lead in shallow soil in unpaved areas of the site.

2.0 Scope of Work

The scope of work for the investigation was presented in IT's workplan dated November 10, 2000, which was approved for implementation by Caltrans (IT, 2000a). The following scope of work was conducted:

1. Permitting and Mobilization
2. Field Investigation
3. Laboratory Analyses
4. Site Investigation Report Preparation

2.1 Planning and Permitting

Planning and permitting included a pre-work site visit, preparation of a workplan and health and safety plan, and acquisition of required permits.

A pre-work site visit was conducted at the site on October 19, 2000, by Mr. Don Bransford of IT and Mr. Michael Robinson of Caltrans. Locations for soil borings were observed, and the scope of work and objectives were discussed.

A site-specific health and safety plan (IT, 2000b) was prepared for the site in general accordance with 29 CFR 1910.120 and Title 8, California Code of Regulations, Section 5192. The health and safety plan included safety procedures for work to be performed at the site, chemical hazard information, site safety officers, and preferred medical emergency locations.

An encroachment permit was obtained from Caltrans for this project. A copy of the permit is presented in Appendix A.

2.2 Field Investigation

The field investigation was conducted on December 8, and December 11 through 13, 2000. The investigation consisted of the advancement of 144 borings using hand auger equipment. Boring number 93 was not completed for safety reasons. Boring locations were selected by Caltrans. The borings were spaced approximately 250 meters (820 feet) along shoulders and medians, in depressed areas where runoff may accumulate, and near culverts, intersections, bridge inlets, and underpasses (Figures 2 through 14). The horizontal and vertical locations of the borings were established using a Trimble GPS Pathfinder™ Pro XRS global positioning system (GPS). The GPS utilized a GPS receiver and MSK radio beacon differential receiver. The GPS is reported to

have sub-meter precision for horizontal location of the borings. The vertical precision is reported to be 2 to 5 times that of the horizontal precision. The GPS data were downloaded in the office and Trimble software utilized to provide differential corrections to the coordinates.

The hand auger borings were advanced to a depth of approximately 0.6 meters (2 feet) below the ground surface (BGS) with samples collected from 0.1 meters, 0.3 meters, and 0.6 meters (0.3 feet, 1 foot, and 2 feet) BGS. Soil borings 21, 38, and 96 encountered refusal and could not be completed to the total depth of 0.6 meters. Soil samples were collected from the auger bit and placed into re-sealable plastic bags. The soil samples were labeled, packaged, and stored on ice in an insulated chest for transport under chain-of-custody manifest to the laboratory.

All equipment utilized during the field activities was washed prior to commencement of work, and between borings to minimize the likelihood of cross-contamination between the borings. No wastes were generated during the field investigation. The hand auger borings were backfilled with the soil cuttings. Drilling and sampling procedures are presented in Appendix B.

2.3 Laboratory Analysis

The soil samples collected and retained for analysis were submitted to Sparger Technology, Inc. (Sparger), of Sacramento, California, a California-certified analytical laboratory. Chain of custody procedures, including the use of chain of custody forms, were used to document sample handling and transport from the time of collection to delivery to the laboratory for analysis. The chain of custody forms and laboratory analytical reports are included in Appendix C.

The soil samples were analyzed for total lead in general accordance with U.S. Environmental Protection Agency (U.S. EPA) method 6010, with a reporting limit of 1.0 milligram per kilogram (mg/kg). Based on the results for total lead analyses, specific soil samples were further analyzed for the soluble concentration of lead in the samples. Soil samples reported to contain lead at concentrations that exceeded 50 mg/kg were analyzed for soluble lead concentrations using the Waste Extraction Test (WET). Soil samples with soluble lead results that exceeded the Soluble Threshold Limit Concentration (STLC) of 5 milligrams per liter (mg/l) and soil samples with total lead results exceeding 350 mg/kg (a level requiring waste disposal in a Class I facility) were analyzed by the WET using a deionized water extraction solution (DI WET).

Soluble lead analyses by the WET were conducted on 116 soil samples. DI WET analyses were conducted on 15 soil samples. Forty-three soil samples were tested for pH. Analytical results reported for the soil samples analyzed are presented on Table 1.

3.0 Site Investigation Results

Lead analyses were conducted on 427 soil samples. A summary of lead results compared to 10-times STLC and TTLC values are presented below. Results are presented on Table 1.

Heavy Metal	10 Times STLC (mg/kg)	No. Samples Exceeding 10 Times STLC	TTLC (mg/kg)	No. Samples Exceeding TTLC	Concentration Range (mg/kg)
Lead	50	116	1,000	1	Less than 1.0 to 1,150

Selected soil samples were further analyzed for soluble lead concentrations by the WET and DI WET. A summary of soluble heavy metal results compared to STLC is presented below.

Heavy Metal	STLC (mg/L)	No. Samples Exceeding STLC	WET Concentration Range (mg/l)	DI WET Concentration Range (mg/L)
Lead	5.0	10 of 116	Less than 0.050 to 35.6	0.0191 to 0.344

In the 42 soil samples tested, pH ranged from 5.8 to 7.8 (Table 1).

4.0 Data Evaluation

4.1 Lead Concentration and Distribution

Soil samples collected from the site were reported to contain lead (Table 1). The source for the lead is not known. However, studies along the transportation corridors have attributed elevated lead concentrations within soil to accumulation of dust and debris containing lead from leaded gasoline emissions (Coltrin, et al., 1993).

The majority of the soil samples reported to contain elevated lead concentrations were collected from shallower depths. However, a number of the samples reported to contain elevated lead concentrations were collected from the 0.5 meter (1.6 foot) sample depth. A summary of the distribution of the elevated total lead concentrations is presented below. The data set is restricted to those samples reported to contain greater than or equal to 50 mg/kg lead, a level selected because it is ten times the STLC.

Sample Interval	Distribution of Samples from Total Sample Population with Greater Than 50 mg/kg Lead		Distribution of Samples from Interval with Greater Than 50 mg/kg Lead		Distribution of Samples from All Samples with Greater Than 50 mg/kg Lead	
	Number	Percentage	Number	Percentage	Number	Percentage
0.1 meters	57 of 427	13.3	57 of 144	39.6	57 of 116	49.1
0.3 meters	39 of 427	9.1	39 of 143	27.3	39 of 116	33.6
0.6 meters	20 of 427	4.7	20 of 140	14.3	20 of 116	17.2

As shown above, the number of samples reported to contain elevated lead concentrations decreased with depth. This is typical of accumulations of aurally deposited lead, as reported by Coltrin and others (1993), where concentrations of lead were observed to decrease with depth. An exception to this was in areas where accumulation of urban dust and debris continued following cessation of leaded gasoline use resulting in lower lead concentrations at shallower depths (Coltrin, et al., 1993). This may explain the results at some locations where elevated concentrations of lead were present in the deeper soil samples.

Lead concentrations were compared to TTLC and STLC values to evaluate whether the soil would be considered a California-hazardous waste, should it become a waste. Generally, TTLC and STLC values for lead are used to judge whether a waste is a California-hazardous waste based on the total and soluble concentration of lead within the waste. The TCLP values are used

to judge whether a waste is a Resource Conservation and Recovery Act (RCRA)-hazardous waste (also known as a Federal hazardous waste) based on the soluble concentration of lead within the waste.

One soil sample from boring 77 was reported to contain a total lead concentration that exceeded the TTLC value of 1,000 mg/kg for lead. Soil samples collected from borings 3, 11, 12, 14, 57, 58, 59, 74 and 122 were reported to contain soluble lead at concentrations in excess of the STLC of 5 mg/l by WET analysis. Soil samples reported to contain total lead exceeding the TTLC and soluble lead exceeding the STLC would be considered a California-Hazardous waste, should the soil become a waste. The reported total lead concentrations for certain soil samples collected from borings 15, 73, 77 and 88 were in excess of 350 mg/kg. No soil samples were analyzed by the TCLP.

The California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), granted Caltrans a variance for soil considered hazardous due to the presence of elevated lead concentrations (DTSC, 2000). The variance allows Caltrans to re-use lead-contaminated soil within Caltrans right-of-way in the roadway corridor boundaries under certain conditions if the soil is considered a non-RCRA waste. In accordance with the variance and AB 2784 Section 25157.8, the following conditions apply to Caltrans' reuse and management of soil impacted by aerially deposited lead as fill material for construction and maintenance operations (DTSC, 2000):

- 1) As fill beneath at least one foot of clean (non-hazardous) soil and five feet above the water table if the soluble lead concentration reported by the DI WET analysis is less than 0.5 mg/l and the total lead concentration is less than 350 mg/kg. This condition applies only if the soil is not a RCRA waste.
- 2) As fill beneath a pavement structure designated to protect the soil from water infiltration and five feet above the water table if the soluble lead concentration reported by DI WET analysis is greater than 0.5 mg/l but less than 50 mg/l, and the total lead concentration is less than 350 mg/kg. This condition applies only if the soil is not a RCRA waste.
- 3) Lead-contaminated soil with a pH below 5 shall only be used as fill beneath the paved portion of the roadway. This conditions applies only if the soil is not a RCRA waste.

No TCLP analyses were conducted. Therefore, evaluation of whether the soil would be considered a RCRA-hazardous waste and whether the soil would be excluded from the variance based on a Federal waste classification was not performed.

4.2 Lead Data Statistical Analysis

To further evaluate the applicability of the DTSC variance (DTSC, 2000), IT conducted a statistical evaluation of lead analytical data for this project at the request of Caltrans. The statistical evaluation was conducted in general accordance with guidance provided in SW-846, "Test Methods for Evaluating Solid waste, Volume II: Field manual, Physical/Chemical Methods" (EPA, 1986). The statistical evaluation was conducted to further evaluate the concentration of lead within soil at the site.

The statistical evaluation addressed the following items:

- Calculation of mean;
- Determination of the distribution of the sample data; and
- Calculation of the 80% Confidence Interval (CI) which provides a corresponding 90% Upper Confidence Level (UCL), interpreted as a 0.90 probability that the true mean for a given population is no higher than the calculated UCL.

The data from all intervals were combined into one data set for analysis as Caltrans construction plans typically call for excavation of soil to 0.6 meters (2 feet) for road base preparation. Evaluation of the soil data resulted in a mean (average) concentration of total lead of 47.8 mg/kg (Appendix D).

A histogram of the total lead results was constructed to evaluate the distribution of the total lead concentrations within the data set. The data were found to be heavily skewed to lower concentrations (Appendix D).

The data are not normally distributed. Therefore, the UCL of the 80% CI (90% UCL) can be approximated if the number of samples is sufficiently large. Gilbert (1987) states that for data with a highly skewed distribution a sample population of 50 or more samples may be needed for analysis of the UCL. The number of samples in the total sample population is 427.

For samples with lead concentrations reported as non-detect above the analytical method reporting limit, a value of one-half of the reporting limit was used in the statistical evaluation. Calculations were performed within Statistix 7. The 90% UCL was calculated using the following equation from Gilbert (1987) (modified from SW-846 to provide the upper one-sided confidence limit):

$$90\% \text{ UCL} = \bar{x} + (t_{0.90})(s/n^{1/2})$$

where \bar{x} = mean of the data

$t_{0.90}$ = the quantile for the “t” distribution for the 90% UCL

s = standard deviation of the data

n = number of samples

Results of the statistical calculations are provided in Appendix D.

The 90% UCL was calculated for total lead data and are presented below and in Appendix D.

Sample Population	Mean Concentration (mg/kg)	90% UCL (mg/kg)
All Samples	47.8	53.1

Pearson (product moment) correlation coefficients (Pearson values) were obtained from regression analysis for regression lines forced through the origin (Appendix D). The correlation coefficient for total/WET lead data for samples is 0.4. The correlation coefficient for total/DI WET lead data for samples is also 0.6. The correlation coefficient for the WET and DI WET data is outside the acceptable correlation value of 0.8, per Caltrans contract 43A0012.

Because the WET and DI WET correlation coefficient were below the acceptable correlation coefficient value of 0.8, the 90% UCL concentrations for the WET and DI WET data set were calculated. The 90% UCL value for the WET and DI WET data are 2.72 and 0.219 mg/l, respectively (Appendix D). These calculations were conducted on data that are skewed to higher values by the sample selection criteria.

4.3 Summary

Soil in specific locations may be considered a California-hazardous waste based on the soluble concentrations of lead reported in certain soil samples. Management of the soil within the DTSC

variance may be possible. However, soil containing greater than 350 mg/kg total lead would be excluded from this option.

The mean concentration and 90% UCL values for total lead data were less than 350 mg/kg. This suggests that the soil, if treated as a whole and sampled on a composite basis from stockpiles generated during construction activities, may not require Class I disposal and may be handled within the conditions of the variance.

The excavated soil may require soluble lead analysis by the WET as the 90% UCL is greater than 50 mg/kg, a level that triggers the WET analysis when considering soil disposal options. However, the mean is below 50 mg/kg. The 90% UCL value for soluble lead by the WET and DI WET tests were calculated and found to be 2.72 mg/l and 0.219 mg/l, respectively.

Should the soil become a waste, it is unlikely that the soil would be considered a hazardous waste based on the statistical analysis conducted. The 90% UCL total lead concentration is below the TTLC and the corresponding WET concentration would be expected to be below the STLC. However, localized areas of high lead concentrations may exist. This should be evaluated to assess worker health and safety issues.

If management of the soil within the variance is required based on soluble lead concentrations, the statistical data indicate that the soil would be allowed to be re-used within condition 1 of the proposed variance, if the soil is excavated and treated as a whole (0 to 0.6 meters). This condition requires that the soil be used as fill beneath at least one foot of clean (non-hazardous) soil and five feet above the water table.

5.0 Conclusions and Recommendations

Based on the laboratory results, current regulatory guidelines, and the judgment of IT the following conclusions and recommendations are offered.

- Lead was reported in soil samples collected from the site. The source for the lead is not known. However, studies along the transportation corridors have attributed elevated lead concentrations within soil to accumulation of dust and debris containing lead from leaded gasoline emissions (Coltrin, et al., 1993).
- Lead concentrations were compared to TTLC and STLC values to evaluate whether the soil would, should it become a waste, be considered a hazardous waste. One sample from boring 77 was reported to contain total lead concentrations that exceed the TTLC value of 1,000 mg/kg for lead. Soil samples collected from borings 3, 11, 12, 14, 57, 58, 59, 74 and 122 were reported to contain soluble lead at concentrations in excess of the STLC of 5 mg/l by WET analysis.
- The reported total lead concentrations for certain soil samples collected from borings 15, 73, 77 and 88 were reported to contain total lead concentrations in excess of 350 mg/kg, a level requiring waste disposal in a Class I facility.
- The statistical evaluation resulted in the following data.

Sample Population	Total Lead Mean Concentration (mg/kg)	Total Lead 90% UCL (mg/kg)	Expected Soluble Lead (WET) Concentration (mg/l)	Expected Soluble Lead (DI WET) Concentration (mg/l)
All Samples	47.8	53.1	2.7	0.22

- Based on the statistical analysis, the soil, if treated as a whole and sampled on a composite basis from stockpiles generated during construction activities, may not be considered hazardous. However, localized areas of high lead concentrations may exist. This should be evaluated to assess worker health and safety issues.
- However, if management of the soil within the variance is required, the statistical data indicate that the soil would be allowed to be re-used within condition 1 of the proposed variance, if the soil is excavated and treated as a whole (0 to 0.6 meters). This condition requires that the soil be used as fill beneath at least one foot of clean (non-hazardous) soil and five feet above the water table. This conclusion is based on the calculated 90% UCLs for total lead and DI WET data within the 0 to 0.6 meter (0 to 2 foot) data set. The 90% UCL for total lead is 36.0 and for DI WET is 0.219 mg/l.

6.0 References

Caltrans (California Department of Transportation, District 10), 2000, California Department of Transportation, District 10, Stockton, contract no. 43A0012, task order EA 10-4415800-NW for aerially deposited lead, preliminary site investigation of 10-415800 ! Mer-99 PM 0.0 to PM 4.5, 10-415700 ! Mer-99 PM 4.5 to PM 10.5, 10-363100 ! Mer-99 PM 10.6 to PM 12.6, 10-2A360K ! Mer-99 PM 12.8 to PM 23.7, 10-414800! Mer-99 PM 23.8 to PM 26.5, 10-316960 ! Mer-99 PM 26.5 to PM 27.9, 10-2A5000 ! Mer-99 PM 28.2 to PM 32.3, County of Merced, September 6, 2000, 6 p.

Coltrin, D., Teichman, J., and Prouty, K., 1993, A survey of lead contamination in soil along Interstate-880, Alameda County, California: *Applied Occupational and Environmental Hygiene*, Tharr, D., ed., vol. 8, no. 4, April 1993, p. 217-220.

DTSC (California Environmental Protection Agency, Department of Toxic Substances Control), 2000, Variance for lead contaminated waste: dated September 22, 2000, 8 p.

EPA (U.S. Environmental Protection Agency), 1986, Test methods for evaluating solid waste, volume II: field manual, physical/chemical methods, SW-846, third edition: dated November 1986.

Gilbert, R.O., *Statistical methods for environmental pollution monitoring*: Van Nostrand Reinhold, New York, New York, 1987.

IT (IT Corporation), 2000a, Work plan, aerially deposited lead investigation, State Route 99 highway improvement project, State Route 99, PM 4.5 to 10.5, Merced County, California: dated November 10, 2000, 4 p.

IT, 2000b, Health and safety plan, aerially deposited lead investigation, State Route 99 highway improvement project, State Route 99, PM 4.5 to 10.5, Merced County, California: dated November 10, 2000, 11 p.

TABLE 1

LEAD ANALYTICAL DATA
 Caltrans - Route 99 Aerially Deposited Lead Investigation
 Merced County, California
 Task Order No. 10-415800-NW
 EA No. 10-415700

Sample Designation	Latitude	Longitude	Altitude (MSL)	Sample Depth (m)	Sample Depth (ft)	Lead			pH
						Total	WET	DI WET	
99F - 1 - 0.3	-120.4240771	37.26099502	24.1	0.1	0.3	4.24			
99F - 1 - 1	-120.4240771	37.26099502	23.8	0.3	1	20.7			
99F - 1 - 2	-120.4240771	37.26099502	23.5	0.6	2	6.64			
99F - 2 - 0.3	-120.4233429	37.26040099	24.0	0.1	0.3	6.76			
99F - 2 - 1	-120.4233429	37.26040099	23.7	0.3	1	103	0.131		
99F - 2 - 2	-120.4233429	37.26040099	23.4	0.6	2	141	0.0789		
99F - 3 - 0.3	-120.4212232	37.25867494	24.5	0.1	0.3	162	5.85	0.101	5.8
99F - 3 - 1	-120.4212232	37.25867494	24.2	0.3	1	20.6			
99F - 3 - 2	-120.4212232	37.25867494	23.9	0.6	2	6.94			
99F - 4 - 0.3	-120.4185608	37.25651012	23.6	0.1	0.3	26.8			
99F - 4 - 1	-120.4185608	37.25651012	23.3	0.3	1	12.9			
99F - 4 - 2	-120.4185608	37.25651012	23.0	0.6	2	31.2			
99F - 5 - 0.3	-120.4175735	37.25570037	24.1	0.1	0.3	19.7			
99F - 5 - 1	-120.4175735	37.25570037	23.8	0.3	1	72.0	ND		
99F - 5 - 2	-120.4175735	37.25570037	23.5	0.6	2	236	0.467		
99F - 6 - 0.3	-120.4155328	37.25403282	25.3	0.1	0.3	31.5			
99F - 6 - 1	-120.4155328	37.25403282	25.0	0.3	1	49.7			
99F - 6 - 2	-120.4155328	37.25403282	24.7	0.6	2	102	1.20		
99F - 7 - 0.3	-120.4143119	37.2530556	25.0	0.1	0.3	33.7			
99F - 7 - 1	-120.4143119	37.2530556	24.7	0.3	1	68.0	1.75		
99F - 7 - 2	-120.4143119	37.2530556	24.4	0.6	2	58.6	ND		6.1
99F - 8 - 0.3	-120.4131018	37.25207936	25.3	0.1	0.3	59.6	1.79		
99F - 8 - 1	-120.4131018	37.25207936	25.0	0.3	1	41.4			
99F - 8 - 2	-120.4131018	37.25207936	24.7	0.6	2	13.6			
99F - 9 - 0.3	-120.4102939	37.24980071	26.2	0.1	0.3	54.7	1.12		
99F - 9 - 1	-120.4102939	37.24980071	25.9	0.3	1	130	0.968		
99F - 9 - 2	-120.4102939	37.24980071	25.6	0.6	2	10.2			
99F - 10 - 0.3	-120.4087684	37.24855047	24.3	0.1	0.3	107	2.58		
99F - 10 - 1	-120.4087684	37.24855047	24.0	0.3	1	76.6	3.84		
99F - 10 - 2	-120.4087684	37.24855047	23.7	0.6	2	5.10			
99F - 11 - 0.3	-120.402395	37.24336436	26.0	0.1	0.3	107	13.6	0.344	6.4
99F - 11 - 1	-120.402395	37.24336436	25.7	0.3	1	18.8			
99F - 11 - 2	-120.402395	37.24336436	25.4	0.6	2	3.42			
99F - 12 - 0.3	-120.4011306	37.24233118	26.1	0.1	0.3	62.2	9.51	0.256	6.8
99F - 12 - 1	-120.4011306	37.24233118	25.8	0.3	1	96.2	1.12		
99F - 12 - 2	-120.4011306	37.24233118	25.5	0.6	2	28.1			
99F - 13 - 0.3	-120.3989691	37.24057896	26.5	0.1	0.3	209	3.20		
99F - 13 - 1	-120.3989691	37.24057896	26.2	0.3	1	21.3			
99F - 13 - 2	-120.3989691	37.24057896	25.9	0.6	2	8.56			
99F - 14 - 0.3	-120.3974468	37.23935125	26.1	0.1	0.3	26.2			
99F - 14 - 1	-120.3974468	37.23935125	25.8	0.3	1	182	5.33	0.108	6.6
99F - 14 - 2	-120.3974468	37.23935125	25.5	0.6	2	31.9			
99F - 15 - 0.3	-120.3954753	37.2377481	26.4	0.1	0.3	505	0.488	0.233	7.3
99F - 15 - 1	-120.3954753	37.2377481	26.1	0.3	1	457	2.29	0.226	6.8
99F - 15 - 2	-120.3954753	37.2377481	25.8	0.6	2	126	3.05		
99F - 16 - 0.3	-120.393558	37.23618394	27.3	0.1	0.3	167	1.46		
99F - 16 - 1	-120.393558	37.23618394	27.0	0.3	1	276	4.33		
99F - 16 - 2	-120.393558	37.23618394	26.7	0.6	2	242	2.59		
99F - 17 - 0.3	-120.3933669	37.23602073	27.1	0.1	0.3	83.1	1.51		
99F - 17 - 1	-120.3933669	37.23602073	26.8	0.3	1	11.8			
99F - 17 - 2	-120.3933669	37.23602073	26.5	0.6	2	3.71			
99F - 18 - 0.3	-120.3913964	37.23442823	26.7	0.1	0.3	33.7			
99F - 18 - 1	-120.3913964	37.23442823	26.4	0.3	1	17.4			
99F - 18 - 2	-120.3913964	37.23442823	26.1	0.6	2	4.88			
99F - 19 - 0.3	-120.3889985	37.23247499	26.5	0.1	0.3	26.5			
99F - 19 - 1	-120.3889985	37.23247499	26.2	0.3	1	148	1.08		
99F - 19 - 2	-120.3889985	37.23247499	25.9	0.6	2	110	2.08		
99F - 20 - 0.3	-120.3847847	37.22904919	27.2	0.1	0.3	73.9	1.87		
99F - 20 - 1	-120.3847847	37.22904919	26.9	0.3	1	72.7	1.58		
99F - 20 - 2	-120.3847847	37.22904919	26.6	0.6	2	4.05			

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LEAD ANALYTICAL DATA
 Caltrans - Route 99 Aerially Deposited Lead Investigation
 Merced County, California
 Task Order No. 10-415800-NW
 EA No. 10-415700

Sample Designation	Latitude	Longitude	Altitude (MSL)	Sample Depth (m)	Sample Depth (ft)	Lead			pH
						Total	WET	DI WET	
99F - 21 - 0.3	-120.3843547	37.22869535	26.8	0.1	0.3	18.7			
99F - 21 - 1	-120.3843547	37.22869535	26.5	0.3	1	69.3	1.17		
99F - 22 - 0.3	-120.3823782	37.22708961	27.4	0.1	0.3	7.53			
99F - 22 - 1	-120.3823782	37.22708961	27.1	0.3	1	3.73			
99F - 22 - 2	-120.3823782	37.22708961	26.8	0.6	2	3.43			
99F - 23 - 0.3	-120.3799728	37.22513299	27.3	0.1	0.3	88.1	0.159		
99F - 23 - 1	-120.3799728	37.22513299	27.0	0.3	1	9.97			
99F - 23 - 2	-120.3799728	37.22513299	26.7	0.6	2	6.53			
99F - 24 - 0.3	-120.377695	37.22327998	27.7	0.1	0.3	90.6	1.67		
99F - 24 - 1	-120.377695	37.22327998	27.4	0.3	1	114	0.368		
99F - 24 - 2	-120.377695	37.22327998	27.1	0.6	2	7.10			6.6
99F - 25 - 0.3	-120.3757039	37.22164065	26.7	0.1	0.3	101	0.546		
99F - 25 - 1	-120.3757039	37.22164065	26.4	0.3	1	84.5	2.17		
99F - 25 - 2	-120.3757039	37.22164065	26.1	0.6	2	7.06			
99F - 26 - 0.3	-120.3737473	37.22006457	27.5	0.1	0.3	22.7			
99F - 26 - 1	-120.3737473	37.22006457	27.2	0.3	1	108	1.51		
99F - 26 - 2	-120.3737473	37.22006457	26.9	0.6	2	3.81			
99F - 27 - 0.3	-120.3717851	37.21846694	27.4	0.1	0.3	53.0	1.81		
99F - 27 - 1	-120.3717851	37.21846694	27.1	0.3	1	323	3.87		
99F - 27 - 2	-120.3717851	37.21846694	26.8	0.6	2	10.4			
99F - 28 - 0.3	-120.3698127	37.21686549	27.5	0.1	0.3	40.3			7.2
99F - 28 - 1	-120.3698127	37.21686549	27.2	0.3	1	46.5			
99F - 28 - 2	-120.3698127	37.21686549	26.9	0.6	2	37.2			
99F - 29 - 0.3	-120.3689113	37.2161352	27.4	0.1	0.3	12.3			
99F - 29 - 1	-120.3689113	37.2161352	27.1	0.3	1	264	1.52		
99F - 29 - 2	-120.3689113	37.2161352	26.8	0.6	2	3.39			
99F - 30 - 0.3	-120.3669561	37.21454383	26.9	0.1	0.3	12.6			
99F - 30 - 1	-120.3669561	37.21454383	26.6	0.3	1	5.39			
99F - 30 - 2	-120.3669561	37.21454383	26.3	0.6	2	13.3			
99F - 31 - 0.3	-120.3649335	37.21293501	28.1	0.1	0.3	81.6	0.373		
99F - 31 - 1	-120.3649335	37.21293501	27.8	0.3	1	84.4	0.901		7.6
99F - 31 - 2	-120.3649335	37.21293501	27.5	0.6	2	4.21			
99F - 32 - 0.3	-120.3633102	37.21194709	27.8	0.1	0.3	8.48			
99F - 32 - 1	-120.3633102	37.21194709	27.5	0.3	1	112	0.806		
99F - 32 - 2	-120.3633102	37.21194709	27.2	0.6	2	3.46			
99F - 33 - 0.3	-120.3600949	37.20966545	28.4	0.1	0.3	32.2			
99F - 33 - 1	-120.3600949	37.20966545	28.1	0.3	1	7.03			
99F - 33 - 2	-120.3600949	37.20966545	27.8	0.6	2	5.84			
99F - 34 - 0.3	-120.3595021	37.20917974	29.1	0.1	0.3	33.0			
99F - 34 - 1	-120.3595021	37.20917974	28.8	0.3	1	50.2	1.47		
99F - 34 - 2	-120.3595021	37.20917974	28.5	0.6	2	19.7			6.9
99F - 35 - 0.3	-120.3583395	37.20823885	29.1	0.1	0.3	57.8	0.650		
99F - 35 - 1	-120.3583395	37.20823885	28.8	0.3	1	39.8			
99F - 35 - 2	-120.3583395	37.20823885	28.5	0.6	2	22.4			
99F - 36 - 0.3	-120.3581987	37.20810667	29.9	0.1	0.3	167	1.39		
99F - 36 - 1	-120.3581987	37.20810667	29.6	0.3	1	33.8			
99F - 36 - 2	-120.3581987	37.20810667	29.3	0.6	2	6.11			
99F - 37 - 0.3	-120.3560134	37.20634313	29.7	0.1	0.3	31.5			
99F - 37 - 1	-120.3560134	37.20634313	29.4	0.3	1	14.4			
99F - 37 - 2	-120.3560134	37.20634313	29.1	0.6	2	5.78			
99F - 38 - 0.3	-120.3555028	37.20592825	29.3	0.1	0.3	53.1	1.15		6.4
99F - 39 - 0.3	-120.3549901	37.20550027	29.7	0.1	0.3	97.9	0.529		
99F - 39 - 1	-120.3549901	37.20550027	29.4	0.3	1	28.7			
99F - 39 - 2	-120.3549901	37.20550027	29.1	0.6	2	7.82			
99F - 40 - 0.3	-120.3548371	37.20536333	29.5	0.1	0.3	91.5	1.06		
99F - 40 - 1	-120.3548371	37.20536333	29.2	0.3	1	12.8			
99F - 40 - 2	-120.3548371	37.20536333	28.9	0.6	2	4.99			
99F - 41 - 0.3	-120.3524161	37.20331228	30.2	0.1	0.3	9.37			
99F - 41 - 1	-120.3524161	37.20331228	29.9	0.3	1	19.9			
99F - 41 - 2	-120.3524161	37.20331228	29.6	0.6	2	26.6			

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 Caltrans - Route 99 Aerially Deposited Lead Investigation
 Merced County, California
 Task Order No. 10-415800-NW
 EA No. 10-415700

Sample Designation	Latitude	Longitude	Altitude (MSL)	Sample Depth (m)	Sample Depth (ft)	Lead			pH
						Total	WET	DI WET	
99F - 42 - 0.3	-120.3519129	37.20280198	29.7	0.1	0.3	156	2.30		6.2
99F - 42 - 1	-120.3519129	37.20280198	29.4	0.3	1	46.6			
99F - 42 - 2	-120.3519129	37.20280198	29.1	0.6	2	15.7			
99F - 43 - 0.3	-120.3501837	37.20090947	31.0	0.1	0.3	73.0	1.65		
99F - 43 - 1	-120.3501837	37.20090947	30.7	0.3	1	73.5	ND		
99F - 43 - 2	-120.3501837	37.20090947	30.4	0.6	2	24.8			
99F - 44 - 0.3	-120.3478326	37.19896378	30.1	0.1	0.3	109	1.24		
99F - 44 - 1	-120.3478326	37.19896378	29.8	0.3	1	9.54			
99F - 44 - 2	-120.3478326	37.19896378	29.5	0.6	2	7.17			
99F - 45 - 0.3	-120.3474595	37.19925079	30.0	0.1	0.3	158	1.46		
99F - 45 - 1	-120.3474595	37.19925079	29.7	0.3	1	23.5			6.3
99F - 45 - 2	-120.3474595	37.19925079	29.4	0.6	2	15.1			
99F - 46 - 0.3	-120.3481859	37.19987496	30.9	0.1	0.3	101	4.21		
99F - 46 - 1	-120.3481859	37.19987496	30.6	0.3	1	29.6			
99F - 46 - 2	-120.3481859	37.19987496	30.3	0.6	2	3.52			
99F - 47 - 0.3	-120.3484635	37.20013216	31.3	0.1	0.3	4.06			
99F - 47 - 1	-120.3484635	37.20013216	31.0	0.3	1	4.44			
99F - 47 - 2	-120.3484635	37.20013216	30.7	0.6	2	4.73			
99F - 48 - 0.3	-120.3500542	37.20175205	31.2	0.1	0.3	75.2	2.12		
99F - 48 - 1	-120.3500542	37.20175205	30.9	0.3	1	22.5			
99F - 48 - 2	-120.3500542	37.20175205	30.6	0.6	2	5.48			6.8
99F - 49 - 0.3	-120.3520619	37.20366063	31.5	0.1	0.3	8.89			
99F - 49 - 1	-120.3520619	37.20366063	31.2	0.3	1	61.2	3.37		
99F - 49 - 2	-120.3520619	37.20366063	30.9	0.6	2	2.53			
99F - 50 - 0.3	-120.352561	37.20407182	31.2	0.1	0.3	25.1			
99F - 50 - 1	-120.352561	37.20407182	30.9	0.3	1	10.7			
99F - 50 - 2	-120.352561	37.20407182	30.6	0.6	2	39.4			
99F - 51 - 0.3	-120.3539115	37.20512678	31.1	0.1	0.3	9.17			
99F - 51 - 1	-120.3539115	37.20512678	30.8	0.3	1	10.3			
99F - 51 - 2	-120.3539115	37.20512678	30.5	0.6	2	4.02			
99F - 52 - 0.3	-120.3559106	37.20675456	30.9	0.1	0.3	10.1			6.6
99F - 52 - 1	-120.3559106	37.20675456	30.6	0.3	1	71.3	4.46		
99F - 52 - 2	-120.3559106	37.20675456	30.3	0.6	2	2.15			
99F - 53 - 0.3	-120.3579226	37.20839437	30.7	0.1	0.3	16.5			
99F - 53 - 1	-120.3579226	37.20839437	30.4	0.3	1	4.11			
99F - 53 - 2	-120.3579226	37.20839437	30.1	0.6	2	58.2	1.86		
99F - 54 - 0.3	-120.3599071	37.21000819	30.0	0.1	0.3	29.3			
99F - 54 - 1	-120.3599071	37.21000819	29.7	0.3	1	12.3			
99F - 55 - 0.3	-120.3618875	37.21161276	30.2	0.1	0.3	14.0			
99F - 55 - 1	-120.3618875	37.21161276	29.9	0.3	1	26.9			
99F - 55 - 2	-120.3618875	37.21161276	29.6	0.6	2	6.22			7.2
99F - 56 - 0.3	-120.3640358	37.21305651	30.3	0.1	0.3	7.19			
99F - 56 - 1	-120.3640358	37.21305651	30.0	0.3	1	6.20			
99F - 56 - 2	-120.3640358	37.21305651	29.7	0.6	2	2.52			
99F - 57 - 0.3	-120.3662079	37.21448404	30.1	0.1	0.3	8.47			
99F - 57 - 1	-120.3662079	37.21448404	29.8	0.3	1	81.6	5.69	0.0940	6.4
99F - 57 - 2	-120.3662079	37.21448404	29.5	0.6	2	39.0			
99F - 58 - 0.3	-120.3681893	37.21608116	30.0	0.1	0.3	139	5.48	0.232	5.8
99F - 58 - 1	-120.3681893	37.21608116	29.7	0.3	1	1.37			
99F - 58 - 2	-120.3681893	37.21608116	29.4	0.6	2	1.85			
99F - 59 - 0.3	-120.3701673	37.21769693	29.8	0.1	0.3	48.5			
99F - 59 - 1	-120.3701673	37.21769693	29.5	0.3	1	82.5	6.06	0.166	6.4
99F - 59 - 2	-120.3701673	37.21769693	29.2	0.6	2	4.06			
99F - 60 - 0.3	-120.3721422	37.21930609	29.4	0.1	0.3	5.65			
99F - 60 - 1	-120.3721422	37.21930609	29.1	0.3	1	113	1.96		
99F - 60 - 2	-120.3721422	37.21930609	28.8	0.6	2	3.86			
99F - 61 - 0.3	-120.374109	37.22090432	29.0	0.1	0.3	35.0			
99F - 61 - 1	-120.374109	37.22090432	28.7	0.3	1	4.20			
99F - 61 - 2	-120.374109	37.22090432	28.4	0.6	2	5.23			
99F - 62 - 0.3	-120.376076	37.22250762	28.9	0.1	0.3	24.7			
99F - 62 - 1	-120.376076	37.22250762	28.6	0.3	1	2.80			
99F - 62 - 2	-120.376076	37.22250762	28.3	0.6	2	2.89			

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 Caltrans - Route 99 Aerially Deposited Lead Investigation
 Merced County, California
 Task Order No. 10-415800-NW
 EA No. 10-415700

Sample Designation	Latitude	Longitude	Altitude (MSL)	Sample Depth (m)	Sample Depth (ft)	Lead			pH
						Total	WET	DI WET	
99F - 63 - 0.3	-120.3792665	37.22513264	28.8	0.1	0.3	7.25			
99F - 63 - 1	-120.3792665	37.22513264	28.5	0.3	1	1.58			
99F - 63 - 2	-120.3792665	37.22513264	28.2	0.6	2	3.10			
99F - 64 - 0.3	-120.3797182	37.22551996	28.6	0.1	0.3	3.08			
99F - 64 - 1	-120.3797182	37.22551996	28.3	0.3	1	1.32			
99F - 64 - 2	-120.3797182	37.22551996	28.0	0.6	2	2.64			
99F - 65 - 0.3	-120.3817502	37.22712964	28.5	0.1	0.3	29.6			
99F - 65 - 1	-120.3817502	37.22712964	28.2	0.3	1	ND			
99F - 65 - 2	-120.3817502	37.22712964	27.9	0.6	2	5.42			
99F - 66 - 0.3	-120.3837452	37.22876285	28.4	0.1	0.3	44.6			
99F - 66 - 1	-120.3837452	37.22876285	28.1	0.3	1	3.68			
99F - 66 - 2	-120.3837452	37.22876285	27.8	0.6	2	5.76			
99F - 67 - 0.3	-120.3843075	37.22923348	28.2	0.1	0.3	186	0.793		5.9
99F - 67 - 1	-120.3843075	37.22923348	27.9	0.3	1	25.2			
99F - 67 - 2	-120.3843075	37.22923348	27.6	0.6	2	4.11			
99F - 68 - 0.3	-120.3857229	37.23035582	27.8	0.1	0.3	90.9	1.21		
99F - 68 - 1	-120.3857229	37.23035582	27.5	0.3	1	9.87			
99F - 68 - 2	-120.3857229	37.23035582	27.2	0.6	2	4.30			
99F - 69 - 0.3	-120.3877045	37.2319611	27.5	0.1	0.3	244	0.969		
99F - 69 - 1	-120.3877045	37.2319611	27.2	0.3	1	11.5			
99F - 69 - 2	-120.3877045	37.2319611	26.9	0.6	2	3.77			
99F - 70 - 0.3	-120.3901166	37.2339282	26.9	0.1	0.3	216	4.01		
99F - 70 - 1	-120.3901166	37.2339282	26.6	0.3	1	71.3	0.288		
99F - 70 - 2	-120.3901166	37.2339282	26.3	0.6	2	3.63			
99F - 71 - 0.3	-120.3927575	37.23608736	26.9	0.1	0.3	11.8			
99F - 71 - 1	-120.3927575	37.23608736	26.6	0.3	1	2.96			
99F - 71 - 2	-120.3927575	37.23608736	26.3	0.6	2	2.18			
99F - 72 - 0.3	-120.393282	37.2365167	26.6	0.1	0.3	40.5			
99F - 72 - 1	-120.393282	37.2365167	26.3	0.3	1	6.44			
99F - 72 - 2	-120.393282	37.2365167	26.0	0.6	2	6.58			
99F - 73 - 0.3	-120.39471	37.2376581	26.8	0.1	0.3	362	3.73	0.322	7.5
99F - 73 - 1	-120.39471	37.2376581	26.5	0.3	1	299	1.07		
99F - 73 - 2	-120.39471	37.2376581	26.2	0.6	2	12.1			
99F - 74 - 0.3	-120.3974834	37.23991741	26.9	0.1	0.3	169	6.24	0.110	7.3
99F - 74 - 1	-120.3974834	37.23991741	26.6	0.3	1	23.7			
99F - 74 - 2	-120.3974834	37.23991741	26.3	0.6	2	10.8			
99F - 75 - 0.3	-120.3979503	37.24030705	25.8	0.1	0.3	16.5			
99F - 75 - 1	-120.3979503	37.24030705	25.5	0.3	1	3.02			
99F - 75 - 2	-120.3979503	37.24030705	25.2	0.6	2	6.71			
99F - 76 - 0.3	-120.4006477	37.24236031	26.3	0.1	0.3	76.3	1.30		
99F - 76 - 1	-120.4006477	37.24236031	26.0	0.3	1	6.62			
99F - 76 - 2	-120.4006477	37.24236031	25.7	0.6	2	4.20			
99F - 77 - 0.3	-120.4008019	37.24248416	26.2	0.1	0.3	1,150	1.61	0.0191	7.8
99F - 77 - 1	-120.4008019	37.24248416	25.9	0.3	1	3.55			
99F - 77 - 2	-120.4008019	37.24248416	25.6	0.6	2	8.25			
99F - 78 - 0.3	-120.4023846	37.24373639	26.4	0.1	0.3	33.7			
99F - 78 - 1	-120.4023846	37.24373639	26.1	0.3	1	12.1			
99F - 78 - 2	-120.4023846	37.24373639	25.8	0.6	2	3.00			
99F - 79 - 0.3	-120.4035322	37.24465682	25.2	0.1	0.3	21.0			
99F - 79 - 1	-120.4035322	37.24465682	24.9	0.3	1	3.73			
99F - 79 - 2	-120.4035322	37.24465682	24.6	0.6	2	10.6			
99F - 80 - 0.3	-120.4037414	37.24482577	25.4	0.1	0.3	60.0	0.861		
99F - 80 - 1	-120.4037414	37.24482577	25.1	0.3	1	38.0			
99F - 80 - 2	-120.4037414	37.24482577	24.8	0.6	2	4.85			
99F - 81 - 0.3	-120.4050286	37.24587413	25.3	0.1	0.3	62.1	1.35		
99F - 81 - 1	-120.4050286	37.24587413	25.0	0.3	1	5.60			
99F - 81 - 2	-120.4050286	37.24587413	24.7	0.6	2	7.67			
99F - 82 - 0.3	-120.4111575	37.25084633	24.4	0.1	0.3	4.50			7.6
99F - 82 - 1	-120.4111575	37.25084633	24.1	0.3	1	1.37			
99F - 82 - 2	-120.4111575	37.25084633	23.8	0.6	2	4.44			

TABLE 1

LEAD ANALYTICAL DATA
 Caltrans - Route 99 Aerially Deposited Lead Investigation
 Merced County, California
 Task Order No. 10-415800-NW
 EA No. 10-415700

Sample Designation	Latitude	Longitude	Altitude (MSL)	Sample Depth (m)	Sample Depth (ft)	Lead			pH
						Total	WET	DI WET	
99F - 83 - 0.3	-120.4133006	37.2526006	23.6	0.1	0.3	3.83			
99F - 83 - 1	-120.4133006	37.2526006	23.3	0.3	1	1.71			
99F - 83 - 2	-120.4133006	37.2526006	23.0	0.6	2	4.84			
99F - 84 - 0.3	-120.4173632	37.25589303	23.5	0.1	0.3	31.4			
99F - 84 - 1	-120.4173632	37.25589303	23.2	0.3	1	33.8			
99F - 84 - 2	-120.4173632	37.25589303	22.9	0.6	2	241	1.57		
99F - 85 - 0.3	-120.4196108	37.25775539	23.8	0.1	0.3	36.6			
99F - 85 - 1	-120.4196108	37.25775539	23.5	0.3	1	118	2.01		7.1
99F - 85 - 2	-120.4196108	37.25775539	23.2	0.6	2	37.3			
99F - 86 - 0.3	-120.4201485	37.25816782	24.1	0.1	0.3	32.5			
99F - 86 - 1	-120.4201485	37.25816782	23.8	0.3	1	40.7			
99F - 86 - 2	-120.4201485	37.25816782	23.5	0.6	2	27.5			
99F - 87 - 0.3	-120.421298	37.25910025	24.4	0.1	0.3	15.6			
99F - 87 - 1	-120.421298	37.25910025	24.1	0.3	1	12.8			
99F - 87 - 2	-120.421298	37.25910025	23.8	0.6	2	24.2			
99F - 88 - 0.3	-120.4080556	37.24795703	24.6	0.1	0.3	126	0.759		
99F - 88 - 1	-120.4080556	37.24795703	24.3	0.3	1	357	1.96	0.157	6.8
99F - 88 - 2	-120.4080556	37.24795703	24.0	0.6	2	76.4	2.53		
99F - 89 - 0.3	-120.4060384	37.24632599	24.6	0.1	0.3	11.2			
99F - 89 - 1	-120.4060384	37.24632599	24.3	0.3	1	13.5			
99F - 89 - 2	-120.4060384	37.24632599	24.0	0.6	2	75.8	4.15		
99F - 90 - 0.3	-120.4045567	37.24511647	24.5	0.1	0.3	73.3	3.63		
99F - 90 - 1	-120.4045567	37.24511647	24.2	0.3	1	93.4	3.29		
99F - 90 - 2	-120.4045567	37.24511647	23.9	0.6	2	11.3			
99F - 91 - 0.3	-120.4026462	37.24355778	26.1	0.1	0.3	99.7	2.23		
99F - 91 - 1	-120.4026462	37.24355778	25.8	0.3	1	4.95			
99F - 91 - 2	-120.4026462	37.24355778	25.5	0.6	2	3.51			
99F - 92 - 0.3	-120.3868538	37.23071117	24.3	0.1	0.3	56.2	0.531		7.6
99F - 92 - 1	-120.3868538	37.23071117	24.0	0.3	1	36.1			
99F - 92 - 2	-120.3868538	37.23071117	23.7	0.6	2	34.0			
99F - 94 - 0.3	-120.3998492	37.24150874	22.3	0.1	0.3	176	0.607		
99F - 94 - 1	-120.3998492	37.24150874	22.0	0.3	1	211	0.457		
99F - 94 - 2	-120.3998492	37.24150874	21.7	0.6	2	157	0.451		
99F - 95 - 0.3	-120.3979467	37.24001747	25.4	0.1	0.3	308	2.52		
99F - 95 - 1	-120.3979467	37.24001747	25.1	0.3	1	4.49			
99F - 95 - 2	-120.3979467	37.24001747	24.8	0.6	2	ND			
99F - 96 - 0.3	-120.397724	37.23985597	25.7	0.1	0.3	2.05			
99F - 96 - 1	-120.397724	37.23985597	25.4	0.3	1	ND			6.9
99F - 97 - 0.3	-120.397303	37.23947587	25.9	0.1	0.3	18.6			
99F - 97 - 1	-120.397303	37.23947587	25.6	0.3	1	26.5			
99F - 97 - 2	-120.397303	37.23947587	25.3	0.6	2	47.2			
99F - 98 - 0.3	-120.3953477	37.2378559	25.2	0.1	0.3	44.2			
99F - 98 - 1	-120.3953477	37.2378559	24.9	0.3	1	38.2			
99F - 98 - 2	-120.3953477	37.2378559	24.6	0.6	2	7.48			
99F - 99 - 0.3	-120.3934944	37.23640487	26.1	0.1	0.3	ND			
99F - 99 - 1	-120.3934944	37.23640487	25.8	0.3	1	14.6			
99F - 99 - 2	-120.3934944	37.23640487	25.5	0.6	2	8.20			
99F - 100 - 0.3	-120.3932068	37.23619098	25.7	0.1	0.3	10.5			6.8
99F - 100 - 1	-120.3932068	37.23619098	25.4	0.3	1	3.50			
99F - 100 - 2	-120.3932068	37.23619098	25.1	0.6	2	10.5			
99F - 101 - 0.3	-120.3911523	37.23443499	24.9	0.1	0.3	3.74			
99F - 101 - 1	-120.3911523	37.23443499	24.6	0.3	1	91.9	0.307		
99F - 101 - 2	-120.3911523	37.23443499	24.3	0.6	2	98.7	0.339		
99F - 102 - 0.3	-120.388948	37.2327042	24.9	0.1	0.3	58.2	1.23		
99F - 102 - 1	-120.388948	37.2327042	24.6	0.3	1	54.7	1.38		
99F - 102 - 2	-120.388948	37.2327042	24.3	0.6	2	21.4			
99F - 103 - 0.3	-120.388839	37.23262332	25.6	0.1	0.3	50.2	0.272		
99F - 103 - 1	-120.388839	37.23262332	25.3	0.3	1	29.3			7.3
99F - 103 - 2	-120.388839	37.23262332	25.0	0.6	2	26.0			

TABLE 1

LEAD ANALYTICAL DATA
 Caltrans - Route 99 Aerially Deposited Lead Investigation
 Merced County, California
 Task Order No. 10-415800-NW
 EA No. 10-415700

Sample Designation	Latitude	Longitude	Altitude (MSL)	Sample Depth (m)	Sample Depth (ft)	Lead			pH
						Total	WET	DI WET	
99F - 104 - 0.3	-120.3868106	37.23090927	26.3	0.1	0.3	51.7	0.712		
99F - 104 - 1	-120.3868106	37.23090927	26.0	0.3	1	15.8			
99F - 104 - 2	-120.3868106	37.23090927	25.7	0.6	2	29.5			
99F - 105 - 0.3	-120.3845687	37.22912931	27.8	0.1	0.3	13.4			
99F - 105 - 1	-120.3845687	37.22912931	27.5	0.3	1	208	0.515		
99F - 105 - 2	-120.3845687	37.22912931	27.2	0.6	2	22.1			
99F - 106 - 0.3	-120.3842905	37.22889805	27.7	0.1	0.3	33.1			
99F - 106 - 1	-120.3842905	37.22889805	27.4	0.3	1	10.1			
99F - 106 - 2	-120.3842905	37.22889805	27.1	0.6	2	7.02			7.6
99F - 107 - 0.3	-120.3820944	37.22705996	27.3	0.1	0.3	20.7			
99F - 107 - 1	-120.3820944	37.22705996	27.0	0.3	1	76.3	ND		
99F - 107 - 2	-120.3820944	37.22705996	26.7	0.6	2	22.2			
99F - 108 - 0.3	-120.3797849	37.22524827	27.1	0.1	0.3	99.3	1.50		
99F - 108 - 1	-120.3797849	37.22524827	26.8	0.3	1	34.4			
99F - 108 - 2	-120.3797849	37.22524827	26.5	0.6	2	108	1.03		
99F - 109 - 0.3	-120.3781647	37.22386232	27.2	0.1	0.3	32.7			
99F - 109 - 1	-120.3781647	37.22386232	26.9	0.3	1	36.2			
99F - 109 - 2	-120.3781647	37.22386232	26.6	0.6	2	66.6	2.76		
99F - 110 - 0.3	-120.3760841	37.22217319	27.7	0.1	0.3	50.4	0.330		7.8
99F - 110 - 1	-120.3760841	37.22217319	27.4	0.3	1	7.59			
99F - 110 - 2	-120.3760841	37.22217319	27.1	0.6	2	2.80			
99F - 111 - 0.3	-120.3742573	37.22072762	28.8	0.1	0.3	25.2			
99F - 111 - 1	-120.3742573	37.22072762	28.5	0.3	1	26.3			
99F - 111 - 2	-120.3742573	37.22072762	28.2	0.6	2	11.9			
99F - 112 - 0.3	-120.3741439	37.22062102	28.5	0.1	0.3	11.4			
99F - 112 - 1	-120.3741439	37.22062102	28.2	0.3	1	11.7			
99F - 112 - 2	-120.3741439	37.22062102	27.9	0.6	2	8.19			
99F - 113 - 0.3	-120.3690333	37.21647913	29.0	0.1	0.3	30.8			
99F - 113 - 1	-120.3690333	37.21647913	28.7	0.3	1	40.7			7.5
99F - 113 - 2	-120.3690333	37.21647913	28.4	0.6	2	36.1			
99F - 114 - 0.3	-120.3689104	37.21640744	29.1	0.1	0.3	46.5			
99F - 114 - 1	-120.3689104	37.21640744	28.8	0.3	1	36.3			
99F - 114 - 2	-120.3689104	37.21640744	28.5	0.6	2	38.2			
99F - 115 - 0.3	-120.3668889	37.2146736	28.9	0.1	0.3	14.1			
99F - 115 - 1	-120.3668889	37.2146736	28.6	0.3	1	10.8			
99F - 115 - 2	-120.3668889	37.2146736	28.3	0.6	2	89.5	2.21		
99F - 116 - 0.3	-120.3647216	37.21298613	29.9	0.1	0.3	40.5			
99F - 116 - 1	-120.3647216	37.21298613	29.6	0.3	1	4.45			
99F - 116 - 2	-120.3647216	37.21298613	29.3	0.6	2	8.77			7.1
99F - 117 - 0.3	-120.3635845	37.21241028	30.1	0.1	0.3	13.7			
99F - 117 - 1	-120.3635845	37.21241028	29.8	0.3	1	19.2			
99F - 117 - 2	-120.3635845	37.21241028	29.5	0.6	2	4.62			
99F - 118 - 0.3	-120.3634337	37.2123321	30.2	0.1	0.3	12.4			
99F - 118 - 1	-120.3634337	37.2123321	29.9	0.3	1	4.13			
99F - 118 - 2	-120.3634337	37.2123321	29.6	0.6	2	4.83			
99F - 119 - 0.3	-120.3581884	37.2083379	30.1	0.1	0.3	81.1	2.05		
99F - 119 - 1	-120.3581884	37.2083379	29.8	0.3	1	114	3.09		
99F - 119 - 2	-120.3581884	37.2083379	29.5	0.6	2	46.3			
99F - 120 - 0.3	-120.3580789	37.20824378	29.8	0.1	0.3	44.5			6.8
99F - 120 - 1	-120.3580789	37.20824378	29.5	0.3	1	170	3.29		
99F - 120 - 2	-120.3580789	37.20824378	29.2	0.6	2	102	3.87		
99F - 121 - 0.3	-120.354844	37.20562896	31.1	0.1	0.3	8.01			
99F - 121 - 1	-120.354844	37.20562896	30.8	0.3	1	6.48			
99F - 121 - 2	-120.354844	37.20562896	30.5	0.6	2	80.1	0.546		
99F - 122 - 0.3	-120.3547167	37.20552981	31.3	0.1	0.3	241	35.6	0.168	6.6
99F - 122 - 1	-120.3547167	37.20552981	31.0	0.3	1	286	7.58	0.269	7.3
99F - 122 - 2	-120.3547167	37.20552981	30.7	0.6	2	18.7			
99F - 123 - 0.3	-120.352424	37.20363275	32.2	0.1	0.3	5.12			
99F - 123 - 1	-120.352424	37.20363275	31.9	0.3	1	18.7			
99F - 123 - 2	-120.352424	37.20363275	31.6	0.6	2	ND			

TABLE 1

LEAD ANALYTICAL DATA

Caltrans - Route 99 Aerially Deposited Lead Investigation
 Merced County, California
 Task Order No. 10-415800-NW
 EA No. 10-415700

Sample Designation	Latitude	Longitude	Altitude (MSL)	Sample Depth (m)	Sample Depth (ft)	Lead			pH
						Total	WET	DI WET	
99F - 124 - 0.3	-120.3500886	37.20106208	30.8	0.1	0.3	31.9			
99F - 124 - 1	-120.3500886	37.20106208	30.5	0.3	1	28.5			
99F - 124 - 2	-120.3500886	37.20106208	30.2	0.6	2	11.2			
99F - 125 - 0.3	-120.3486812	37.19991826	31.8	0.1	0.3	21.7			
99F - 125 - 1	-120.3486812	37.19991826	31.5	0.3	1	17.8			
99F - 125 - 2	-120.3486812	37.19991826	31.2	0.6	2	4.91			
99F - 126 - 0.3	-120.3484818	37.19980345	31.5	0.1	0.3	11.0			
99F - 126 - 1	-120.3484818	37.19980345	31.2	0.3	1	23.1			
99F - 126 - 2	-120.3484818	37.19980345	30.9	0.6	2	12.9			
99F - 127 - 0.3	-120.3476845	37.19908222	30.8	0.1	0.3	12.4			
99F - 127 - 1	-120.3476845	37.19908222	30.5	0.3	1	19.5			
99F - 127 - 2	-120.3476845	37.19908222	30.2	0.6	2	1.92			
99F - 128 - 0.3	-120.3476365	37.19911065	30.1	0.1	0.3	1.96			
99F - 128 - 1	-120.3476365	37.19911065	29.8	0.3	1	2.34			
99F - 128 - 2	-120.3476365	37.19911065	29.5	0.6	2	71.3	0.827		
99F - 129 - 0.3	-120.3498265	37.20122959	29.8	0.1	0.3	9.16			
99F - 129 - 1	-120.3498265	37.20122959	29.5	0.3	1	25.8			
99F - 129 - 2	-120.3498265	37.20122959	29.2	0.6	2	28.3			
99F - 130 - 0.3	-120.3512974	37.20272488	29.2	0.1	0.3	36.1			7.5
99F - 130 - 1	-120.3512974	37.20272488	28.9	0.3	1	7.61			
99F - 130 - 2	-120.3512974	37.20272488	28.6	0.6	2	6.60			
99F - 131 - 0.3	-120.3649829	37.21348071	29.2	0.1	0.3	45.4			
99F - 131 - 1	-120.3649829	37.21348071	28.9	0.3	1	6.21			
99F - 131 - 2	-120.3649829	37.21348071	28.6	0.6	2	3.49			
99F - 132 - 0.3	-120.3674417	37.21528146	28.7	0.1	0.3	7.73			
99F - 132 - 1	-120.3674417	37.21528146	28.4	0.3	1	12.8			
99F - 132 - 2	-120.3674417	37.21528146	28.1	0.6	2	4.39			
99F - 133 - 0.3	-120.3694076	37.21688214	28.1	0.1	0.3	56.8	0.847		
99F - 133 - 1	-120.3694076	37.21688214	27.8	0.3	1	5.04			7.0
99F - 133 - 2	-120.3694076	37.21688214	27.5	0.6	2	6.39			
99F - 134 - 0.3	-120.3714391	37.21853232	27.9	0.1	0.3	8.54			
99F - 134 - 1	-120.3714391	37.21853232	27.6	0.3	1	3.44			
99F - 134 - 2	-120.3714391	37.21853232	27.3	0.6	2	8.54			
99F - 135 - 0.3	-120.3768631	37.22295014	27.0	0.1	0.3	72.0	1.55		
99F - 135 - 1	-120.3768631	37.22295014	26.7	0.3	1	4.09			
99F - 135 - 2	-120.3768631	37.22295014	26.4	0.6	2	4.11			
99F - 136 - 0.3	-120.3788668	37.22458375	27.6	0.1	0.3	14.0			
99F - 136 - 1	-120.3788668	37.22458375	27.3	0.3	1	5.16			
99F - 136 - 2	-120.3788668	37.22458375	27.0	0.6	2	3.25			7.5
99F - 137 - 0.3	-120.3808416	37.22619134	27.5	0.1	0.3	107	1.46		
99F - 137 - 1	-120.3808416	37.22619134	27.2	0.3	1	5.88			
99F - 137 - 2	-120.3808416	37.22619134	26.9	0.6	2	6.35			
99F - 138 - 0.3	-120.3829398	37.22789532	27.6	0.1	0.3	16.9			
99F - 138 - 1	-120.3829398	37.22789532	27.3	0.3	1	3.17			
99F - 138 - 2	-120.3829398	37.22789532	27.0	0.6	2	74.6	ND		
99F - 139 - 0.3	-120.3854114	37.22990574	27.4	0.1	0.3	61.1	0.863		
99F - 139 - 1	-120.3854114	37.22990574	27.1	0.3	1	4.51			
99F - 139 - 2	-120.3854114	37.22990574	26.8	0.6	2	8.06			
99F - 140 - 0.3	-120.3875326	37.23162717	27.2	0.1	0.3	15.1			6.9
99F - 140 - 1	-120.3875326	37.23162717	26.9	0.3	1	6.83			
99F - 140 - 2	-120.3875326	37.23162717	26.6	0.6	2	17.3			
99F - 141 - 0.3	-120.3902599	37.23384704	26.6	0.1	0.3	79.3	ND		
99F - 141 - 1	-120.3902599	37.23384704	26.3	0.3	1	9.99			
99F - 141 - 2	-120.3902599	37.23384704	26.0	0.6	2	5.88			
99F - 142 - 0.3	-120.392246	37.23546178	27.1	0.1	0.3	5.92			
99F - 142 - 1	-120.392246	37.23546178	26.8	0.3	1	1.97			
99F - 142 - 2	-120.392246	37.23546178	26.5	0.6	2	4.59			
99F - 143 - 0.3	-120.3942005	37.23706321	27.1	0.1	0.3	92.8	ND		
99F - 143 - 1	-120.3942005	37.23706321	26.8	0.3	1	2.80			6.7
99F - 143 - 2	-120.3942005	37.23706321	26.5	0.6	2	4.26			
99F - 144 - 0.3	-120.396215	37.23869057	27.1	0.1	0.3	36.8			
99F - 144 - 1	-120.396215	37.23869057	26.8	0.3	1	30.8			
99F - 144 - 2	-120.396215	37.23869057	26.5	0.6	2	13.8			

TABLE 1

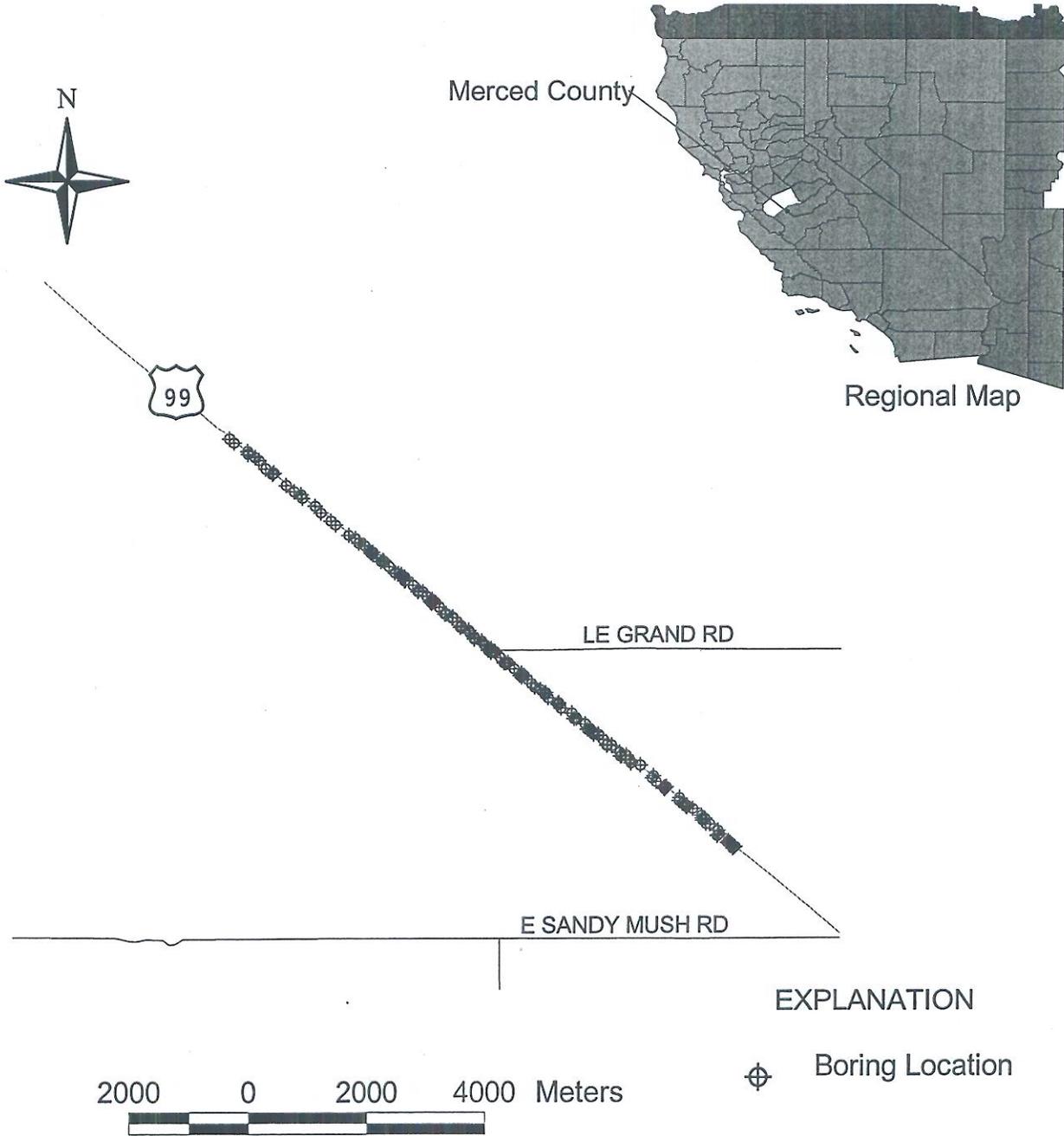
LEAD ANALYTICAL DATA
 Caltrans - Route 99 Aerially Deposited Lead Investigation
 Merced County, California
 Task Order No. 10-415800-NW
 EA No. 10-415700

Sample Designation	Latitude	Longitude	Altitude (MSL)	Sample Depth (m)	Sample Depth (ft)	Lead			pH
						Total	WET	DI WET	
99F - 145 - 0.3	-120.3984097	37.2404713	26.0	0.1	0.3	48.9			
99F - 145 - 1	-120.3984097	37.2404713	25.7	0.3	1	ND			
99F - 145 - 2	-120.3984097	37.2404713	25.4	0.6	2	17.9			
TTL						1,000			
STL							5		
Reporting Limits						1.0	0.050	0.010	

Notes:

1. Lead analysis conducted in general accordance with U.S. Environmental Protection Agency (EPA) Series 6010. pH analysis conducted in general accordance with EPA Method 9045.
2. Sample depths reported in approximate meters (m) / feet (ft) below the ground surface.
3. TTL = total threshold limit concentration. STL = soluble threshold limit concentration. WET = waste extraction test. DI WET = WET with deionized water extraction solution.
4. WET conducted in general accordance with California Title 22 procedures.
5. Total metal results reported in milligrams per kilogram. WET and DI WET results reported in milligrams per liter.
6. Soil samples labeled as follows: route-boring no.-depth. Ex.: 99F-001-0.3 - State Route 99, boring 001, 0.3-meter depth.
7. For total results, bold results exceed 10 times the STL (50 mg/kg) and italics results exceed 350 mg/kg.
8. For WET results, bold results exceed the STL.
9. ND = not detected above reporting limit.
10. Latitude and longitude converted to decimal format.
11. Altitude reported in approximate meters above mean sea level (MSL).

Caltrans State Route Upgrade Project
Merced County, California
Task Order: 10-415800-NW

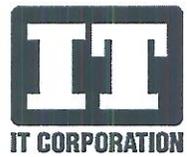


EXPLANATION
⊕ Boring Location

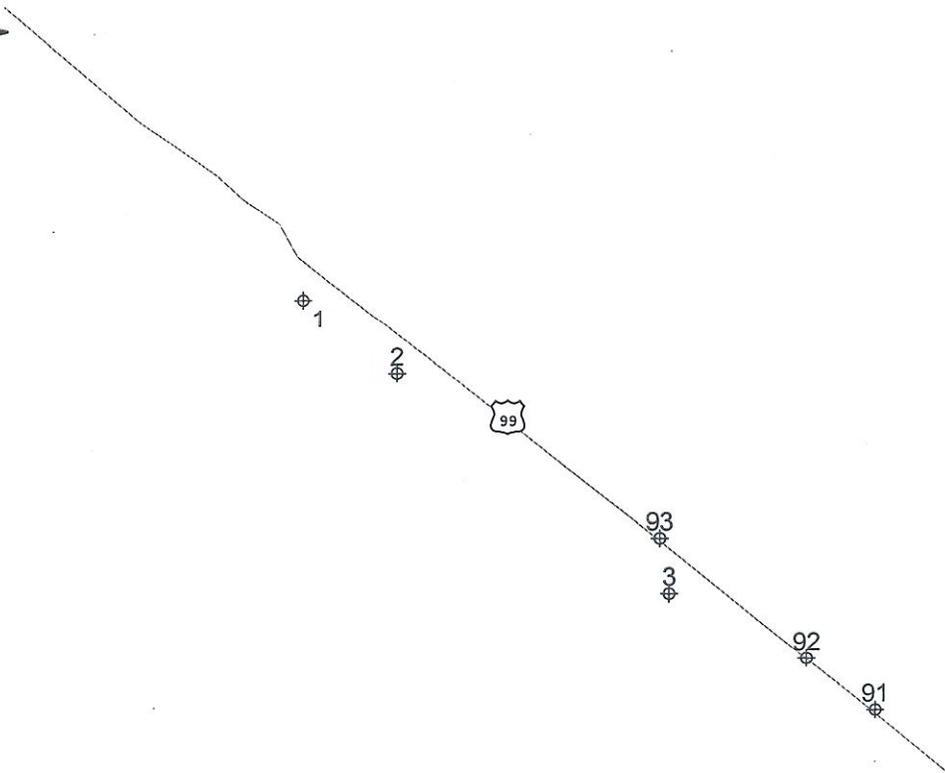
2000 0 2000 4000 Meters

Scale 1:152,000

Figure 1.
Site Location and
Regional Map



Caltrans State Route Upgrade Project
Merced County, California
Task Order: 10-415800-NW



100 0 100 200 Meters



Scale 1:10,000

EXPLANATION

 Boring Location

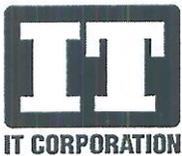
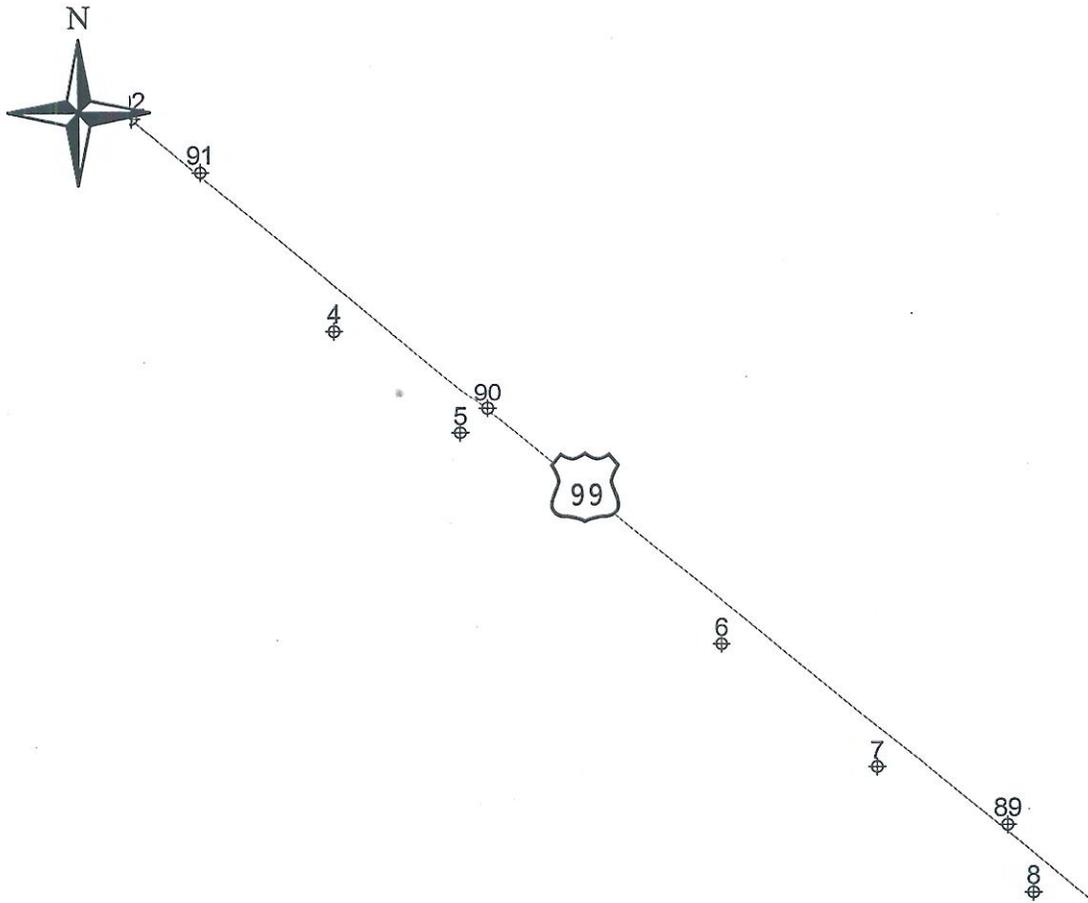


Figure 2.
Boring Locations

Caltrans State Route Upgrade Project
Merced County, California
Task Order: 10-415800-NW



100 0 100 200 Meters

Scale 1:10,000

EXPLANATION

⊕ Boring Location

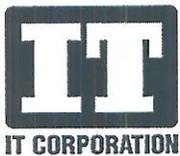
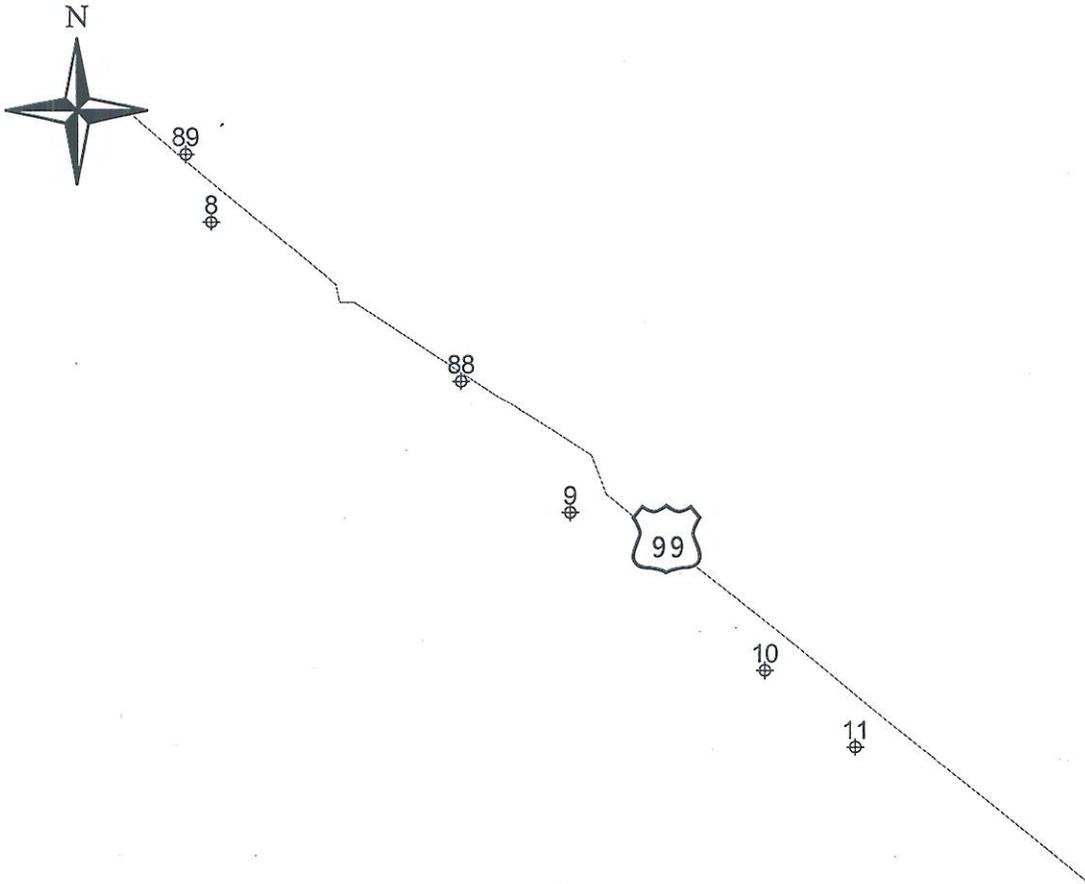


Figure 3.
Boring Locations

Caltrans State Route Upgrade Project
Merced County, California
Task Order: 10-415800-NW



100 0 100 200 Meters

Scale 1:10,000

EXPLANATION

 Boring Location

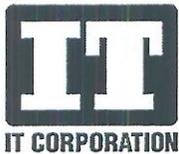
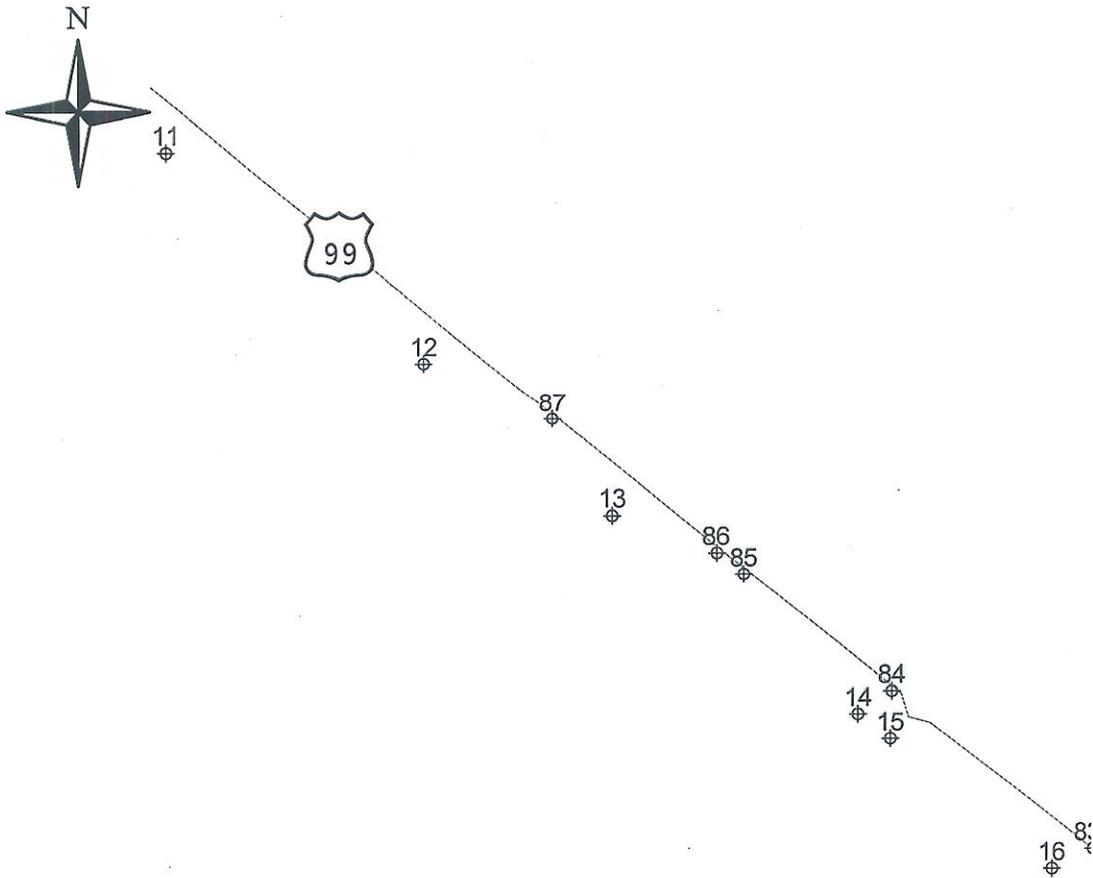


Figure 4.
Boring Locations

Caltrans State Route Upgrade Project
Merced County, California
Task Order: 10-415800-NW



100 0 100 200 Meters

Scale 1:10,000

EXPLANATION

 Boring Location

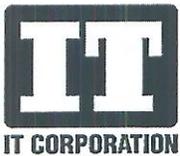
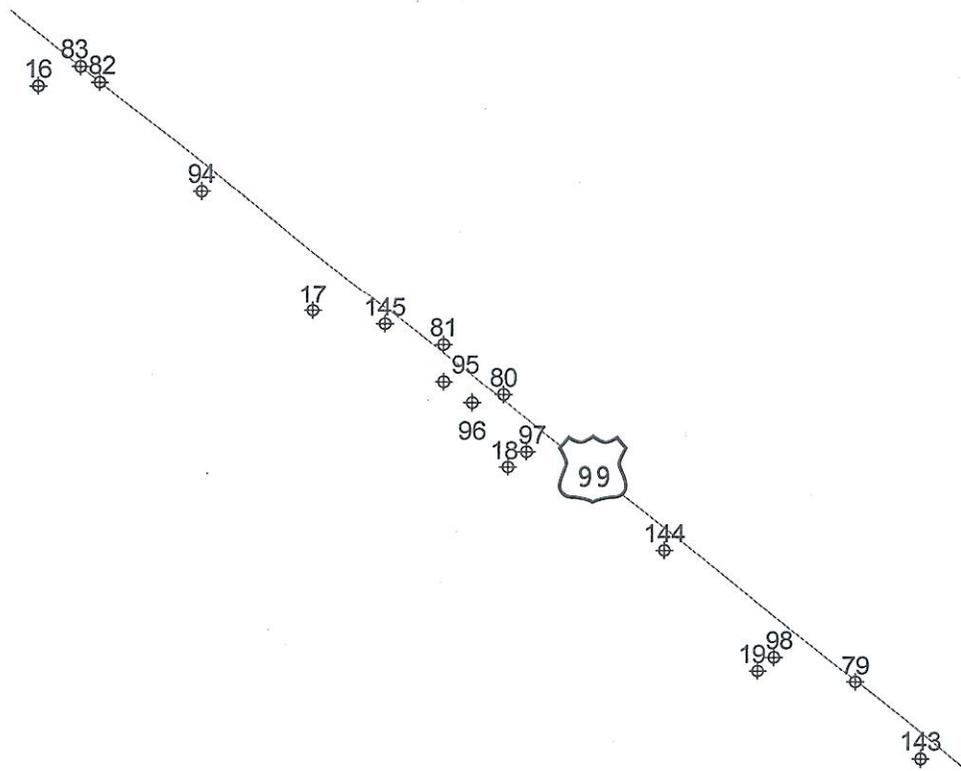


Figure 5.
Boring Locations

Caltrans State Route Upgrade Project
Merced County, California
Task Order: 10-415800-NW



100 0 100 200 Meters

Scale 1:10,000

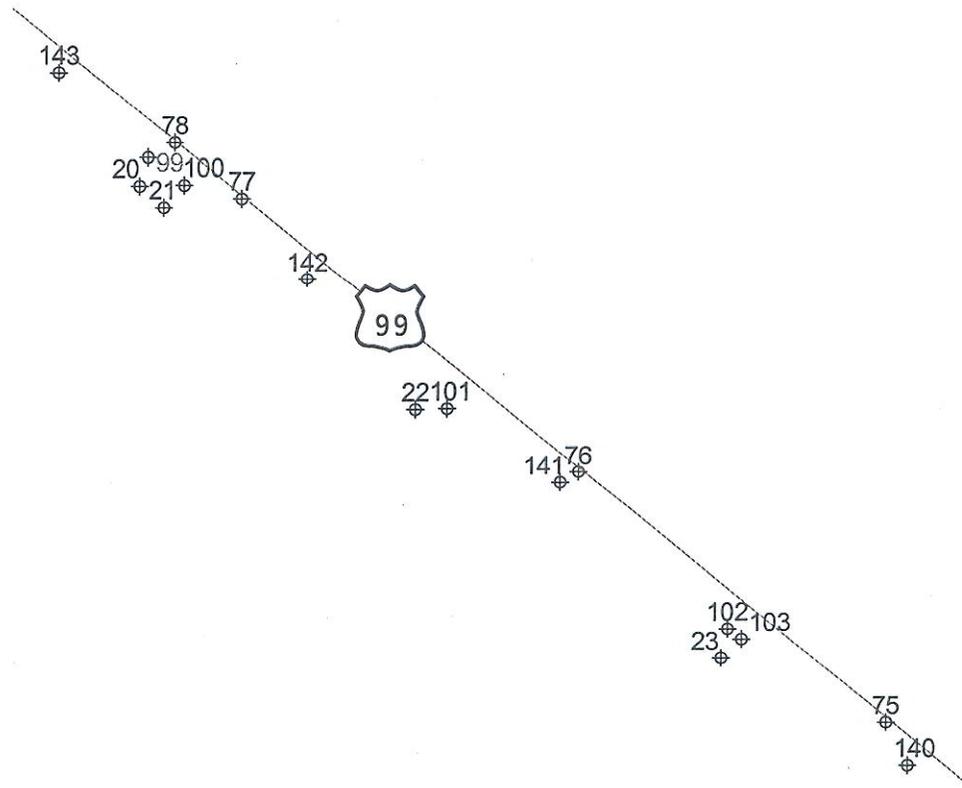
EXPLANATION

⊕ Boring Location



Figure 6.
Boring Locations

Caltrans State Route Upgrade Project
Merced County, California
Task Order: 10-415800-NW



Scale 1:10,000

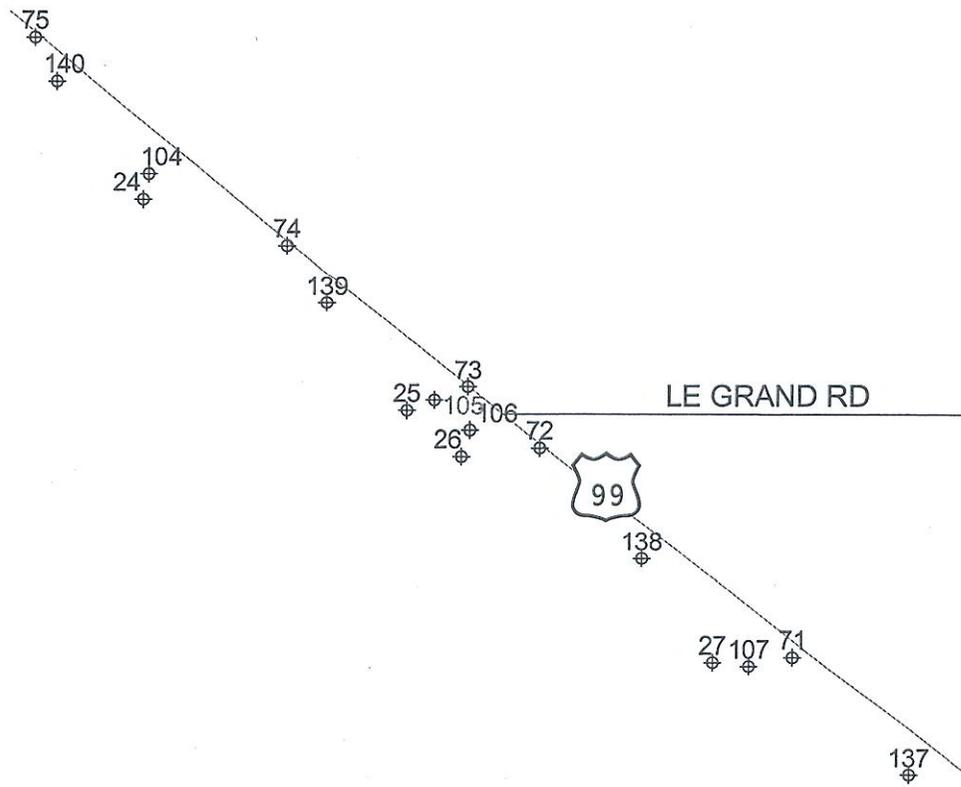
EXPLANATION

⊕ Boring Location



Figure 7.
Boring Locations

Caltrans State Route Upgrade Project
Merced County, California
Task Order: 10-415800-NW



Scale 1:10,000

EXPLANATION

⊕ Boring Location

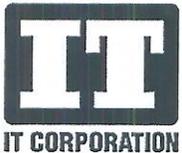
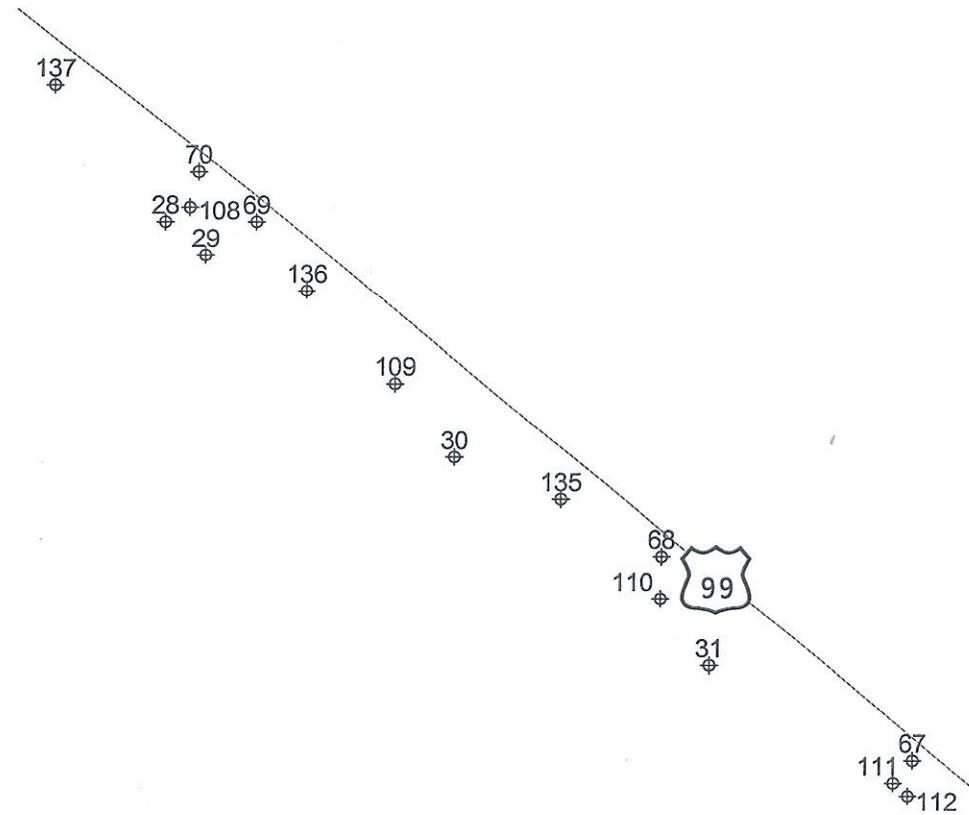


Figure 8.
Boring Locations

Caltrans State Route Upgrade Project
Merced County, California
Task Order: 10-415800-NW



Scale 1:10,000

EXPLANATION

 Boring Location

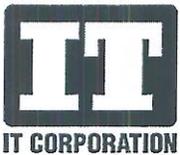
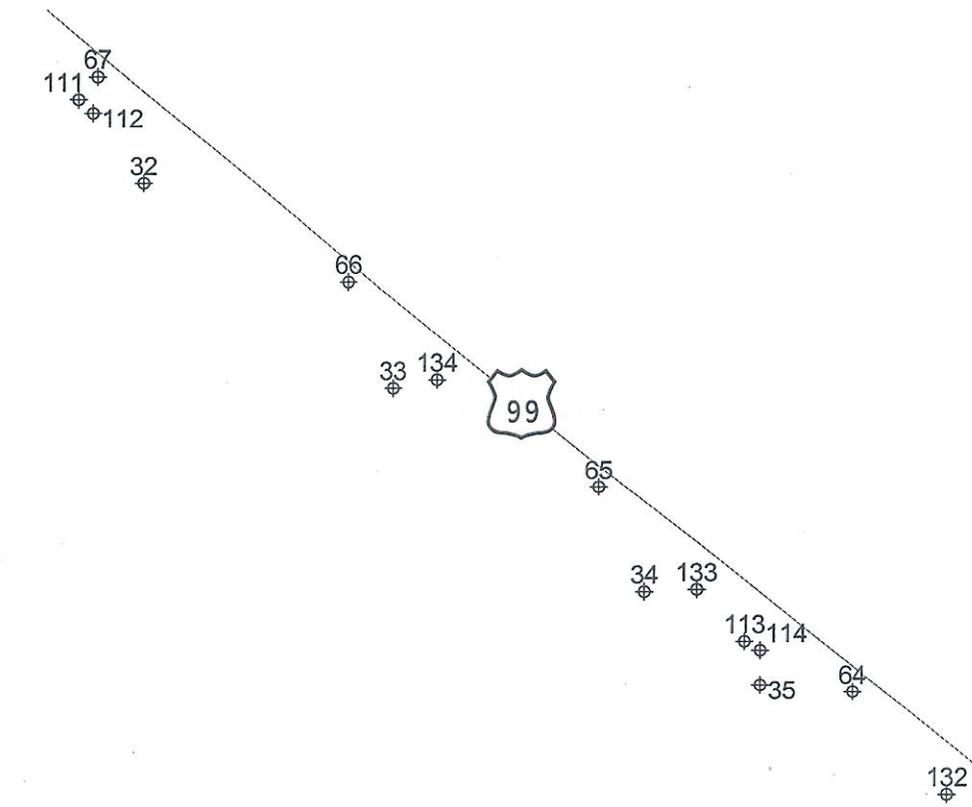


Figure 9.
Boring Locations

Caltrans State Route Upgrade Project
Merced County, California
Task Order: 10-415800-NW



Scale 1:10,000

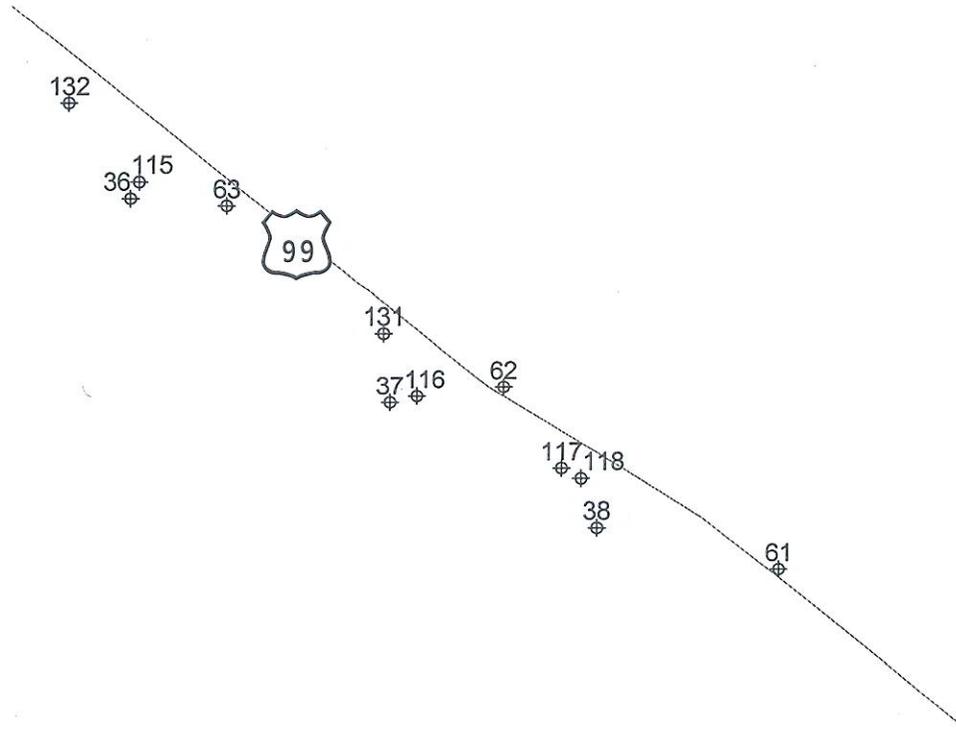
EXPLANATION

 Boring Location



Figure 10.
Boring Locations

Caltrans State Route Upgrade Project
Merced County, California
Task Order: 10-415800-NW



Scale 1:10,000

EXPLANATION

⊕ Boring Location

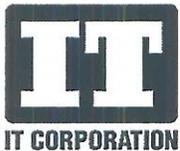
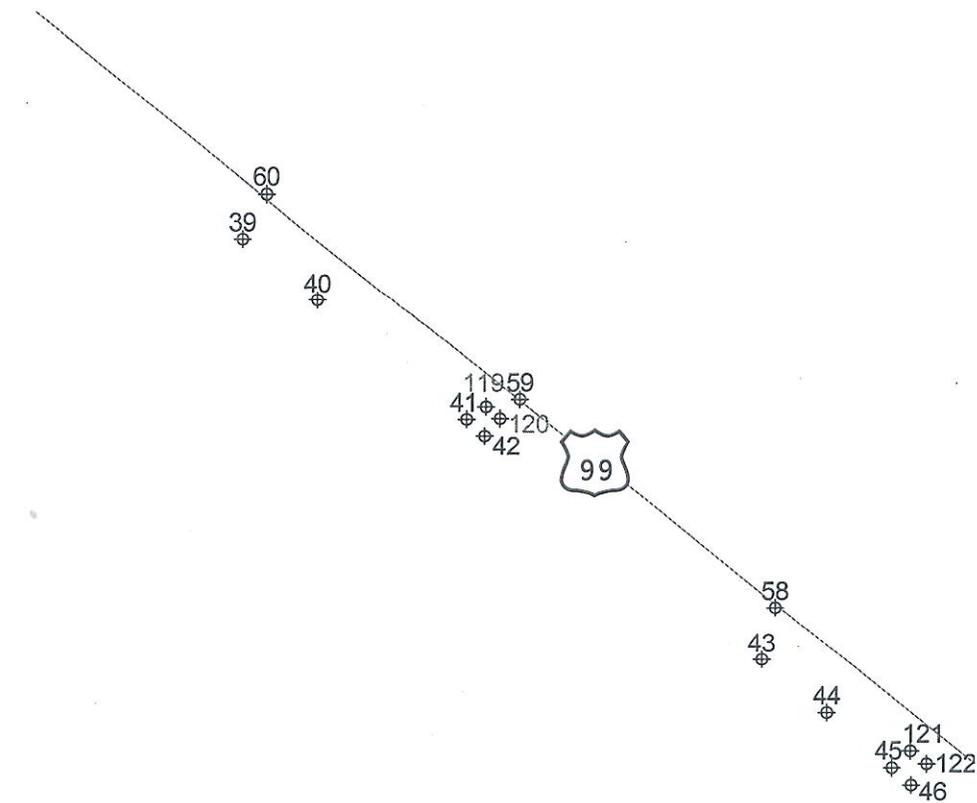


Figure 11.
Boring Locations

Caltrans State Route Upgrade Project
Merced County, California
Task Order: 10-415800-NW



Scale 1:10,000

EXPLANATION

⊕ Boring Location

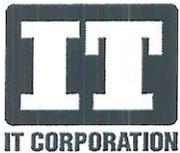
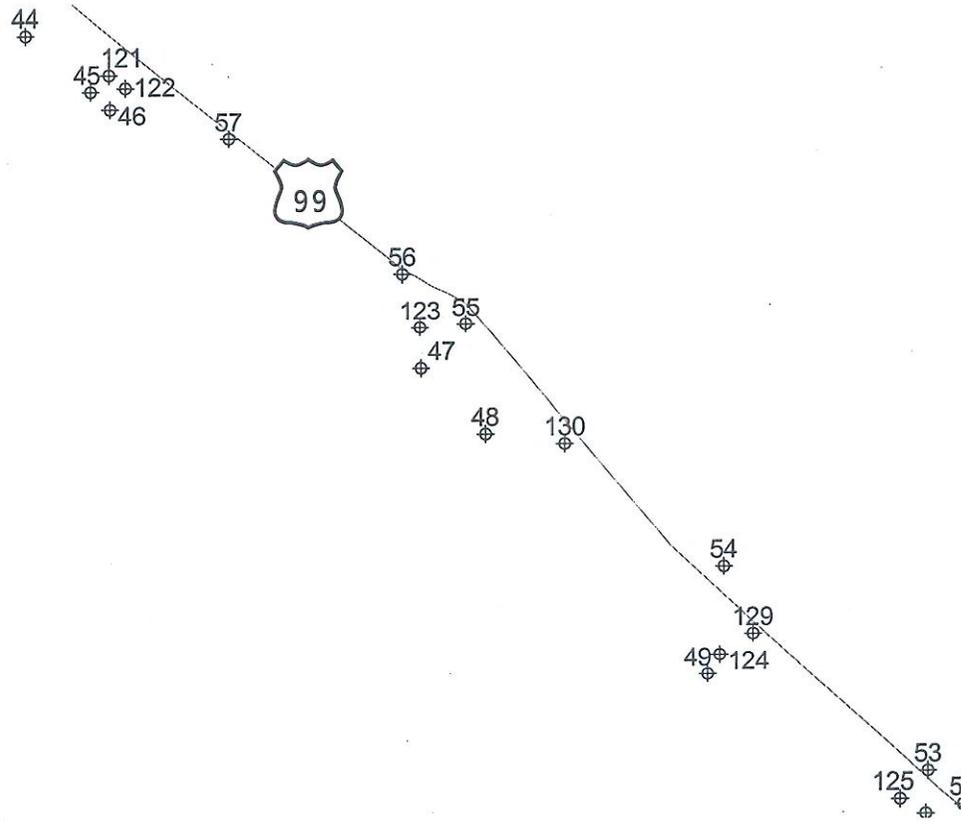


Figure 12.
Boring Locations

Caltrans State Route Upgrade Project
Merced County, California
Task Order: 10-415800-NW



Scale 1:10,000

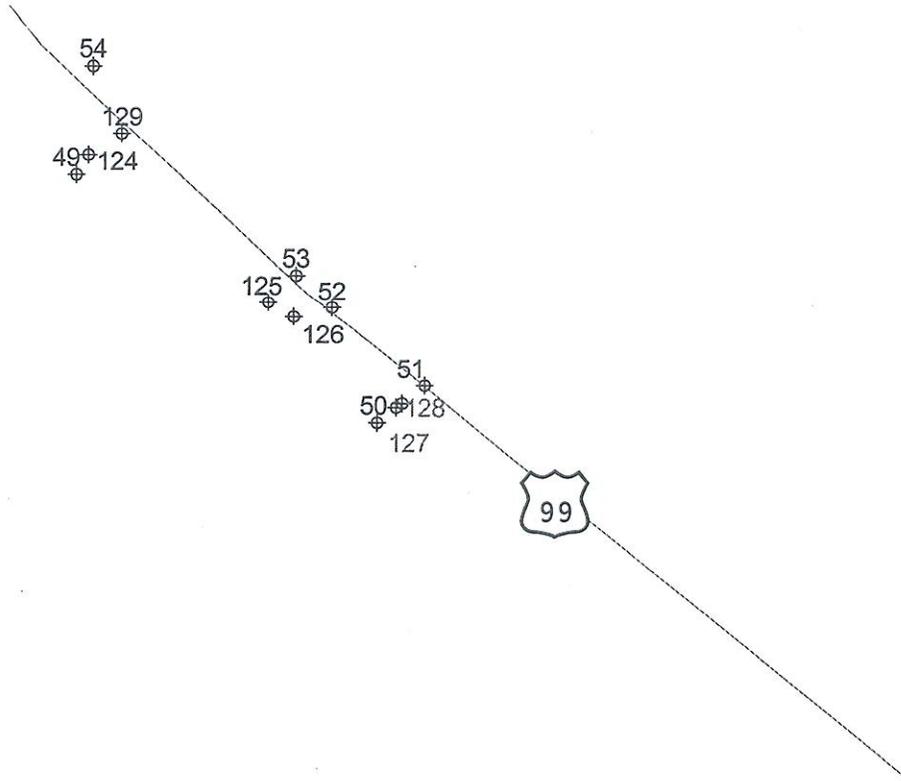
EXPLANATION

⊕ Boring Location



Figure 13.
Boring Locations

Caltrans State Route Upgrade Project
Merced County, California
Task Order: 10-415800-NW



Scale 1:10,000

EXPLANATION

⊕ Boring Location



Figure 14.
Boring Locations

Memorandum

*Flex your power!
Be energy efficient!*

To: DAN ADAMS
Chief
Bridge Design Branch 10
Office of Bridge Design – South 2
Division of Engineering Services

Attention: Larry Wu

Date: June 7, 2012

File: 10-MER-99-0.0/4.9
EA: 10-415801
Dutchman Creek Bridge
39-0238 (L/R)
(new)

From: DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES – MS 5

Subject: Addendum to Foundation Recommendations

Per your request, we are providing an addendum to the foundation recommendations for the bridge project referenced above. The original foundation report was dated March 4, 2009. This bridge is part of the Plainsburg/Sandy Mush Interchange project. This revision is due a pile type change to maintain consistency in materials across several projects and a reevaluation of the abutment piles based on drill rig efficiencies.

Revised Geotechnical Recommendations

The original recommendation specified pre-cast/pre-stressed concrete piles at the Bent 2 and 3 locations. In order facilitate construction it is intended to change this pile type to 16-inch diameter Cast-In-Steel-Shell (CISS) piles. Table 3 is a revision of the original foundation report and provides updated Pile Data Table information.

Table 3. Revised Pile Data Table

Support Location	Pile Type (ft)	Nominal Resistance (kips)		Design Tip Elevations (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance Required (kips)
		Compression	Tension			
Abut 1	Class 90 Alt. "X"	180	N/A	160.0	160.0	180
Bent 2	CISS NPS 16 X 0.5	250	0	145.0 (a) 155.0 (b)	145.0	270 (2)
Bent 3	CISS NPS 16 X 0.5	250	0	145.0 (a) 155.0 (b)	145.0	270 (2)
Abut 4	Class 90 Alt. "X"	180	N/A	160.0	160.0	180

- Notes: 1) Design tip elevations are controlled by:
(a) compression (Strength Limit), (b) compression (Extreme Event)
2) The additional resistance required is the result of scourable soil layers.
Scourable soil layers at Bents 2 and 3 extend to elevation 205.8

If you have any questions or comments, or need additional information please contact Christopher Koepke at (916) 227-1040.

Report by:




Christopher Koepke, C.E.G.
Engineering Geologist
Office of Geotechnical Design – North
Branch E

cc: (E-copy)

D10 PM – Catey Campora
GS Corporate - Shira Rajendra
R.E., Pending
Structures OE – Rebecca Harnagel
D10 DME – Dave Dhillon

Memorandum

*Flex your power!
Be energy efficient!*

To: DAN ADAMS
Chief
Bridge Design Branch 10
Office of Bridge Design – South 2
Division of Engineering Services

Date: June 7, 2012

File: 10-MER-99-0.0/4.9
EA: 10-415801
Dutchman Creek Bridge
E. Frontage Road
39-0239 (L/R)
(new)

Attention: Larry Wu

From: DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES – MS 5

Subject: Addendum to Foundation Recommendations

Per your request, we are providing an addendum to the foundation recommendations for the bridge project referenced above. The original foundation report was dated March 4, 2009. This bridge is part of the Plainsburg/Sandy Mush Interchange project. This revision is due a pile type change to maintain consistency in materials across several projects and a reevaluation of the abutment piles based on drill rig efficiencies.

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2) The additional resistance required is the result of scourable soil layers.

Dan Adams
June 7, 2012
Page 2

Revised Foundation Report
Dutchman Creek Bridge (39-0239)
E. Frontage Road
EA: 10-415801

Scourable soil layers at Bents 2 and 3 extend to elevation 205.8

If you have any questions or comments, or need additional information please contact Christopher Koepke at (916) 227-1040.

Report by:

Christopher Koepke, C.E.G.
Engineering Geologist
Office of Geotechnical Design – North
Branch E

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