

INFORMATION HANDOUT

For Contract No. 11-416804

At 11-SD-8, 163-2.4, 3.7

Identified by

Project ID 1113000121

MATERIALS INFORMATION

Water Source Letter, January 4, 2016

Foundation Report, November 6, 2015

Aerially Deposited Lead Survey Report, March 26, 2015



THE CITY OF SAN DIEGO

January 4, 2016

Mr. Manuel Reyes
Project Engineer
Department of Transportation District 11
4050 Taylor Street, MS 120
San Diego, CA 92110

Dear Mr. Reyes:

Subject: SR 163 to EB8 Connector (Contract No. 11-416804)

This is in response to your letter dated December 22, 2015 regarding water availability for the above subject project. Based upon the volume and duration of the project you provided, the City of San Diego has sufficient and available potable water capacity to serve your project. There is no recycled water available in this area.

Please note that effective July 1, 2014, the City of San Diego moved to Level 1 Drought Alert per the attached memo dated June 24, 2014 (see attachment 1). The Level 1 Drought Watch Condition lists voluntary water conservation measures that are added to the City's existing permanent restrictions. Additionally, effective November 1, 2014, the City of San Diego enacted a Drought Alert status, the second phase of citywide conservation that calls for mandatory water use restrictions in response to the severe drought conditions statewide (see attachment 2). In addition to all the conservation measures, on June 1, 2015, San Diego was required by the State of California to cut water use by another 16%.

Please also note that utilizing existing potable water and/or irrigation meters City-wide will be subject to any City of San Diego City Council drought actions to conserve water, if enacted by City Council.

If you have any questions, please call me at 619-446-5420 or email me at Mrastakhiz@sandiego.gov.

Sincerely,

Mehdi Rastakhiz, PE
Associate Civil Engineer
Development Services Department
Water and Sewer Development Review
1222 First Avenue, MS 401
San Diego, CA 92101

Attachment 1: Level 1 Drought Alert memo dated June 24, 2014

Attachment 2: Drought Alert status, the second phase of citywide mandatory water use restrictions
Dated, October 21, 2014





THE CITY OF SAN DIEGO

MEMORANDUM

DATE: June 24, 2014

TO: All Department Directors

FROM: Halla Razak, Director of Public Utilities

SUBJECT: Level 1 Drought Alert starting July 1, 2014

The City of San Diego was in a Stage 2 Drought Alert Condition from June 1, 2009, through May 26, 2011. During that time, City departments played a vital role in saving water and setting a good example for the citizens in our community. During the height of that drought, City departments reduced metered water consumption by 31.4% from pre-drought levels.

The City Council recently approved moving the City to a Level 1 Drought Watch Condition starting July 1, 2014. This memo is provided to assist Departments in identifying water saving opportunities, creating water conservation plans and complying with permanent and voluntary water use regulations.

PRIOR WATER CONSERVATION EFFORTS

From 1992 to 1999, the Water Department implemented a City Facilities Retrofit Program that installed more than 2,384 ultra-low flush toilets and 702 urinals in 494 City owned and operated facilities. The City wanted to show its commitment to water conservation by installing the water conserving plumbing fixtures in our own facilities. That program was completed in 1999 and the biggest retrofit job, that of Qualcomm Stadium in 1998 (365 toilets and 196 urinals) in time for Super Bowl XXXII, was used in a national water conservation publication/article.

The Public Utilities Department has also worked for many years with the Park and Recreation Department to create water use budgets for City parks. Water budgets are estimates of how much water existing landscapes need based on weather information, plant watering needs, type of soil and irrigation systems used, and these estimates are translated into run times per irrigation valve to allow them to use water efficiently. Throughout the last drought, Park and Recreation staff closely monitored water consumption in all its irrigated areas, and this diligence was evident in the achieved 31% water use reduction.

PERMANENT WATER USE RESTRICTIONS

Before the City lifted Level 2 mandatory restrictions in 2011, City Council and City staff agreed that some of these restrictions should remain in place. Hence the San Diego Municipal Code Section SDMC §67.3803 was revised to reflect the permanent water use restrictions that are in effect every day in San Diego. These include the following limitations:

- a) No runoff/excessive irrigation leaving the property;
- b) Repair leaks upon discovery or within seventy-two hours of notification;
- c) No watering of paved areas;
- d) No overfilling swimming pools and spas;
- e) No non-recirculating decorative water fountains;
- f) Car washing only in a commercial car wash or using a hose with shutoff nozzle or a bucket;
- g) New buildings must recycle cooling system water and car wash water;
- h) Restaurants will only serve and refill water upon request;
- i) Hotel guests must have the option of not laundering towels and linens daily; and
- j) No watering after 10 am and before 4 pm (winter)/before 6 pm (summer).

Please ensure that staff within your Department is aware of these permanent water use restrictions.

VOLUNTARY WATER USE RESTRICTIONS

The Level 1 Drought Watch Condition lists voluntary water conservation measures that are added to the City's existing permanent water restrictions. These voluntary measures go into effect on July 1, 2014. Although these measures are voluntary for citizens, it is advised that City Departments take the lead and treat them as mandatory:

- 1) Landscape irrigation limited to three days per week;
- 2) When watering without an irrigation system a shut-off nozzle or garden hose sprinkler system on a timer is required;
- 3) Washing vehicles limited to the same schedule as irrigation (except for: boats which may be washed after use; vehicles with health/safety issues; at a commercial carwash that recycles water);
- 4) Use recycled or non-potable water for construction purposes;

- 5) Fire hydrants for firefighting only;
- 6) Construction operations can use water only as required by regulatory agencies; and
- 7) Irrigation is not permitted during rain event.

RECOMMENDED CONSERVATION MEASURES

Indoor Water Use

If the facility is one of those that received water conserving plumbing fixtures through the City Facilities Retrofit Program, City staff can inspect these fixtures for proper operation and leaks. Self-closing faucets should shut off after a determined amount of seconds. Make sure the valves are not sticking, which would prevent the faucet from shutting off automatically. If faucet aerators have been removed, install new ones that use 1.0 gallons per minute. If the facility has tank style toilets, place dye tablets or food coloring inside the tank and observe if the coloring makes it way to the bowl. This would indicate a leak and would require an adjustment or replacement of the toilet flapper mechanism. Always repair leaks, as even small ones can waste hundreds of gallons of water.

If the facility still has high volume plumbing fixtures, replace them with water efficient ones, such as high-efficiency toilets and urinals, and faucets with self-closing features. There may be some incentives available for replacing these older fixtures. Check with the Water Conservation Program (Luis Generoso at 619-533-5258) for up-to-date information on incentives for public facilities.

Here are a few other measures City staff can take:

- Increase employee awareness of the need to conserve water. The Water Conservation Program (contact Luis Generoso at 619-533-5258) has various brochures and reference materials that can help you.
- Install signs encouraging water conservation in employee and customer restrooms.
- Assign an employee to monitor water use and waste within the facility. Read your water meter weekly to monitor the success of your water conservation efforts, and to detect leaks. Monitor water usage when reviewing water bills. Information on your historic water usage can be obtained calling our Water Conservation Program.
- Check for obvious leaks, where there are consistent water puddles.
- Repair dripping faucets and showers, and continuously running toilets.
- Install faucet aerators where possible.
- Shut off water supply to equipment rooms not in use.
- Shut off cooling equipment when not in use, and minimize water used in cooling units. There may be a need to replace the cooling tower conductivity controller. Check for incentives offered for these controllers.
- Review rebates available in Southern California at <http://www.bewaterwise.com>.

If there are other function areas like cafeterias/food preparation areas, please contact our Water Conservation Program for tips on how to conserve water specific to those areas.

Outdoor Consumption

Significant water savings can be realized if attention is given to how much water we use outdoors. Here are things City staff can readily implement to help reduce outdoor water consumption:

- Stop hosing down sidewalks, driveways and parking lots. If you need to do so for health and safety reasons, consider using a water broom or a water efficient power washer. For more information, visit our website at www.sandiego.gov/water/conservation.
- Operate your irrigation system to water before 10 a.m. or after 6:00 p.m. to minimize water loss from evaporation or windy conditions.
- Water landscape only when needed. Usually two to three times a week is sufficient. Or you can use the Landscape Watering Calculator at the website mentioned above to prepare a water efficient irrigation schedule based on your plants watering needs, weather date, soil type, and irrigation system used. This easy-to-use tool developed by the Public Utilities Department has been recognized with multiple awards, and is endorsed by a number of landscape industry professionals.
- Consider installing a weather based irrigation controller. These “smart controllers” automatically adjust irrigation run times as the season/weather changes and can shut off your system when it rains. Check with our Water Conservation Program for incentives that may be available.
- Make sure your sprinklers irrigate only the landscape area and not driveways and parking lots. Avoid irrigation runoff that causes storm water pollution.
- Do not water on windy days.
- Should landscape conversion be an option, consider water efficient plants and irrigation systems. These plants provide color and beauty, and the plant choices are numerous. Check our website or visit the Water Conservation Garden at Cuyamaca College (www.thegarden.org) for more information. Rebates for landscape and irrigation system conversions are also available.

More information on how you can save water at home and at work can be found on the following websites:

City of San Diego
<http://www.WasteNoWater.org>

San Diego County Water Authority
<http://www.sdcwa.org/whenindrought>

Metropolitan Water District of Southern California
<http://www.bewaterwise.com/>

Page 5
All Department Directors
June 24, 2014

RECYCLED WATER OPTION

If the facility is located along the existing recycled water pipeline route you might consider retrofitting your irrigation system to accept recycled water. Irrigation retrofit rebates are now available under a Metropolitan Water District pilot program. For an interactive "recycled water availability zone map" visit <http://www.sandiego.gov/water/recycled/availability/index.shtml> or contact Dawnn Jackson at 619-533-4264.

Thank you for the cooperation in conserving water at City facilities and for providing a good example to the public. Please let me know if you should have any questions.



Halla Razak
Director of Public Utilities

LSG/lsg



THE CITY OF SAN DIEGO
PUBLIC UTILITIES

FOR IMMEDIATE RELEASE
October 21, 2014

MEDIA CONTACT:
Robyn Bullard, Senior Public Information Officer
(858) 614-5715

City Enters Drought Alert Status

New Mandatory Water Use Restrictions Go Into Effect Nov. 1

SAN DIEGO – At the recommendation of Mayor Kevin L. Faulconer, the City Council voted Monday to enact a Drought Alert status, the second phase of citywide conservation that calls for mandatory water use restrictions to begin Nov. 1 in response to the severe drought conditions statewide.

“Working together as a community, San Diego has done a tremendous job in the past in responding to the call for water conservation,” Mayor Faulconer said. “For that, we say thank you, and now we must ask for your continued help as we face the uncertainty of future rainfall and water supplies at critical levels.”

The City implemented its voluntary Drought Watch stage on July 1, 2014. Earlier this month, Mayor Faulconer recommended moving to the next level of water conservation based on several factors, including a significant decline in ground water reserves throughout California, a drop in water reservoirs for the San Diego region, a lack of rainfall and diminished prospects for a strong El Niño, and a severe heat wave for the San Diego region in August and September.

The Drought Alert stage doesn’t contain a sunset clause and will stay in effect as long as the City deems necessary.

Relevant to most residents under the Drought Alert stage are the restrictions that mandate assigned watering days, which are dependent on your address. There are also restrictions on what time of day residents can water and how long they can water:

Assigned Watering Days

Residences with odd-numbered addresses	Water only on Sundays, Tuesdays & Thursdays
Residences with even-numbered addresses	Water only on Saturdays, Mondays & Wednesdays
Apartments, condos & businesses	Water only on Mondays, Wednesdays & Fridays

Time of Day and Time Limits

- From November 1 through May 31, water only between 4 p.m. and 10 a.m. for only 7 minutes at each station when using a standard sprinkler system.
- From June 1 through October 31, water only between 6 p.m. and 10 a.m. for only 10 minutes at each station when using a standard sprinkler system.

Other water use restrictions that become effective under Drought Alert status are:

- Use a hand-held hose equipped with a positive shut-off nozzle or timed sprinkler system to water landscaped areas.
- Stop operation of ornamental fountains, except to the extent needed for maintenance purposes.
- The washing of automobiles, trucks, trailers, airplanes and other types of transportation equipment is only allowed during the following times:
 - Between 4 p.m. and 10 a.m. from November 1 to May 31.
 - Between 6 p.m. and 10 a.m. from June 1 through October 31.
- Washing is permitted at any time at a commercial car wash.
- No irrigation is allowed during rain events.
- Potted plants, non-commercial vegetable gardens and fruit trees may be irrigated on any day during the following times:
 - Between 4 p.m. and 10 a.m. from November 1 through May 31
 - Between 6 p.m. and 10 a.m. from June 1 through October 31.
- Irrigation is permitted any day at any time as follows:
 - As required by a landscape permit.
 - For erosion control.
 - For establishment, repair or renovation of public use fields for schools and parks.
 - For landscape establishment following a disaster.
- Use recycled or non-potable water for construction purposes when available.
- Use of water from fire hydrants will be limited to firefighting, meter installation by the Water Department or other activities necessary to maintain the health, safety and welfare of San Diegans.

- Constructions operations receiving water from a fire hydrant or water truck will not use water beyond normal activities.

These restrictions are in addition to permanent, mandatory water use restrictions in effect at all times since 2011. For a list of all current restrictions, as well as conservation resources, rebate programs and other valuable information, visit www.wastenowater.org.

The City of San Diego's Water Conservation Program reduces water demand through promoting or providing incentives for the installation of hardware that provides permanent water savings, and by providing services and information to help San Diegans make better decisions about water use. For more information about Water Conservation, visit www.wastenowater.org or call (619) 515-3500.

Craig Gustafson
Press Secretary & Director of Media Relations

Mayor Kevin L. Faulconer
City of San Diego

Mobile: 619.453.9880
Office: 619.236.7064
Fax: 619-236-7228
www.sandiego.gov/mayor

Disclosure: This email is public information. Correspondence to and from this email address is recorded and may be viewed by third parties and the public upon request.



FOUNDATION REPORT

Overhead Message Sign At Interstate 163

11-SD-163-3.6

**EA 11-41680
EFIS 1113000121**

November 6, 2015

Prepared By:

**OFFICE OF GEOTECHNICAL DESIGN-SOUTH 2, BRANCH-D
7177 OPPORTUNITY ROAD
SAN DIEGO, CA 92111**

Memorandum

*Flex your power!
Be energy efficient!*

To: Jose Luis L Robles

Date: November 6, 2015

Project Manager
Traffic Project Development

File: 11-SD-163-3.6
EA: 11-41680
EFIS:1113000121

From: Ali Lari
Transportation Engineer
Office of Geotechnical Design-South 2, Branch-D

Subject: Foundation Report for the Proposed Overhead Message Sign at Northbound State Route 163.

Pursuant to your request, the Office of Geotechnical Design-South 2 (OGDS2) Branch-D has prepared this Foundation Report (FR) for an Overhead Message Sign on the State Route 163. This FR documents existing soil conditions that influence the design and construction of the message sign and provides foundation recommendations and specifications.

No Structure Preliminary Geotechnical Report and/or Preliminary Foundation Report were prepared prior to the preparation of this FR.

Please ensure that this FR is included in the District Resident Engineer (RE) Pending Files. OGDS2 Branch-D staff will be available for further assistance. Should you have any questions or comments regarding this report, please contact OGDS2 Branch- D.

Ali Lari, P.E

Brian Hinman, P.E

Transportation Engineer (Civil)
Office of Geotechnical Design-South2
Branch-D

Senior Transportation Engineer (Civil)
Office of Geotechnical Design-South2
Branch-D

CARBON COPY (CC) LIST

Al Ochoa	District Materials Engineer
Abbas Abghari	Office Chief, OGDS2
Shawn Wei	OGDS2 Senior Supervisor
Manuel Reyes	Design Project Engineer
Geotechnical Archive	

TABLE OF CONTENTS

Section	Page
Title Sheet	i
Memorandum of Transmittal	ii
Carbon Copy (CC) List	iii
Table of Contents	iv
List of Appendices	v
1.0 INTRODUCTION	1
2.0 ARCHIVED DATA RESEARCH	1
3.0 FIELD INVESTIGATION AND TESTING	1
4.0 GEOLOGY AND SUBSURFACE CONDITIONS	1
5.0 SEISMICITY	2
6.0 CORROSION	2
7.0 LIQUEFACTION	2
8.0 FOUNDATION RECOMMENDATIONS	2
9.0 CONSTRUCTION CONSIDERATION	2
10.0 ACTUAL VS. REPORTED SITE CONDITIONS	2

APPENDICES

APPENDIX I PROJECT PLANS

APPENDIX II ARCHIVED DATA

1.0 INTRODUCTION

This Foundation Report (FR) has been prepared by the Office of Geotechnical Design-South 2 (OGDS2), Branch-D to address the geotechnical design and construction considerations for an overhead message sign, “Truss-Single Post, Type A Laminated Panels”, located at the right shoulder of northbound State Route 163 (SR-163), Post Mile (PM) 3.6.

The project plans provided by District 11 Traffic Design Development are included in Appendix I.

The purpose of this FR is to document subsurface geotechnical conditions, provide engineering evaluation of site conditions, and provide recommendations relevant to the design and construction of the message sign. This report also establishes a geotechnical baseline to be used in assessing the existence and scope of changed site conditions. The geotechnical information, evaluations, recommendations, and advisories contained in this FR supersede any information that may have been previously conveyed through correspondences or documents concerning the project features addressed herein.

This FR was prepared in accordance with the guidelines set forth in the *Caltrans: Foundation Report Preparation for Standard Plan Overhead and Changeable Message Signs., October 2014.*

The geotechnical investigation consisted of site reconnaissance, research of archived resources, and engineering analyses.

All stations are referenced to the “SD163A1” LINE and all elevations are referenced to mean sea level.

2.0 ARCHIVED DATA RESEARCH

The following documents were used in preparation of this report:

- As-built LOTB for SR-163/I-8 Separation, Bridge Number 57-357.
- Caltrans, Office of Geotechnical Design-South 2, Branch B, Supplemental Geotechnical Review Report for Guardrail Locations No. 1 through No. 66, date May 13, 2014.
- Caltrans, Office of Geotechnical Design-South 2, Branch B, Geotechnical Review for Guardrails Locations No. 1 through No. 66, date April 10, 2014.

Archived as-built LOTB are presented in Appendix II.

3.0 FIELD INVESTIGATION AND TESTING

A site reconnaissance was conducted and archived information was reviewed to characterize the soil conditions present at the proposed sign location such as the presence of ground water, depth and quality of artificial fills, and other conditions that could impact the design or construction of the proposed message sign.

4.0 GEOLOGY AND SUBSURFACE CONDITIONS

Based on the geologic map and the archived LOTB the site is underlain by engineered fill to a depth of approximately 30-feet, underlain by Stadium Conglomerate. The fill was most likely built utilizing materials originated from Stadium Conglomerate Formation. Ground water was encountered at an elevation of 1.4-feet MSL, well below the proposed pile.

5.0 SEISMICITY

No active faults have been identified that transect the alignment of SR-163 in the project area. The project does not lie within an Alquist-Priolo Special Study Zone. Ground surface rupture due to a seismic event is considered unlikely.

6.0 CORROSION

Laboratory soil tests for corrosion were not conducted specifically for this investigation, however, according to the corrosion test results in “Supplemental Geotechnical Review Report for Guardrail Locations No. 1 through No. 66” the site is not corrosive.

7.0 LIQUEFACTION

The potential for liquefaction is very low considering the deep groundwater and dense materials at the project site.

8.0 FOUNDATION RECOMMENDATIONS

Based on the results of our study the Caltrans Standard Plans may be used for the Cast In Drilled Hole (CIDH) pile foundation for the overhead sign.

9.0 CONSTRUCTION CONSIDERATION

- Standard pile shaft augering equipment may be used for drilling CIDH pile foundations.
- It is anticipated that cobbles be encountered during pile shaft drilling.
- Ground water is not anticipated to affect pile construction.

10.0 ACTUAL VS. REPORTED SITE CONDITIONS

The recommendations contained in this report are based on specific project information regarding structure type and locations that have been provided to OGDS2. If any conceptual changes are made during final project design, OGDS2 should review those changes to determine if these foundation recommendations are still applicable.

The information used to characterize the geotechnical conditions in this area was gathered from project plans, pertinent maps, geologic literature, archived reports, field reconnaissance, subsurface investigation, testing, and engineering analysis. Project design features may change, and localized soil conditions encountered during construction grading and excavation may vary from those described in this report. If suspected differing site conditions are encountered during construction, or if construction difficulties related to soil conditions are encountered, a representative of OGDS2 should be consulted to assist with the assessment of the prevailing geotechnical conditions and to assist in formulating appropriate strategies to facilitate project completion. Any questions regarding the above recommendations should be directed to the attention of Ali Lari (858-467-6922).

APPENDICES

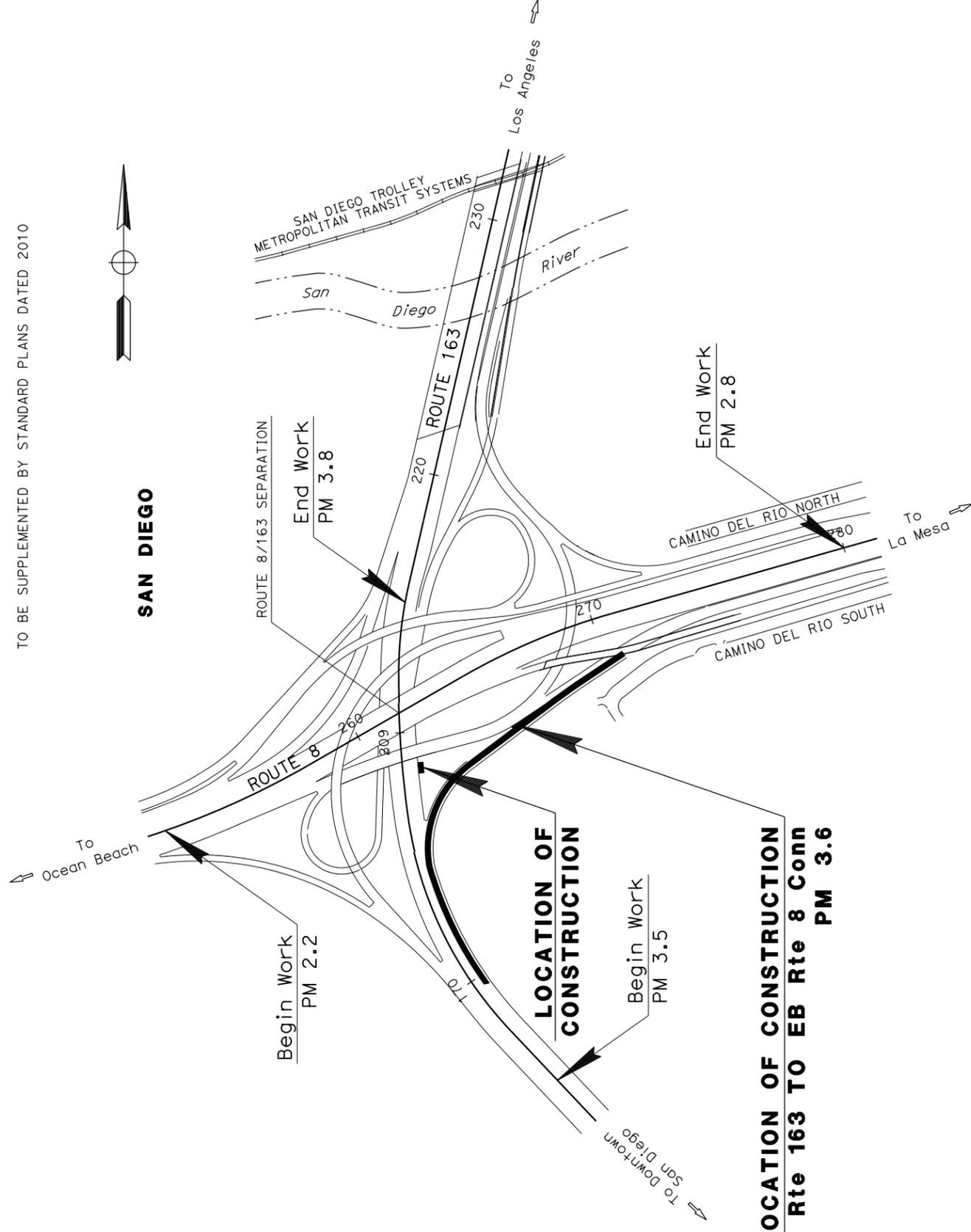
APPENDIX I
PROJECT PLANS

**STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY**

**IN SAN DIEGO COUNTY IN SAN DIEGO
AT ROUTE 8/163 SEPARATION**

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010

SAN DIEGO



**LOCATION OF CONSTRUCTION
NB Rte 163 TO EB Rte 8 Conn
PM 3.6**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	163	3.6		



LOCATION MAP

DATE PLOTTED => 13-OCT-2015
TIME PLOTTED => 10:20
LAST REVISION
03-02-15

PROJECT MANAGER RICHARD ESTRADA	DESIGN ENGINEER MANUEL REYES
------------------------------------	---------------------------------

PROJECT ENGINEER REGISTERED CIVIL ENGINEER
 DATE
 PLANS APPROVAL DATE
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

CONTRACT No.	11-416804	PROJECT NUMBER & PHASE	11130001211
PROJECT ID	1113000121	UNIT	2771

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

Dist	County	Route	Post Miles Total Project	SHEET TOTAL No. SHEETS
11	SD	163	3.6	

REGISTERED CIVIL ENGINEER DATE

MANUEL REYES
No. 58621
Exp. 12-31-16
CIVIL
STATE OF CALIFORNIA

PLANS APPROVAL DATE

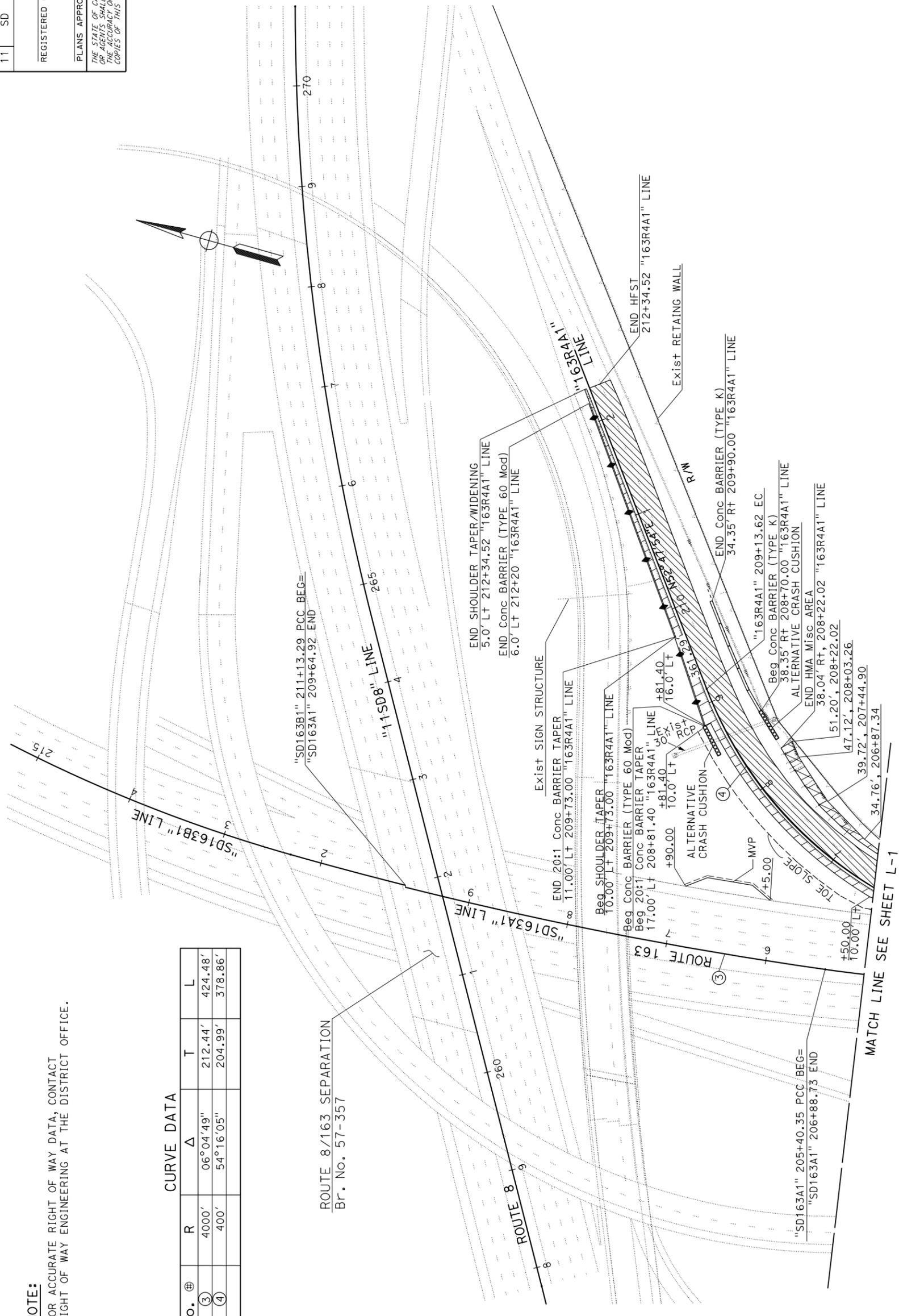
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

CURVE DATA

No. ④	R	Δ	T	L
③	4000'	06°04'49"	212.44'	424.48'
④	400'	54°16'05"	204.99'	378.86'

ROUTE 8/163 SEPARATION
Br. No. 57-357



MATCH LINE SEE SHEET L-1

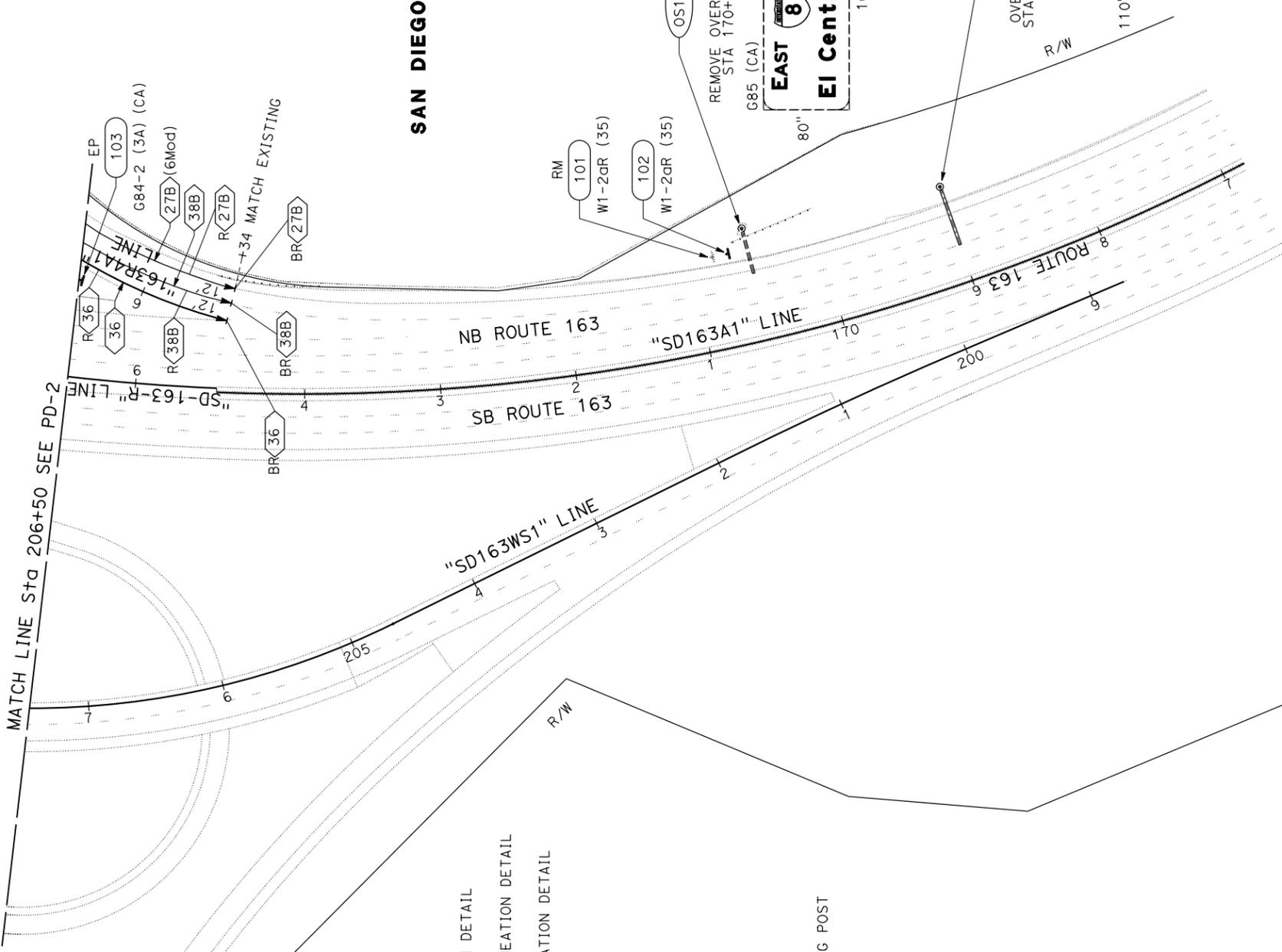
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	RICHARD ESTRADA	CHECKED BY	MANUEL REYES	DATE REVISED	
TRAFFIC PROJECT DEVELOPMENT	DESIGNED BY	HUNG TRAN	REVISOR			

LAYOUT
L-2

NOTE:
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

LEGEND:

- BEGIN/END OF TRAFFIC STRIPE DETAIL
- CHANGE OF TRAFFIC STRIPE DETAIL
- XX PERMANENT PAVEMENT DELINEATION DETAIL
- R XX REMOVE PERMANENT PAVEMENT DELINEATION DETAIL
- BR XX BEGIN REMOVE PERMANENT PAVEMENT DELINEATION DETAIL
- ER XX END REMOVE PERMANENT PAVEMENT DELINEATION DETAIL
- XX OVERHEAD SIGN
- DELINEATOR (CLASS 1) TYPE (F, G)
- XX ROADSIDE SIGN
- RM REMOVE ROADSIDE SIGN
- RL RELOCATE ROADSIDE SIGN
- EP INSTALL ROADSIDE SIGN PANEL ON EXISTING POST



SAN DIEGO



OVERHEAD SIGN STRUCTURE
 STA 169+00 "SD163A1" LINE

FNBT W13-3 (35) (Mod)

G85 (CA)

R/W

110"

18'

7'

**PAVEMENT DELINEATION
 AND SIGN PLAN**

PD-1
 SCALE: 1" = 50'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
11	SD	163	3.6	

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
SHAHIN T. ADIBI
 No. 54839 Exp. 06-30-16
 REGISTERED PROFESSIONAL ENGINEER
 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

APPROVED FOR PAVEMENT DELINEATION AND SIGN WORK ONLY

SCALE: 1" = 50'

PROJECT NUMBER & PHASE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CAMILLE ABOUFADEL	CHECKED BY	SHAHIN ADIBI	DATE REVISED
BORDER LAST REVISED 7/2/2010	DESIGNED BY	THANH NGUYEN	REVISOR		

USERNAME => s121085
DGN FILE => 11130001210b001.dgn

BORDER LAST REVISED 7/2/2010

RELATIVE BORDER SCALE IS IN INCHES

UNIT 2828

PROJECT NUMBER & PHASE

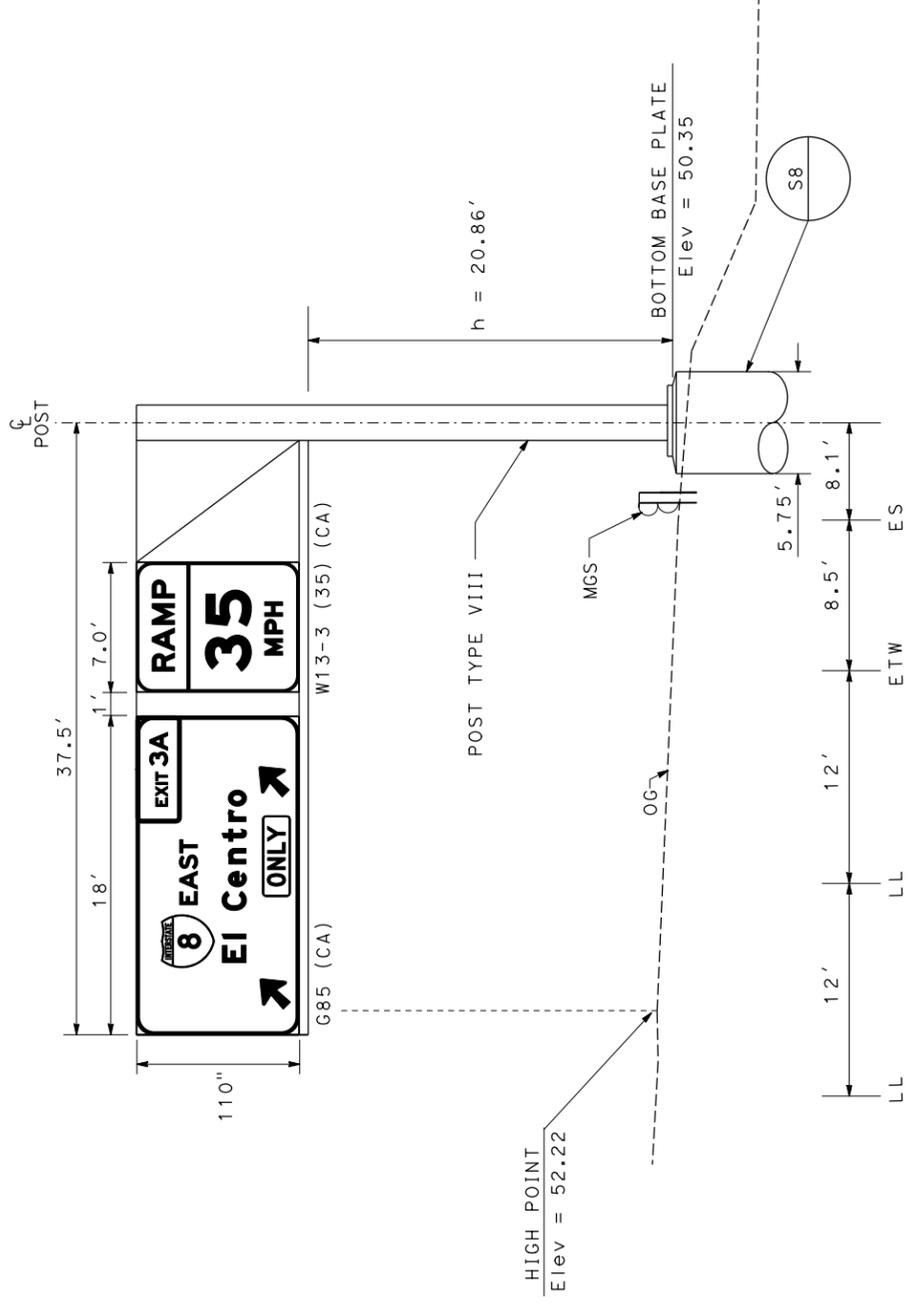
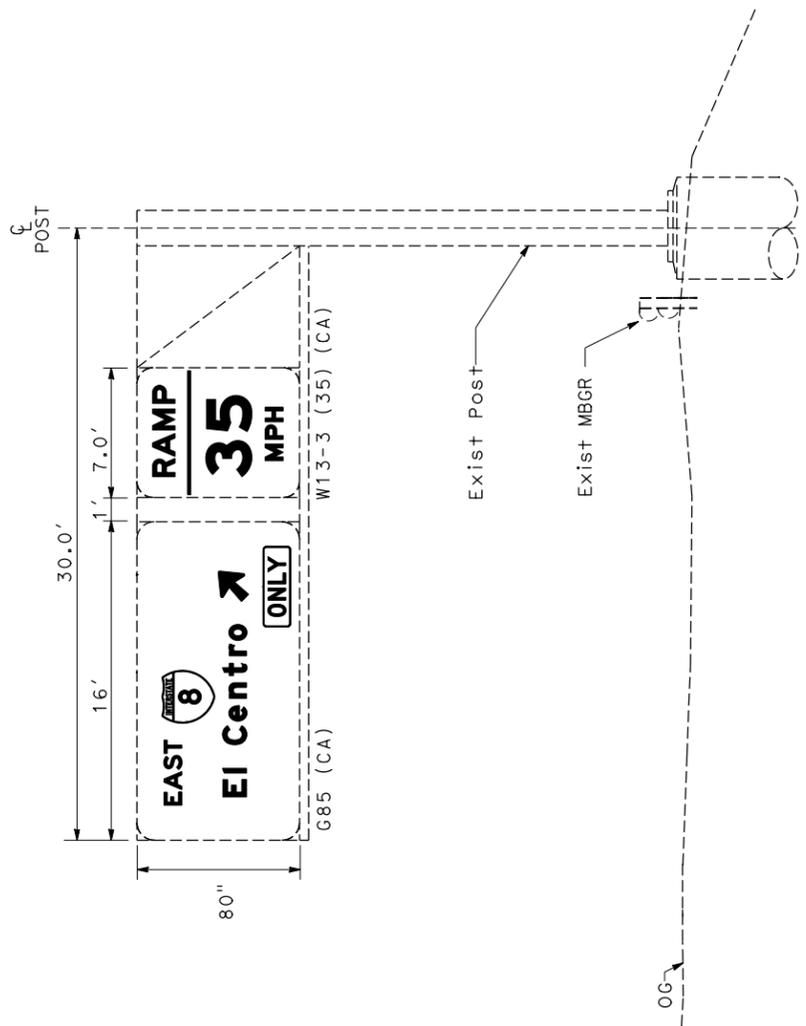
11130001211

St. Atkins TRAFFIC DESIGN

**SIGN DETAILS
OVERHEAD SIGN STRUCTURES**

NO SCALE

SD-1

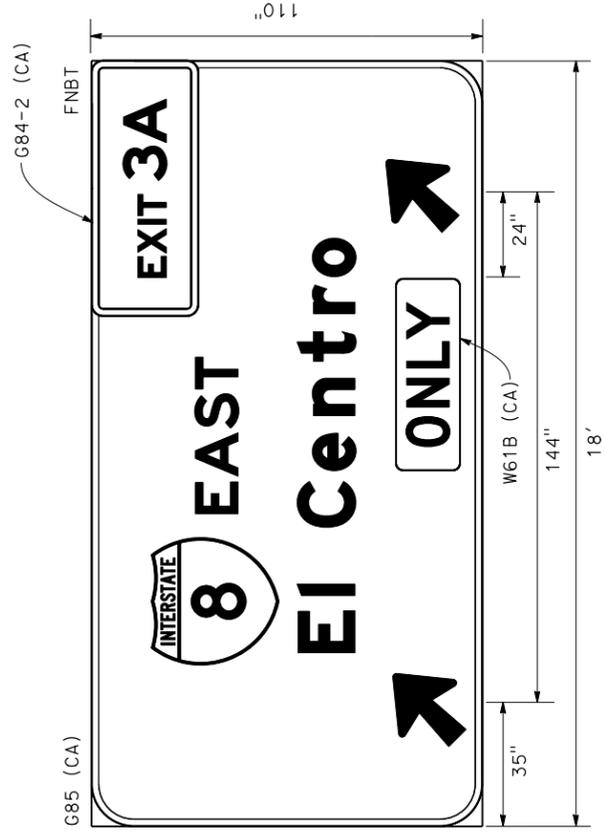


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
11	SD	163	3.6	

REGISTERED CIVIL ENGINEER DATE
SHAHIN I. ADIBI No. 54839 Exp. 06/30/16
REGISTERED PROFESSIONAL ENGINEER STATE OF CALIFORNIA CIVIL

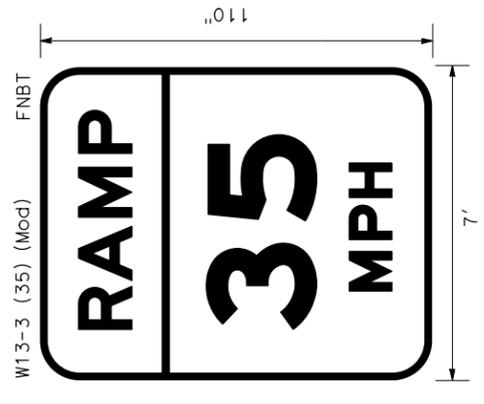
PLANS APPROVAL DATE
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

LEGEND:
 U/L = UPPER/LOWER CASE
 Caps = CAPITAL
 Num = NUMBER
 Deg = DEGREES



OS1-2 STA 169+00 "SD163A1" LINE - FNBT

LEGEND				ARROW	
LINE No.	U/L	Caps	Num	Deg	LENGTH
1		8E	12E		
2		12E	15D		
3		16E(M)/12E(M)			
4		10E		45	25



OS1-2 STA 169+00 "SD163A1" LINE - FNBT

LEGEND				ARROW	
LINE No.	U/L	Caps	Num	Deg	LENGTH
1		15EM			
2			30EM		
3		12E			

SIGN DETAILS
CONTRACTOR FURNISHED SIGN PANEL
 NO SCALE
SD-2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
11	SD	163	3.6	

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

SHAHIN I. ADIBA No. 54839 Exp. 6-30-16 CIVIL ENGINEER STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES:

- FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES SIGN CODES ARE SHOWN UNLESS DESIGNATED BY (CA) INDICATING STANDARD CALIFORNIA SIGN SPECIFICATIONS.
- SIGN FOUNDATION QUANTITIES INCLUDED THE HEIGHT ABOVE THE PAVEMENT.
- REFER TO "ROADSIDE SIGN QUANTITIES" AND "FURNISH ROADSIDE SIGN PANEL" CHARTS FOR FURTHER INFORMATION.
- FY - FLUORESCENT YELLOW.

OVERHEAD SIGN STRUCTURE QUANTITIES

SIGN No.	SHEET No.	SIGN CODE	STATION	INSTALL SIGN STRUCTURE (TRUSS) (LB)	FURNISH SIGN STRUCTURE (TRUSS) (LB)	REMOVE SIGN STRUCTURE	CIDH CONCRETE PILE (SIGN FOUNDATION)	REMARKS
OS1-1	PD-1	G85 (CA) W13-3 (35) (Mod)	170+60 "SD163A1" LINE	(LB)	(LB)	EA		
OS1-2	PD-1	G85 (CA) W13-3 (35) (Mod)	169+00 "SD163A1" LINE	22,225	22,225	1	25	
TOTAL				22,225	22,225	1	25	

FURNISH OVERHEAD SIGN PANEL

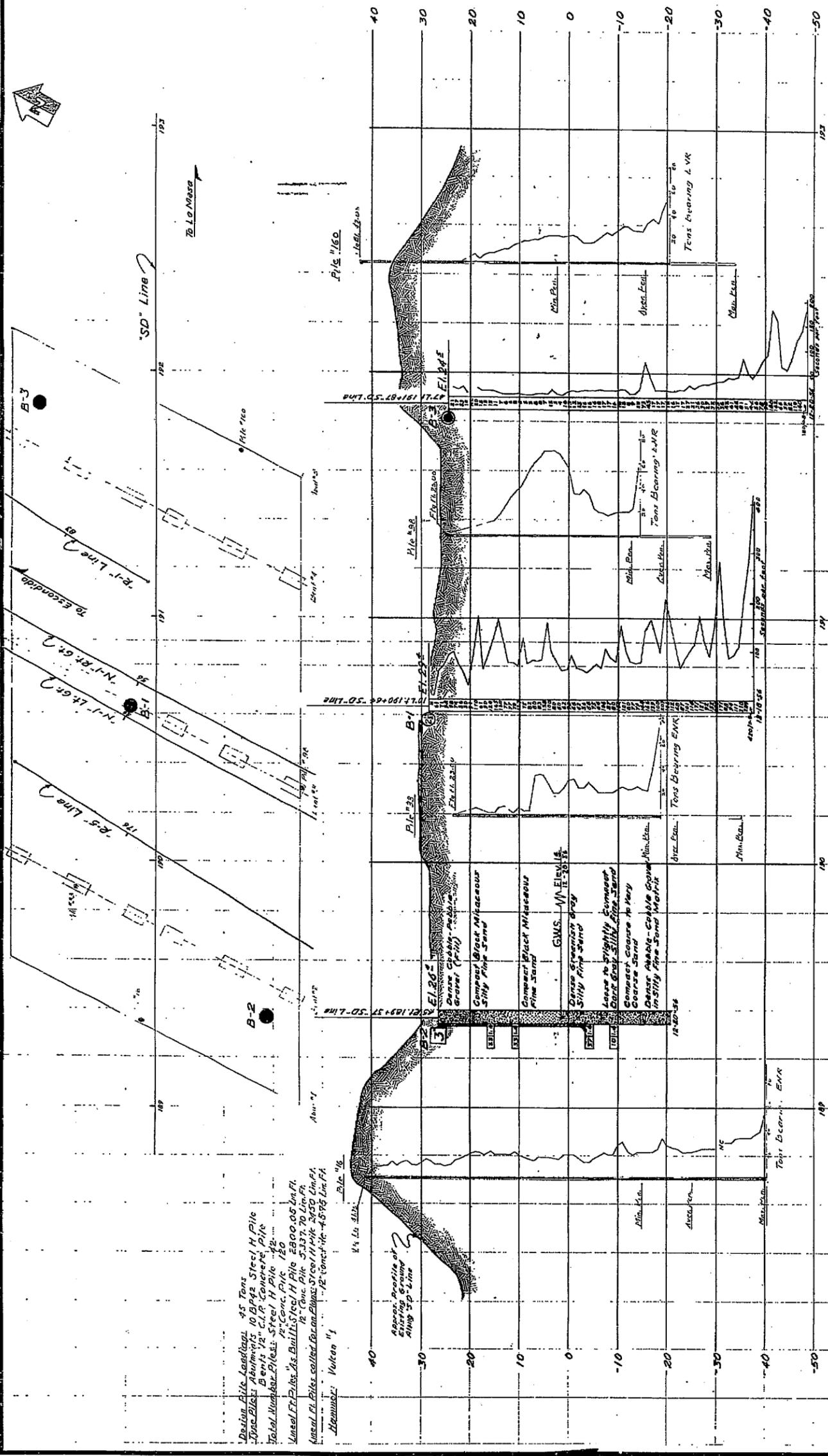
SIGN No.	SIGN CODE	SHEET No.	PANEL SIZE		BACKGROUND		LEGEND			SIGN PANEL			REMARKS		
			Horiz	Vert	SHEETING COLOR	RETRO-REFLECTIVE	SHEETING COLOR	REFLECTIVE	ASTM TYPE	BLACK (NON-REFLECTIVE)	FURNISH LAMINATED PANEL SIGN FOR RETRO-REFLECTIVE SHEETING (TYPE XI) SOFT	HARDWARE TYPE		PROTECTIVE OVERLAY	RETRO-REFLECTIVE SHEETING (TYPE XI) SOFT
OS1-2	G85 (CA) W13-3 (35) (Mod)	PD-1	216	110	GREEN	XI	WHITE	XI	REFLECTIVE	ASTM TYPE	BLACK (NON-REFLECTIVE)	FURNISH LAMINATED PANEL SIGN FOR RETRO-REFLECTIVE SHEETING (TYPE XI) SOFT	A-1	PREMIUM FILM	SOFT
			84	110	FY	XI	BLACK	X			X	165.0	X		165.0
												64.2	X		64.2
TOTAL												229.2			229.2

SIGN QUANTITIES

SQ-1

APPENDIX II
ARCHIVED DATA

NO. 7	SCALE 1/8" = 1'-0"	DATE 11/15/59	BY J. H. ...
NO. 11	SCALE 1/8" = 1'-0"	DATE 11/15/59	BY J. H. ...
NO. 12	SCALE 1/8" = 1'-0"	DATE 11/15/59	BY J. H. ...
NO. 13	SCALE 1/8" = 1'-0"	DATE 11/15/59	BY J. H. ...



AS BUILT
58-11VC-R-11
'59

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

**ROUTE 12-R-ROUTE 77
SEPARATION (CENTER)**

LOG OF TEST BORINGS

SCALE 1" = 20'
BRIDGE 57-357
FILE 58-11VC-R-11
DRAWING C-5187-12

NOTES

The contractor's attention is directed to Section 2, Article (6) of the Standard Specifications and to the Special Provisions accompanying this set of plans. Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

LEGEND OF BORING OPERATIONS

PLAN OF ANY BORING
 PENETROMETER
 2 1/2" CONE PENETROMETER
 SAMPLER BORING (DRY)
 ROTARY BORING (WET)
 AUGER BORING (DRY)
 JET BORING
 CORE BORING
 TEST PIT

1" SOIL TUBE
 PENETRATION BORING

LEGEND OF EARTH MATERIALS

GRAVEL
 SAND
 SILT
 CLAY
 SANDY CLAY OR CLAYEY SAND
 SANDY SILT OR SILTY SAND

PEAT AND/OR ORGANIC MATTER
 FILL MATERIAL
 IGNEOUS ROCK
 SEDIMENTARY ROCK
 METAMORPHIC ROCK

CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS

DIAGRAM SHOWING THE BASIS FOR ESTIMATES OF GRADE SIZE DISTRIBUTION USED IN DETERMINATION OF CLASS NAMES. IF AMOUNTS IS PRESENT IN APPRECIABLE QUANTITIES, THE TERMS "GRAVELLY SAND", "SANDY SILT", "SILT CLAY", "CLAYEY SAND", "SANDY CLAY", "CLAYEY SILT", "SANDY CLAYEY SILT", "SILT CLAYEY SAND", "CLAYEY SILTY SAND", "SANDY CLAYEY SILT", "SILT CLAYEY SAND" SHALL BE ADDED TO THE CLASS NAME, VIZ. "GRAVELLY SAND", "MEDIUM" AND "FINE" WHEN USED TO DESCRIBE SAND; "COARSE", "MEDIUM" AND "FINE" WHEN USED TO DESCRIBE SILT AND GRAVEL REFER TO STANDARD GRADE SIZE LIMITS.

Design Pile Loadings: 45 Tons
 10 Bp22 Steel H Pile
 Bents 1/2" C.I.P. Concrete Pile
 Total Number Piles: Steel H Pile 12
 12" Conc. Pile 120
 Unsat. Fr. Piles: 12 Bp22 Steel H Pile 2800.05 Lbs/Ft.
 12" Conc. Pile 5337.70 Lbs/Ft.
 Unsat. Fr. Piles called for on Piles: Steel H Pile 2450 Lbs/Ft.
 12" Conc. Pile 4575 Lbs/Ft.
 Manufacturer: Vulcan #1

AS BUILT PLANS
 Contract No. 58-11VC-14
 Date Completed
 Document No. A0001060

FIELD STUDY	12-28-59	12-28-59
DRAWN	1-11-59	1-11-59
CHECKED	1-11-59	1-11-59
APPROVED		

I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER THE SUPERVISION AND CONTROL OF THE PUBLIC WORKS DIVISION OF THE DEPARTMENT OF PUBLIC WORKS, STATE OF CALIFORNIA.

DATE: 11/15/59

**AERIALY DEPOSITED LEAD SURVEY REPORT
SR-163/I-8
SAN DIEGO, CA
CALTRANS DISTRICT 11, EA 416801
PI 1113000121 100.0 FED
CONTRACT NO. 11A1996
TASK ORDER NO. 25**

Project: 20153836.001A

March 26, 2015

**Copyright 2015 Kleinfelder
All Rights Reserved**

**Only the client or its designated representatives may use this document and
only for the specific project for which this report was prepared.**

A Report Prepared for:
Ms. Diane Vermeulen, P.E.
State of California Department of Transportation
Environmental Division, MS 242
4050 Taylor Street
San Diego, California 92110

AERIALY DEPOSITED LEAD SURVEY REPORT
SR-163/I-8
SAN DIEGO, CA
CALTRANS DISTRICT 11, EA 416801
PI 1113000121 100.0 FED
CONTRACT NO. 11A1996
TASK ORDER NO. 25

Kleinfelder Project No. 20153836.001A

Prepared by:



Chris Noland, P.G. 8099
Project Geologist

Reviewed by:



Lizanne Simmons, P.G. 7431
Principal Geologist



KLEINFELDER, INC.
550 West C Street Suite 1200
San Diego, California 92101
(619) 831-4600

March 26, 2015

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1 INTRODUCTION.....	1
1.1 PROJECT DESCRIPTION.....	1
1.2 PROJECT OBJECTIVES AND SCOPE OF WORK.....	1
1.3 REPORT ORGANIZATION.....	3
2 BACKGROUND.....	4
2.1 SITE IMPROVEMENTS.....	4
2.2 WASTE CLASSIFICATION, ADL VARIANCE, AND SOIL REUSE CRITERIA....	4
3 SAMPLING ACTIVITIES.....	7
3.1 PRE-FIELD ACTIVITIES.....	7
3.2 ADL SAMPLING LOCATIONS AND GPS SURVEY.....	7
3.2.1 Hand Auger Drilling and Soil Sampling Methods.....	8
3.3 EQUIPMENT BLANKS.....	8
3.4 ANALYTICAL METHODS.....	8
3.5 DECONTAMINATION AND BORING ABANDONMENT.....	9
4 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS.....	10
4.1 SITE CONDITIONS.....	10
4.2 SOIL SAMPLE RESULTS.....	10
4.2.1 Total Lead.....	10
4.2.2 California WET Method Soluble Lead Results.....	10
4.2.3 California DI-WET Method Soluble Lead Results.....	11
4.2.4 TCLP Soluble Lead.....	11
4.2.5 Hydrogen Ion Concentration.....	11
4.3 DATA QUALITY ASSESSMENT.....	11
5 STATISTICAL EVALUATION.....	13
6 CONCLUSIONS AND RECOMMENDATIONS.....	15
6.1 VARIANCE CONCLUSIONS.....	15
6.2 WASTE CHARACTERIZATION CONCLUSIONS.....	15
6.3 RECOMMENDATIONS.....	16
7 LIMITATIONS.....	17
8 REFERENCES.....	19

PLATES

Plate 1	Vicinity Map
Plate 2a and 2b	Sample Location Maps
Plate 3	ADL-Impacted Soils Management Flow Chart

TABLE

Table 1	Soil Analytical Results
---------	-------------------------

APPENDICES

Appendix A	Sample Location Coordinates (Table A-1)
Appendix B	Laboratory Analytical Reports and Chain-of-Custody Documentation
Appendix C	Statistical Data Evaluation (The Bodhi Group, March 23, 2015)

1 INTRODUCTION

1.1 PROJECT DESCRIPTION

This report has been prepared to summarize procedures and results of an Aerially Deposited Lead (ADL) survey conducted on the northbound State Route 163 (SR-163) connector to eastbound Interstate 8 (I-8) interchange (Project/Site) (Plates 1, 2a and 2b). The State of California Department of Transportation (Caltrans) is proposing to the addition of High Friction Surface Treatment (HFST), enhanced signage, enhanced striping, construction of a concrete barrier, improved drainage, installation of metal railings, widening of the left shoulder of the northbound SR-163 to eastbound I-8 interchange, and construction of a Maintenance Vehicle Pullout. This work was performed for Caltrans, consistent with Contract No. EA-11-416801, Task Order No. 25 (TO25). This report summarizes soil sampling for ADL conducted during February 2015 at specific locations in the unpaved shoulders at the Site.

1.2 PROJECT OBJECTIVES AND SCOPE OF WORK

Based on historical Site use (freeway), there is the potential that ADL is present within soil adjacent to the existing traveled ways; therefore, Caltrans needs to evaluate the presence, concentration, and distribution of lead in soil in anticipation of future grading/construction activities. The data will be used to evaluate soil within the proposed construction area to assess the potential for reuse on Site. It will also be used to evaluate disposal options for potentially lead-impacted soil, and to evaluate health and safety issues for future on-Site workers.

Based on the age of interchange, there is a potential that ADL may be present within shallow exposed soil (i.e., upper 5 feet) adjacent to the existing traveled ways.

The objective of the ADL study was to provide data for evaluation to allow for management of ADL-impacted soils associated with a Caltrans project based on project design information known at this time. Samples were collected to provide information about lead containing soils along the unpaved shoulders (Caltrans right-of-way) within the Project boundaries, and evaluated relative to the variance granted to Caltrans by the Department of Toxic Substance Control (DTSC) (DTSC, 2009).

This report describes the procedures, results, and recommendations from the ADL study performed within the Project limits. The scope of work was provided to Kleinfelder by Caltrans in the Task Order description. Consistent with the Task Order, and as described in the *Aerially Deposited Lead Survey Work Plan* (Kleinfelder, 2015a), Kleinfelder performed the tasks listed below:

- Provided project management and coordination.
- Prepared a Site-specific work plan and prepared a Site-specific health and safety plan (SSHSP) (Kleinfelder, 2015b).
- Coordinated traffic control for interchange closure during night, as necessary.
- Advanced 6 borings using hand auger methods, 2 to a depth of approximately 3 feet below ground surface (bgs) and 4 up to a depth of approximately 2 feet bgs, which were met with refusal at that depth. Three soil samples were collected from each hand auger boring.
- Obtained global positioning system (GPS) location readings at each boring location.
- Submitted 20 soil samples, including 2 field duplicate samples, to Agricultural and Priority Pollutants Laboratories, Inc. (APPL) of Clovis, a state-certified laboratory, for analysis of total lead by United States Environmental Protection Agency (USEPA) Method 6010B.
- Analyzed 20 soil samples, including 2 duplicate samples, for Soluble Threshold Limit Concentration (STLC), or leachable lead, using the California waste extraction test (CA-WET) method.
- Analyzed 10 soil samples for STLC by the modified California WET method using deionized (DI) water as the extractant.
- Analyzed 3 soil samples for Toxicity Characteristic Leaching Procedure (TCLP) using USEPA Method 1311.
- Analyzed 4 soil samples for hydrogen ion index (pH) by USEPA Method 9045C.
- Collected and analyzed 1 equipment blank for total lead by USEPA Method 6010B. One equipment blank was collected at the end of the sampling.

- Prepared this report, including a summary of the assessment methods and field observations, data evaluation and discussion, findings, conclusions and recommendations.

1.3 REPORT ORGANIZATION

This report is organized into the following sections and appendices. Tables are located behind a tab at the end of the report.

- Section 1 describes the Site, discusses the Project objectives and the purpose of the report, presents the scope of work, and discusses the organization of the report;
- Section 2 discusses pertinent Site background information;
- Section 3 describes sampling activities;
- Section 4 describes field observations and the investigation results, including laboratory analytical data;
- Section 5 presents the statistical analysis of the data;
- Section 6 presents the conclusions and recommendations;
- Section 7 presents the limitations of the report;
- Section 8 lists references;
- Plates;
- Tables;
- Appendix A includes a table with the coordinates of the samples;
- Appendix B includes the analytical reports from the laboratory; and,
- Appendix C presents the evaluation and results of the statistical analysis complete with tables.

2 BACKGROUND

2.1 SITE IMPROVEMENTS

Caltrans improvements include: addition of HFST to pavement, enhanced signing, enhanced striping, construction of a concrete barrier, improve drainage, widening of the left shoulder of the northbound SR-163 to eastbound I-8, installation of metal railings, and construct a MVP.

2.2 WASTE CLASSIFICATION, ADL VARIANCE, AND SOIL REUSE CRITERIA

Due to the historic use of lead in gasoline formulations, lead contamination is common in surface soils found along roadways. ADL-impacted soils are regulated at both the federal and state levels for the following reasons:

- They may be classified as hazardous waste.
- They are subject to state regulations when not classified as hazardous waste.
- They may represent an occupational safety and health risk.

According to Title 22, California Code of Regulations (CCR), solid wastes with total lead concentrations equal to or exceeding 1,000 milligrams per kilogram (mg/kg), the Total Threshold Limit Concentration (TTLC), are classified as California hazardous waste. Assembly Bill 2784 (AB 2784), effective January 1, 1999, amended California Health and Safety Code (HSC) Section 25157.8 (a) and Title 22 CCR by reducing the practical disposal limit for non-hazardous solid waste to 350 mg/kg total lead until the California Regional Water Quality Control Board (RWQCB) amends a disposal facility's waste discharge requirements.

Solid wastes with soluble lead concentrations (assessed using California WET procedures) equal to or exceeding 5.0 milligrams per liter (mg/L), the STLC, are classified as California hazardous under California law. California hazardous materials must be transported under a hazardous waste manifest and disposed of at an appropriately permitted facility. Wastes with lead concentrations less than both the TTLC and the STLC are not a California hazardous waste, and may be disposed of at a Class II or III facility, provided that site-specific disposal facility requirements are

satisfied. Furthermore, according to federal law, as stipulated in the Resource Conservation and Recovery Act (RCRA), wastes that exceed 5.0 mg/L soluble lead, extracted using the federal TCLP, are classified as RCRA hazardous waste. This material must be disposed of as RCRA hazardous waste if transported off Site.

In September 2000, the DTSC issued a 5-year variance to Caltrans specifying that ADL-impacted soil within a highway right-of-way could be used as fill material within the right-of-way during earth moving and road construction activities provided that the waste met specific criteria (DTSC, 2000). The DTSC modified the variance for the second time in September 2003; which replaced and superseded the first modification. The variance, originally scheduled to expire on September 22, 2005, was granted extensions by DTSC that allowed Caltrans to keep working under the variance and its modifications until June 30, 2009 (DTSC, 2008). This extension was granted by the DTSC with the expectation that a good faith effort is shown by Caltrans to proceed with the variance renewal. In July 2009, the DTSC issued the current 5-year variance (DTSC, 2009). On June 26, 2014, the DTSC issued a letter to Caltrans extending the expiration date of the variance to December 31, 2014. A second extension of the variance until June 30, 2015 was issued on December 16, 2014 in a letter from DTSC to Caltrans. The following are the current DTSC variance conditions:

- For Variance Condition 9.c, “lead-contaminated” soil containing 1.5 mg/L or less soluble lead (using a modified CA-WET with DI [DI-WET] water as the extractant rather than an acidic, buffered sodium citrate solution) and 1,411 mg/kg or less total lead may be reused in a Caltrans right-of-way provided this soil is placed a minimum of five (5) feet above the maximum water table elevation and is covered by 1 foot of clean soil.
- For Variance Condition 9.d, “lead-contaminated” soil containing less than 150 mg/L soluble lead (DI-WET) and 3,397 mg/kg or less total lead may be reused as fill soil in a Caltrans right-of-way provided that it is placed a minimum of 5 feet above the maximum water table elevation and is covered by a pavement structure which will be maintained by Caltrans.
- For Variance Condition 9.e, “lead-contaminated” soil with a pH less than 5.5, but greater than 5.0 can only be used as fill material under the paved portion of the roadway. “Lead-contaminated” soil with a pH at or less than 5.0 shall be managed as hazardous waste.

Other reuse conditions, soil handling procedures, and notifications are specified in the variance. Soil that exceeds 3,397 mg/kg total lead or 150 mg/L soluble lead (DI-WET) cannot be reused within a Caltrans right-of-way and must be properly disposed of off at an approved facility. Solid wastes with lead concentrations less than both the TTLC and the STLC may be disposed of at a Class II or III facility provided that site-specific disposal facility requirements are satisfied. Similarly, solid waste that exceeds 5.0 mg/L soluble lead by TCLP is considered to be a federal or RCRA-hazardous waste and cannot be reused within a Caltrans right-of-way.

The information described above is summarized in a soils management flow chart (Plate 3) to evaluate the applicability of the DTSC variance. The flow chart is an updated version of Figure 1 from the *2007 Caltrans ADL Guidance Document* (Caltrans, 2007). Based on information on the flow chart (Plate 6), soils with a 95 percent upper confidence limit (UCL) on the mean for total lead less than 1,000 mg/kg and with a 95 percent UCL for soluble lead by DI-WET less than 1.5 mg/L are considered non-hazardous and can be released to the contractor for use in accordance with project specifications.

Please note that, based on discussions with DTSC personnel, when a new Variance is issued that will be in effect starting July 1, 2015, total lead and soluble lead limit concentrations will be modified from those existing. Therefore, depending on implementation schedule, Variance concentrations listed herein may change.

3 SAMPLING ACTIVITIES

3.1 PRE-FIELD ACTIVITIES

An encroachment permit was prepared by Kleinfelder and submitted on December 19, 2014. The permit (11-14-NSV-794) was approved January 27, 2015. Prior to the start of work, Caltrans was notified of the planned work on the unpaved shoulders at the Site.

Kleinfelder prepared and submitted a work plan (Kleinfelder, 2015a) and a SSHSP (Kleinfelder, 2015b). The health and safety plan was reviewed with field personnel for potential hazards, emergency contact information, and hospital routes.

Prior to ground-disturbance activities, Kleinfelder visited each sample point to mark excavation locations with 3-foot lathes and flagging material. Underground utilities were visually checked when marking sampling locations; sample locations with potential utility conflicts were modified. Underground Services Alert of Southern California (DigAlert) was notified at least 48 hours prior to ground-disturbance activities and Kleinfelder was issued ticket number A50370170 for the area of the Site. Conflicts with potential utilities were not reported from any of the utilities notified.

3.2 ADL SAMPLING LOCATIONS AND GPS SURVEY

Five sampling locations were selected and placed approximately equidistant from each other along the left (north) side of the shoulder area detailed in construction drawings provided by Caltrans. One soil sample location was selected based on the proposed location of the MVP. Three soil samples were collected from each boring location at depths of approximately 0 to 0.5 foot bgs, 1 to 1.5 feet bgs, and 2.5 to 3 feet bgs, or until refusal. Site conditions (i.e., refusal) dictated sample retrieval; therefore, the number and depth of samples collected at each location was occasionally modified. A discussion of the Site conditions encountered and refusal depths for borings is presented in Section 4.1.

Sample locations were recorded during utility identification using a Trimble GPS unit, capable of providing accuracy to approximately 3 feet. The sample location names, along with their respective latitude and longitude coordinates (x and y coordinates) are

included in Table A-1 (Appendix A). The approximate locations of these borings are shown on Plates 2a and 2b.

3.2.1 Hand Auger Drilling and Soil Sampling Methods

Hand auger borings were advanced on February 12 and February 13, 2015 at locations shown on Plates 2a and 2b. Borings were advanced using a manually operated, pre-cleaned, stainless steel hand auger. Kleinfelder retained the services of CO's Traffic Control to provide temporary closure the interchange consistent with the Encroachment Permit requirements. Work was performed in the unpaved shoulder areas from 9:00 PM to 3:00 AM, as stipulated in the encroachment permit.

Soil samples were collected from the hand auger and placed into laboratory-supplied, 8-ounce jars with Teflon lids. The sample jars were labeled with a sample identification number and Z (depth) value, along with the date and time of the sample location, and placed in a secured, chilled ice chest. Standard chain-of-custody (COC) procedures were used during sampling and transportation to APPL (via FedEx), the State-certified laboratory subcontracted by Kleinfelder.

3.3 EQUIPMENT BLANKS

An equipment blank, consisting of distilled water poured over the sampling equipment that had been cleaned, was collected at the end of sampling. The equipment blank was collected to document the condition of the sampling equipment following decontamination. Equipment blank samples were collected in a laboratory-supplied, nitric acid-preserved bottle. The sample bottle was labeled with a unique sample identifier, date, time, project number and samplers' initials. The equipment blank sample was placed in the chilled cooler along with the soil samples and transported to APPL (via FedEx) for analysis.

3.4 ANALYTICAL METHODS

A total of 20 soil samples, including 2 duplicate samples, were analyzed for total lead by U.S. EPA Method 6010B and for soluble lead by the CA-WET method (STLC). A modified CA-WET procedure, using DI water extraction (DI-WET), was performed on 10 soil samples, which included the samples with total lead concentrations above 50 mg/kg

and two other selected samples with concentrations below 50 mg/kg. Soluble lead was analyzed in 3 samples by TCLP based on total lead concentrations above 100 mg/kg and below 1,000 mg/kg. Additionally, 4 samples were measured for pH using USEPA Method 9045D.

3.5 DECONTAMINATION AND BORING ABANDONMENT

Sampling equipment (i.e., hand auger cutter head, soil sampler, etc.) was washed with a solution of Liquinox® detergent and rinsed with tap water and DI water, in buckets, prior to each use. Generation of wash water was minimized. Wash water was contained in 5-gallon pails for disposal. At the end of the day, wash water was disposed at the surface in Caltrans right-of-way, in an area that did not cause runoff of fluid or sediment into receptors (i.e., storm drain, creek, or other surface water bodies), consistent with the work plan. Soil cuttings originating from each boring were placed back within the original borehole as described in the work plan (Kleinfelder, 2015a).

4 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

This section includes a summary of the Site conditions observed during the field work, a summary of the analytical results, and a discussion of the data quality assessment. The summary of analytical results for the soil samples collected is presented in Table 1. Certified Level II laboratory reports from APPL are included in Appendix B.

4.1 SITE CONDITIONS

Site conditions were favorable enough to collect the number of samples required from the work plan, although refusal was met at several locations and anticipated depth was not always reached. Refusal was encountered at two feet bgs at the following locations: SR163-LW01, -LW02, LW03, and -LW05. Soil encountered was generally silty sand with large cobbles.

4.2 SOIL SAMPLE RESULTS

4.2.1 Total Lead

Total lead (TOTAL) was detected in the 20 soil samples analyzed, including 2 of the duplicate samples (Table 1 and Plates 2a and 2b) ranging in concentration from 3.0 to 336 mg/kg. The maximum total lead concentration was 336 mg/kg, reported in the sample SR163-MVP-01-0.5. In general, near surface samples generally contained higher concentrations of total lead compared to the deeper samples; however, there were two samples that were slightly higher than the surface sample collected at the same location.

4.2.2 California WET Method Soluble Lead Results

CA-WET method soluble lead (citrate extraction) was reported at concentrations above 5.0 mg/L (the STLC action level) in 5 of the 20 samples analyzed. The maximum CA-WET method soluble lead concentration was 30.9 mg/L, reported in the sample collected at SR163-MVP-01-1.0.

4.2.3 California DI-WET Method Soluble Lead Results

California DI-WET method soluble lead was reported in 6 of the 10 samples analyzed (Table 1 and Plates 2a and 2b). The concentrations reported did not contain concentrations greater than 1.5 mg/L, the maximum threshold concentration for DTSC Variance Condition 9.c. The maximum concentration for California DI-WET method soluble lead was 0.15 mg/L, reported in the sample collected at SR163-MVP-01-1.0, which corresponded to a total lead concentration of 295 mg/kg and a standard California WET method soluble lead concentration of 30.9 mg/L.

4.2.4 TCLP Soluble Lead

Soluble lead was analyzed by TCLP using USEPA Method 1311 in 3 samples that had concentrations exceeding 100 mg/kg. TCLP values ranged from 0.086 J mg/L (J denotes and estimated concentration above the method detection limit but below the laboratory reporting limit) to 0.95 mg/L (Table 1 and Plates 2a and 2b). Pursuant to the DTSC Variance, TCLP analysis is performed to evaluate if soils do not qualify for reuse due to designation as a RCRA hazardous waste. The values reported did not exceed 5.0 mg/L, the value at which soil is considered a RCRA hazardous waste.

4.2.5 Hydrogen Ion Concentration

The pH of the seven soil samples analyzed ranged from 8.14 to 8.82 (Table 1 and Plate 2). All of the samples analyzed had reported pH concentrations greater than the criterion of 5.5 listed in the DTSC variance; therefore, soil in these locations is not limited to reuse in covered areas (DTSC, 2009).

4.3 DATA QUALITY ASSESSMENT

The following section summarizes the quality assurance (QA) and quality control (QC) program and data quality assessment. The data quality assessment process consisted of a review, verification, validation, and evaluation of the analytical data generated during the project. The limited data quality assessment was performed using the U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (USEPA, 2010) as a reference.

A total of 18 primary soil samples, 2 duplicate soil samples, and one equipment rinsate blank were collected and submitted to APPL for one or more of the following analyses:

- Total lead by USEPA Method 6010B (TTLC)
- pH by USEPA Method 9045D
- WET Method
- DI-WET Method
- Soluble lead by USEPA Method 1311 (TCLP)

One hundred percent of the data generated for this Project underwent a limited data quality review by a Kleinfelder project chemist, independent of Project activities. One Level II data deliverable report (Work Orders) was evaluated during the data quality assessment, which consisted of evaluating the following parameters:

- Technical holding times and temperature
- COCs
- Sample results and analytical methods selected
- Field and laboratory blanks
- Laboratory control sample (LCS) spike results
- Matrix spike (MS) and matrix spike duplicate (MSD) results.

Field and laboratory personnel implemented QA/QC procedures consistent with the QA criteria specified in the *Aerially-Deposited Lead Survey Work Plan* (Kleinfelder, 2015a) during the soil sampling event. Lead was not reported above the laboratory reporting limit in the equipment rinsate blank. Laboratory QC samples were also analyzed consistent with the analytical method requirements.

During the data quality assessment, no quality discrepancies were observed. Based on the data quality assessment, data that have been qualified as estimated (“J” or “UJ” qualified) were retained. Based on the results of the data quality assessment, the project achieved a sample and analytical completeness goal of 100%. The ADL data are acceptable for the intended use of the Project.

5 STATISTICAL EVALUATION

The data were analyzed to identify the appropriate handling of soil affected by ADL under the terms of the variance granted by DTSC to Caltrans District 11 for highway construction projects. During the course of construction, this soil is likely to be excavated, stockpiled, and relocated using methods that tend to homogenize soil constituent concentrations.

Caltrans has prepared an ADL guidance document to support the implementation of the DTSC variance (Caltrans, 2007). Kleinfelder has modified this table based upon the current DTSC ADL variance (DTSC, 2009), which is included in this report as Plate 3. The guidance document provides a flow chart/decision diagram to address DTSC variance applicability based on the various analyses. The decision points for evaluation of the lead data were as follows: If the 95 percent upper confidence limit (UCL) on mean total lead is less than 1,000 mg/kg, and if the 95 percent UCL on mean soluble lead (DI-WET) is less than 1.5 mg/L, then the soil is considered non-hazardous and can be released to the contractor for reuse on Site in accordance with Project specifications.

The USEPA statistical analysis package, ProUCL was used to complete the statistical evaluation (U.S.EPA, 2007). ProUCL allows the computation of a reliable, stable, and conservative 95 percent UCL of the mean concentration in an environmental data set and offers 15 different methods of computing a 95 percent UCL depending on the distribution of a given data set.

Appendix C Section 3.1 provides a summary of the 95 percent UCLs calculated for total lead and soluble lead concentrations reported for soil samples from the subject Site. Based on a comparison of the 95 percent UCL value generated by ProUCL, the data set for total lead passes the first criterion established in the Caltrans ADL guidance: “Is the 95 percent UCL for total lead less than 1,000 mg/kg?”

A statistical analysis of soluble lead calculated using the results of the DI-WET procedure was also performed to address the second criterion from the Caltrans ADL flow chart/decision diagram (Plate 3).

Under the DTSC variance and federal and state hazardous waste classifications, soil can be placed into specific ADL Soil Management Types. Based on the results of the analysis, the represented soil units for the Project can be placed into one of two ADL Soil Management Types. Soil classified as “X” is not restricted for on-Site use, but requires a lead compliance plan for worker safety. Surplus soil classified as “X” can be disposed of as non-hazardous waste at a Class III facility. Soil classified as “Y1” requires (at a minimum) one foot of clean soil cover if used on Site, in addition to health and safety requirements. Surplus soil classified as “Y1” is to be disposed of as California-hazardous (non RCRA) waste at a Class I facility. The ADL Soil Management Types for the soil to be used on the Project is classified as “X” or “Y1”.

In conclusion, based on Caltrans ADL guidance criteria (Caltrans Variance), the shallow soil (<1 foot bgs) addressed in this analysis is classified as hazardous, which requires a minimum cover of one foot of clean soil. The basis for this conclusion is as follows:

- For these soils, the 95 percent UCL for total lead is less than 1,000 mg/kg at all depths (132.2 mg/kg, Appendix C).
- The 95 percent UCL for CA-WET citrate procedure is more than 5.0 mg/L at all depths (10.1 mg/L, Appendix C).
- The 95 percent UCL for DI-WET procedure is less than 5.0 mg/L at all depths (0.06 mg/L, Appendix C).
- Additional statistical analysis also shows that if Caltrans selects to use excavated soil from depths greater than 1 foot bgs, it has been assessed with an “X” designation, which means that there are no restrictions on soil reuse (Appendix C).
- Although statistical analysis indicates that the 95 percent UCL for the lane widening area for the CA-WET procedure is 4.9 mg/L, below the Caltrans Variance threshold, it is recommended to treat the soil as Y1 to account for potential uncertainties in sampling and analysis (Appendix C).

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 VARIANCE CONCLUSIONS

Based on statistical analysis of the analytical results of this ADL Survey, shallow soil (<1 foot bgs) tested within the Caltrans right-of-way is classified with an Y1 designation, and contains concentrations of lead that are considered a California hazardous waste (Appendix C), but can be used on Site if covered with one foot of clean soil.

If Caltrans selects to segregate soil, soil from deeper than 1 foot bgs is classified with an X designation, and can be reused without restrictions.

The seven soil samples had reported pH values at or above the variance criterion of 5.5; therefore, soil tested within the Caltrans right-of-way does not contain a pH value below that which would apply to the DTSC Variance conditions (Appendix C).

Since off-Site disposal be required, the soil should be handled based on the criteria described in Section 6.2.

6.2 WASTE CHARACTERIZATION CONCLUSIONS

Based on the analytical results of this ADL Survey, soil samples collected at the 6 sample locations along the unpaved shoulders did not contain total lead in excess of the California TTLC of 1,000 mg/kg. The standard CA-WET soluble lead test results indicate that soil concentrations are in excess of the California STLC of 5 mg/L in 5 of the 20 samples analyzed for soluble lead by California WET at various locations along the Site.

Based on the results of soil sampling (95% UCL for all locations), soils from this area are considered California hazardous in comparison to California STLC limits for depths from the surface to 1 foot bgs.

6.3 RECOMMENDATIONS

Based on the results of the soil sampling activities conducted, the soil located in the area from depths greater than 1 foot bgs can be reused without restrictions. However, soil from the surface to a depth of 1 foot bgs is considered California hazardous and will require a one foot cover of clean soil.

Please note that, based on discussions with DTSC, when a new Variance is issued that will be in effect starting July 1, 2015, total lead and soluble lead limit concentrations will be modified from those existing. Therefore, depending on implementation schedule, Variance concentrations listed herein may change.

7 LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report.

The work performed was based on project information provided by Client. If the Client does not retain Kleinfelder to review any plans and specifications, including any revisions or modifications to the plans and specifications, Kleinfelder assumes no responsibility for the suitability of our recommendations. In addition, if there are any changes in the field to the plans and specifications, the Client must obtain written approval from Kleinfelder's engineer that such changes do not affect our recommendations. Failure to do so will vitiate Kleinfelder's recommendations.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more-detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this report will

indicate that the Client has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may have been discovered. Kleinfelder assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. The Client is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of Kleinfelder's services. The Client is responsible for directing all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.

8 REFERENCES

California Department of Transportation (Caltrans), 2007. Caltrans Aerially Deposited Lead Guidance, June.

Department of Toxic Substances Control (DTSC), 2000. Variance No. 00-H-VAR-06. Granted to State of California Department of Transportation, District 11. September 22.

DTSC, 2008. Lead Contaminated Soil Variance Modification, Variance Number 00-H-VAR-07, Caltrans District 11, June 17.

DTSC, 2009. Lead Contaminated Soil Variance Modification, Variance Number V09HQSCD006, Caltrans District 11, July 1.

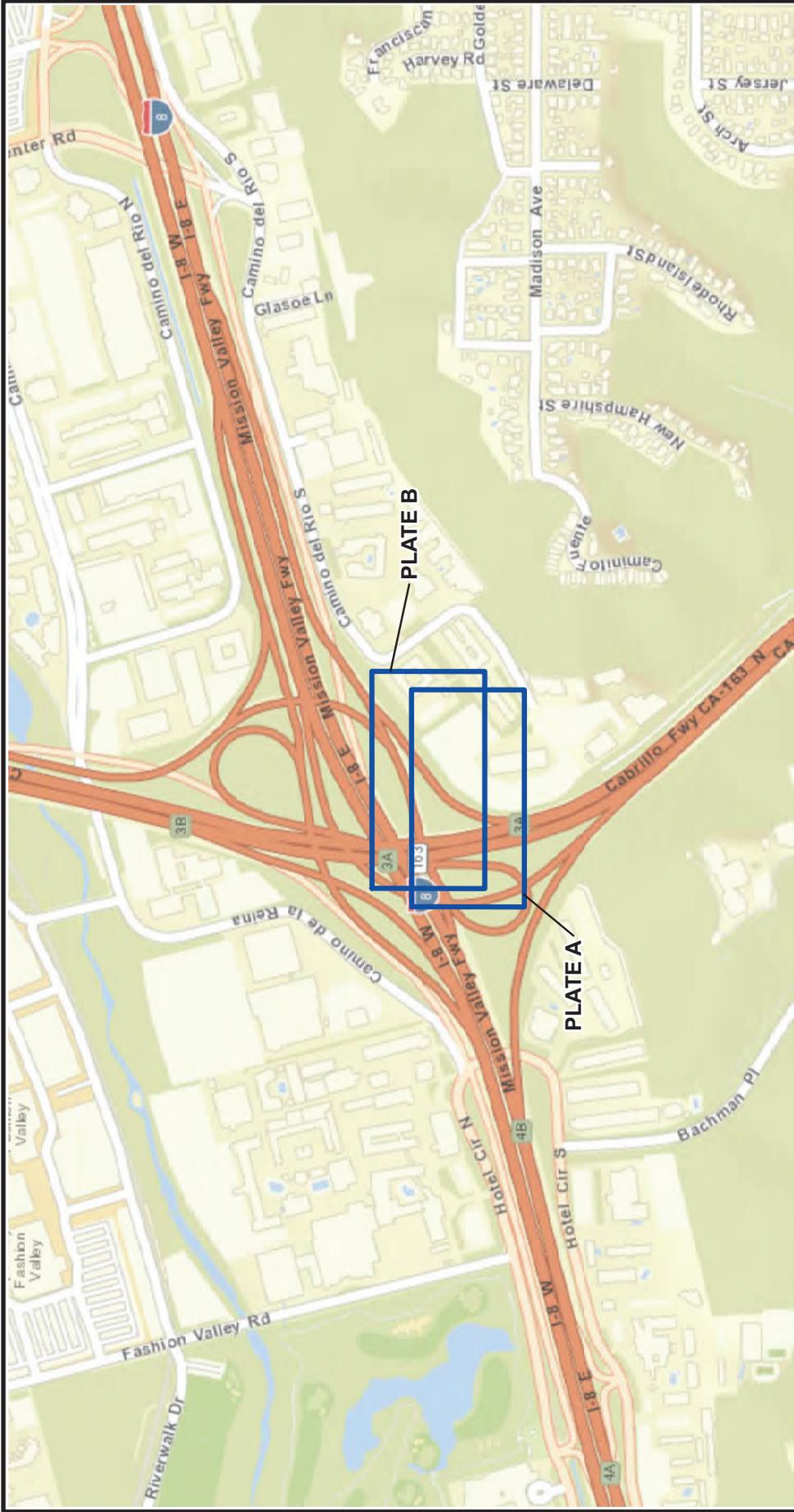
Kleinfelder, Inc. (Kleinfelder), 2015a. Aerially Deposited Lead Survey Work Plan, SR163/I8, San Diego, CA, Caltrans EA 416801, San Diego County, CA. January 12.

Kleinfelder, 2015b. Site-Specific Safety and Accident Prevention Plan, Aerially Deposited Lead Survey, SR163/I8, San Diego, CA, Caltrans EA 416801, San Diego County, CA. January 12.

USEPA, 2010. National Functional Guidelines for Inorganic Data Review, January.

USEPA, 2011. ProUCL version 4.1. July.

PLATES



Service Layer Credits: Esri Online Imagery Services, 2013

The information in this map has been compiled from a variety of sources and is subject to change without notice. Kleinfelder makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a land survey product nor as a construction design document. The use or misuse of this information is at the sole risk of the party using or misusing the information.

PROJECT NO: 20153836.001A
 DRAWN BY: E GOFF
 CHECKED BY: C. NOLAND
 DATE: MARCH 2015



LEGEND

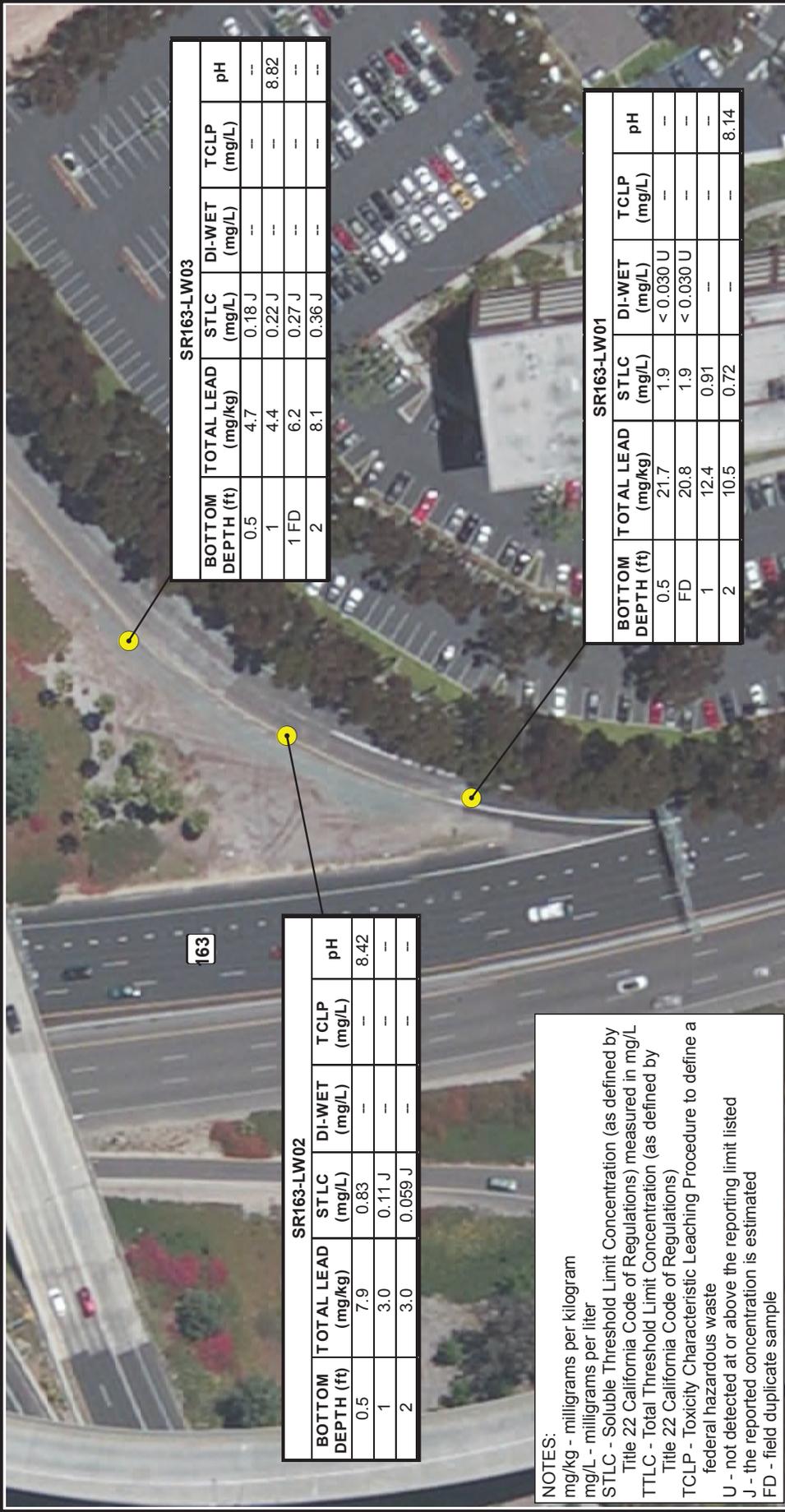


PLATE BOUNDARY



VICINITY MAP
 ADL SURVEY REPORT
 SR-163/I-8
 SAN DIEGO, CA
 CALTRANS EA 11- 416801

PLATE
1



SR163-LW03

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	DI-WET (mg/L)	TCLP (mg/L)	pH
0.5	4.7	0.18 J	---	---	---
1	4.4	0.22 J	---	---	8.82
1 FD	6.2	0.27 J	---	---	---
2	8.1	0.36 J	---	---	---

SR163-LW01

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	DI-WET (mg/L)	TCLP (mg/L)	pH
0.5	21.7	1.9	< 0.030 U	---	---
FD	20.8	1.9	< 0.030 U	---	---
1	12.4	0.91	---	---	---
2	10.5	0.72	---	---	8.14

SR163-LW02

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	DI-WET (mg/L)	TCLP (mg/L)	pH
0.5	7.9	0.83	---	---	8.42
1	3.0	0.11 J	---	---	---
2	3.0	0.059 J	---	---	---

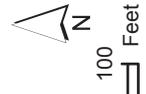
NOTES:
 mg/kg - milligrams per kilogram
 mg/L - milligrams per liter
 STLC - Soluble Threshold Limit Concentration (as defined by Title 22 California Code of Regulations) measured in mg/L
 TTLC - Total Threshold Limit Concentration (as defined by Title 22 California Code of Regulations)
 TCLP - Toxicity Characteristic Leaching Procedure to define a federal hazardous waste
 U - not detected at or above the reporting limit listed
 J - the reported concentration is estimated
 FD - field duplicate sample

Service Layer Credits: Esri Online Imagery Services, 2013

The information in this map has been compiled from a variety of sources and is subject to change without notice. Kleinfeilder makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a land survey product nor as a construction design document. The use or misuse of this information is at the sole risk of the party using or misusing the information.

LEGEND

● SAMPLE LOCATION



PROJECT NO: 20153836.001A
 DRAWN BY: E GOFF
 CHECKED BY: C. NOLAND
 DATE: MARCH 2015

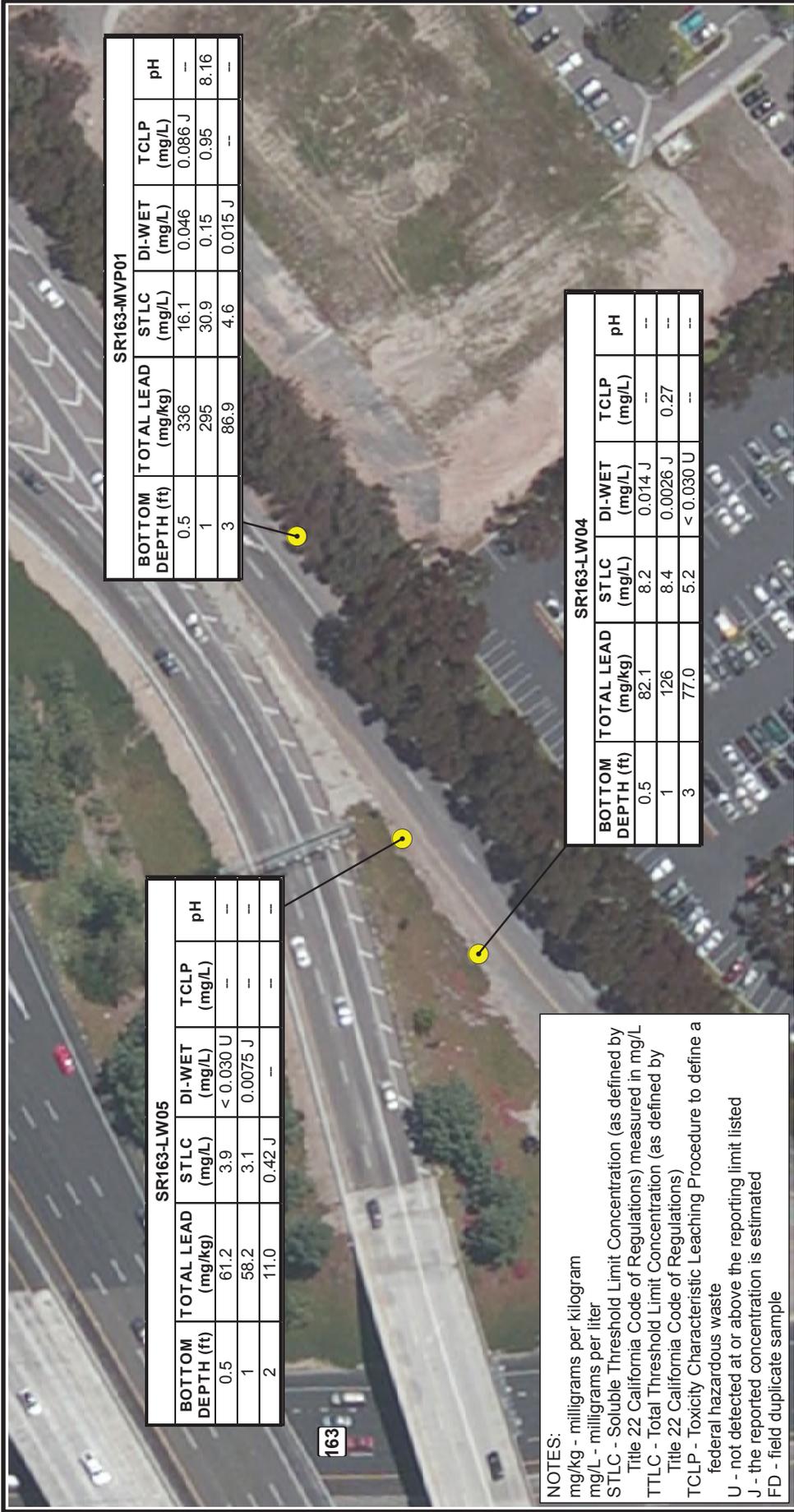


SAMPLE LOCATION MAP

ADL SURVEY REPORT
 SR-163/I-8
 SAN DIEGO, CA
 CALTRANS EA 11 - 416801

PLATE
2a





SR163-MVP01

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	DI-WET (mg/L)	TCLP (mg/L)	pH
0.5	336	16.1	0.046	0.086 J	--
1	295	30.9	0.15	0.95	8.16
3	86.9	4.6	0.015 J	--	--

SR163-LW05

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	DI-WET (mg/L)	TCLP (mg/L)	pH
0.5	61.2	3.9	< 0.030 U	--	--
1	58.2	3.1	0.0075 J	--	--
2	11.0	0.42 J	--	--	--

SR163-LW04

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	STLC (mg/L)	DI-WET (mg/L)	TCLP (mg/L)	pH
0.5	82.1	8.2	0.014 J	--	--
1	126	8.4	0.0026 J	0.27	--
3	77.0	5.2	< 0.030 U	--	--

NOTES:
 mg/kg - milligrams per kilogram
 mg/L - milligrams per liter
 STLC - Soluble Threshold Limit Concentration (as defined by Title 22 California Code of Regulations) measured in mg/L
 TTLC - Total Threshold Limit Concentration (as defined by Title 22 California Code of Regulations)
 TCLP - Toxicity Characteristic Leaching Procedure to define a federal hazardous waste
 U - not detected at or above the reporting limit listed
 J - the reported concentration is estimated
 FD - field duplicate sample

Service Layer Credits: Esri Online Imagery Services, 2013

The information in this map has been compiled from a variety of sources and is subject to change without notice. Kleinfielder makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a land survey product nor as a construction design document. The use or misuse of this information is at the sole risk of the party using or misusing the information.

LEGEND

● SAMPLE LOCATION



PROJECT NO: 20153836.001A
 DRAWN BY: E GOFF
 CHECKED BY: C. NOLAND
 DATE: MARCH 2015



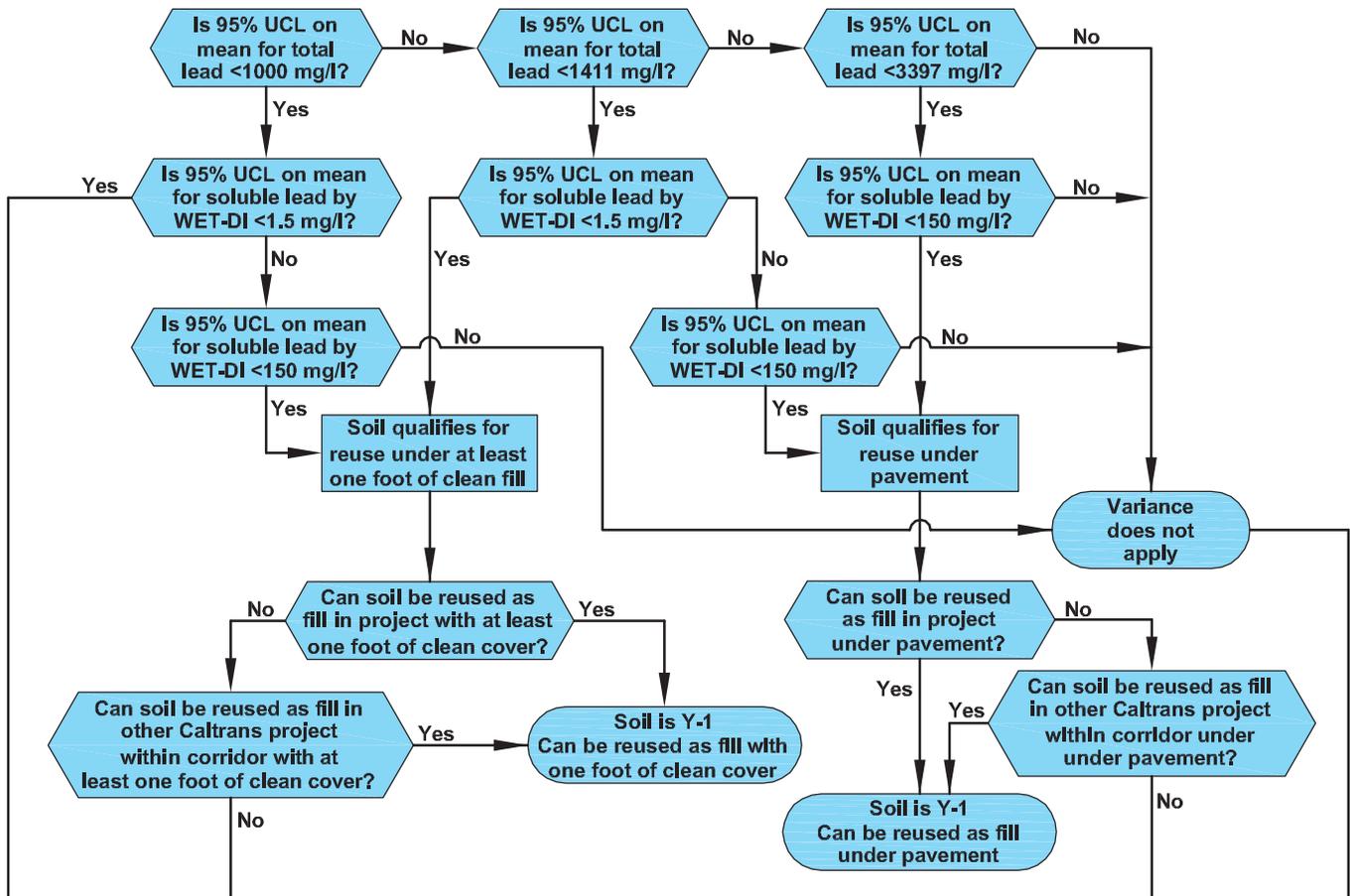
SAMPLE LOCATION MAP

ADL SURVEY REPORT
 SR-163/I-8
 SAN DIEGO, CA
 CALTRANS EA 11 - 416801

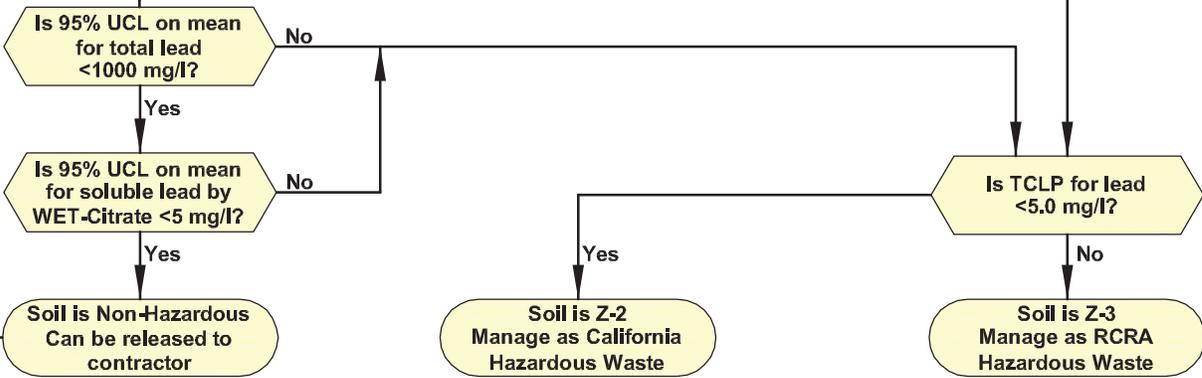
PLATE

2b

DTSC Variance Applicability Determination



Waste Classification Determination



The information included on this graphic representation has been compiled from a variety of sources and is subject to change without notice. Kleinfelder makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a land survey product nor is it designed or intended as a construction design document. The use or misuse of the information contained on this graphic representation is at the sole risk of the party using or misusing the information.

SOURCE:
 CALTRANS AERIALLY DEPOSITED LEAD GUIDANCE, JUNE 2007. UPDATE BASED ON VARIANCE NUMBER V09HQSCD006 (DTSC, JULY 2009)

ATTACHED IMAGES:
ATTACHED XREFS:

PROJECT NO.	20154153
DRAWN:	3/23/15
DRAWN BY:	JP
CHECKED BY:	CN
FILE NAME:	20154153_flow1.dwg

**ADL-IMPACTED SOILS
MANAGEMENT FLOW CHART**

ADL SURVEY REPORT
SR163/I-8
SAN DIEGO, CALIFORNIA
CALTRANS EA11-416801

FIGURE
3

CAD FILE: J:\clients\CalTrans\20154153-T026\IMXD\ LAYOUT: Layout1

TABLES

Table 1
Soil Analytical Results
CALTRANS Task Order 25

Location Name	Sample Name	Date	Leachate Method		Chemical Method	Lead SW6010B TTLC mg/kg	Lead SW6010B STLC-WET mg/L	Lead SW6010B STLC WET-DI mg/L	Lead SW6010B TCLP mg/L	pH SW9045D NONE pH units
			Units	Depth						
SR163-LW01	SR163-LW01-0.5	02/13/2015	0.5	21.7		1.9	< 0.030 U		--	--
SR163-LW01	SR163-100-2	02/13/2015	0.5	20.8		1.9	< 0.030 U		--	--
SR163-LW01	SR163-LW01-1.0	02/13/2015	1	12.4		0.91	--		--	--
SR163-LW01	SR163-LW01-2.0	02/13/2015	2	10.5		0.72	--		--	8.14
SR163-LW02	SR163-LW02-0.5	02/12/2015	0.5	7.9		0.83	--		--	8.42
SR163-LW02	SR163-LW02-1.0	02/12/2015	1	3.0		0.11 J	--		--	--
SR163-LW02	SR163-LW02-2.0	02/12/2015	2	3.0		0.059 J	--		--	--
SR163-LW03	SR163-LW03-0.5	02/12/2015	0.5	4.7		0.18 J	--		--	--
SR163-LW03	SR163-LW03-1.0	02/12/2015	1	4.4		0.22 J	--		--	8.82
SR163-LW03	SR163-100	02/12/2015	1	6.2		0.27 J	--		--	--
SR163-LW03	SR163-LW03-2.0	02/12/2015	2	8.1		0.36 J	--		--	--
SR163-LW04	SR163-LW04-0.5	02/13/2015	0.5	82.1		8.2	0.014 J		--	--
SR163-LW04	SR163-LW04-1.0	02/13/2015	1	126		8.4	0.0026 J	0.27	--	--
SR163-LW04	SR163-LW04-3.0	02/13/2015	3	77.0		5.2	< 0.030 U		--	--
SR163-LW05	SR163-LW05-0.5	02/13/2015	0.5	61.2		3.9	< 0.030 U		--	--
SR163-LW05	SR163-LW05-1.0	02/13/2015	1	58.2		3.1	0.0075 J		--	--
SR163-LW05	SR163-LW05-2.0	02/13/2015	2	11.0		0.42 J	--		--	--
SR163-MVP-01	SR163-MVP-01-0.5	02/13/2015	0.5	336		16.1	0.046	0.086 J		--
SR163-MVP-01	SR163-MVP-01-1.0	02/13/2015	1	295		30.9	0.15	0.95		8.16
SR163-MVP-01	SR163-MVP-01-3.0	02/13/2015	3	86.9		4.6	0.015 J		--	--

Notes:

J = Estimated value
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
pH = hydrogen ion potential
STLC = soluble threshold limit concentration
STLC-WET = STLC using citric acid extractant
STLC-WET-DI = STLC using deionized water as extractant
TCLP = toxicity characteristics leaching procedure
TTLC = total threshold limit concentration
U = concentration below laboratory reporting limit
BOLD indicates STLC concentrations exceeding 5.0 mg/L

APPENDIX A

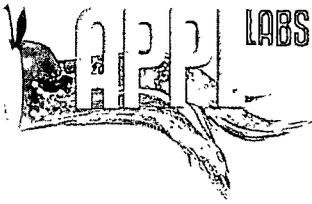
Sample Location Coordinates (Table A-1)

Table A-1
Sample Location Coordinates

Location Identification	Longitude	Latitude
LW-01	-117.163020447	32.761477084
LW-02	-117.162910385	32.761747358
LW-03	-117.162753377	32.761976031
LW-04	-117.162506620	32.762168064
LW-05	-117.162321561	32.762289121
MVP-01	-117.161809416	32.762444184

APPENDIX B

Laboratory Analytical Reports and Chain-of-Custody Documentation



March 3, 2015

Kleinfelder
550 West C Street, Suite 1200
San Diego, California 92101

Attn: Chris Noland

Subject: Report of Data: Case 75588

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dear Mr. Noland:

One water and twenty soil samples for project "20153836 Caltrans TO25 SR163 Ramp ADL STUDY" were received February 14, 2015, in good condition. TCLP lead analysis was added to three samples and STLC DI-WET lead analysis was added to 10 samples, as requested on February 24, 2015. Written results are being provided on this March 3, 2015, for the requested analyses.

For the EPA 6010B analysis, the soil samples were digested according to EPA method 3050B. The water sample was digested according to EPA method 3010A.

For the EPA 6010B STLC lead analysis, the samples were leached according to California Title 22 guidelines; the leachates were digested according to EPA method 3010A.

For the EPA 6010B TCLP analysis, the soil samples were leached according to EPA method 1311, and the leachates were digested according to EPA method 3010A.

For the EPA 6010B STLC DI-WET analysis, the samples were leached according to California Title 22 guidelines using DI water; the leachates were digested according to EPA method 3010A.

For the EPA 9045C analysis, the samples were prepared according to the method. The samples were analyzed for pH as soon as possible. All other holding times were met.

No unusual problem or complication was encountered with this sample set.

If you have any questions or require further information, please contact us at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC. Release of the hard copy has been authorized by the Laboratory Manager or her designee, as verified by the following signature.



Sharon Dehmlow, Laboratory Director
APPL, Inc.

SD/cm
Enclosure
cc: File

Number of pages: _____

Metals Results

Kleinfelder
550 West C Street, Suite 1200
San Diego, CA 92101

ARF: 75588

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Chris Noland

Method	Analyte	Result	RL	MDL	Units	DF	Prep Date	Analysis Date
APPL ID: AZ10901		-Client Sample ID: SR163-LW02-0.5		-Sample Collection Date: 02/12/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	7.9	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B/STLC	LEAD (PB)	0.83	0.50	0.002	mg/L	1	02/24/15	02/24/15
APPL ID: AZ10902		-Client Sample ID: SR163-LW02-1.0		-Sample Collection Date: 02/12/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	3.0	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B/STLC	LEAD (PB)	0.11 J	0.50	0.002	mg/L	1	02/24/15	02/24/15
APPL ID: AZ10903		-Client Sample ID: SR163-LW02-2.0		-Sample Collection Date: 02/12/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	3.0	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B/STLC	LEAD (PB)	0.059 J	0.50	0.002	mg/L	1	02/24/15	02/24/15
APPL ID: AZ10904		-Client Sample ID: SR163-LW03-0.5		-Sample Collection Date: 02/12/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	4.7	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B/STLC	LEAD (PB)	0.18 J	0.50	0.002	mg/L	1	02/24/15	02/24/15
APPL ID: AZ10905		-Client Sample ID: SR163-LW03-1.0		-Sample Collection Date: 02/12/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	4.4	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B/STLC	LEAD (PB)	0.22 J	0.50	0.002	mg/L	1	02/24/15	02/24/15
APPL ID: AZ10906		-Client Sample ID: SR163-100		-Sample Collection Date: 02/12/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	6.2	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B/STLC	LEAD (PB)	0.27 J	0.50	0.002	mg/L	1	02/24/15	02/24/15
APPL ID: AZ10907		-Client Sample ID: SR163-LW03-2.0		-Sample Collection Date: 02/12/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	8.1	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B/STLC	LEAD (PB)	0.36 J	0.50	0.002	mg/L	1	02/24/15	02/24/15

J = Estimated value.

Printed: 03/03/15 11:05:23 AM

APPL-F1-SC-NoMC-REG MDLs

Metals Results

Kleinfelder
550 West C Street, Suite 1200
San Diego, CA 92101

ARF: 75588

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Chris Noland

Method	Analyte	Result	RL	MDL	Units	DF	Prep Date	Analysis Date
APPL ID: AZ10908		-Client Sample ID: SR163-LW04-0.5		-Sample Collection Date: 02/13/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	0.014 J	0.030	0.0019	mg/L	1	03/02/15	03/02/15
6010B	LEAD (PB)	82.1	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B/STLC	LEAD (PB)	8.2	0.50	0.002	mg/L	1	02/24/15	02/24/15
APPL ID: AZ10909		-Client Sample ID: SR163-LW04-1.0		-Sample Collection Date: 02/13/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	126	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B	LEAD (PB)	0.0026 J	0.030	0.0019	mg/L	1	03/02/15	03/02/15
6010B/STLC	LEAD (PB)	8.4	0.50	0.002	mg/L	1	02/24/15	02/24/15
6010B/TCLP	LEAD (PB)	0.27	0.100	0.0016	mg/L	1	02/26/15	02/26/15
APPL ID: AZ10910		-Client Sample ID: SR163-LW04-3.0		-Sample Collection Date: 02/13/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	Not detected	0.030	0.0019	mg/L	1	03/02/15	03/02/15
6010B	LEAD (PB)	77.0	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B/STLC	LEAD (PB)	5.2	0.50	0.002	mg/L	1	02/24/15	02/24/15
APPL ID: AZ10911		-Client Sample ID: SR163-LW01-0.5		-Sample Collection Date: 02/13/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	21.7	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B	LEAD (PB)	Not detected	0.030	0.0019	mg/L	1	03/02/15	03/02/15
6010B/STLC	LEAD (PB)	1.9	0.50	0.002	mg/L	1	02/24/15	02/24/15
APPL ID: AZ10912		-Client Sample ID: SR163-100-2		-Sample Collection Date: 02/13/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	20.8	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B	LEAD (PB)	Not detected	0.030	0.0019	mg/L	1	03/02/15	03/02/15
6010B/STLC	LEAD (PB)	1.9	0.50	0.002	mg/L	1	02/24/15	02/24/15
APPL ID: AZ10913		-Client Sample ID: SR163-LW01-2.0		-Sample Collection Date: 02/13/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	10.5	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B/STLC	LEAD (PB)	0.72	0.50	0.002	mg/L	1	02/24/15	02/24/15

Printed: 03/03/15 11:05:23 AM

APPL-F1-SC-NoMC-REG MDLs

Metals Results

ARF: 75588

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Kleinfelder
550 West C Street, Suite 1200
San Diego, CA 92101

Attn: Chris Noland

Method	Analyte	Result	RL	MDL	Units	DF	Prep Date	Analysis Date
APPL ID: AZ10914		-Client Sample ID: SR163-LW05-0.5		-Sample Collection Date: 02/13/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	61.2	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B	LEAD (PB)	Not detected	0.030	0.0019	mg/L	1	03/02/15	03/02/15
6010B/STLC	LEAD (PB)	3.9	0.50	0.002	mg/L	1	02/24/15	02/24/15
APPL ID: AZ10915		-Client Sample ID: SR163-LW05-1.0		-Sample Collection Date: 02/13/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	0.0075 J	0.030	0.0019	mg/L	1	03/02/15	03/02/15
6010B	LEAD (PB)	58.2	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B/STLC	LEAD (PB)	3.1	0.50	0.002	mg/L	1	02/24/15	02/24/15
APPL ID: AZ10916		-Client Sample ID: SR163-LW05-2.0		-Sample Collection Date: 02/13/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	11.0	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B/STLC	LEAD (PB)	0.42 J	0.50	0.002	mg/L	1	02/24/15	02/24/15
APPL ID: AZ10917		-Client Sample ID: SR163-LW01-1.0		-Sample Collection Date: 02/13/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	12.4	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B/STLC	LEAD (PB)	0.91	0.50	0.002	mg/L	1	02/24/15	02/24/15
APPL ID: AZ10918		-Client Sample ID: SR163-MVP-01-0.5		-Sample Collection Date: 02/13/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	336	2.5	0.45	mg/kg	5	02/18/15	02/18/15
6010B	LEAD (PB)	0.046	0.030	0.0019	mg/L	1	03/02/15	03/02/15
6010B/STLC	LEAD (PB)	16.1	0.50	0.002	mg/L	1	02/24/15	02/24/15
6010B/TCLP	LEAD (PB)	0.086 J	0.100	0.0016	mg/L	1	02/26/15	02/26/15
APPL ID: AZ10919		-Client Sample ID: SR163-MVP-01-1.0		-Sample Collection Date: 02/13/15		Project: 20153836 Caltrans SR16		
6010B	LEAD (PB)	0.15	0.030	0.0019	mg/L	1	03/02/15	03/02/15
6010B	LEAD (PB)	295	2.5	0.45	mg/kg	5	02/18/15	02/18/15
6010B/STLC	LEAD (PB)	30.9	2.50	0.010	mg/L	5	02/24/15	02/25/15
6010B/TCLP	LEAD (PB)	0.95	0.100	0.0016	mg/L	1	02/26/15	02/26/15

Printed: 03/03/15 11:05:24 AM

APPL-F1-SC-NoMC-REG MDLs

Metals Results

Kleinfelder
550 West C Street, Suite 1200
San Diego, CA 92101

ARF: 75588

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Chris Noland

Method	Analyte	Result	RL	MDL	Units	DF	Prep Date	Analysis Date
APPL ID: AZ10920 -Client Sample ID: SR163-MVP-01-3.0 -Sample Collection Date: 02/13/15 Project: 20153836 Caltrans SR16								
6010B	LEAD (PB)	86.9	0.5	0.09	mg/kg	1	02/18/15	02/18/15
6010B	LEAD (PB)	0.015 J	0.030	0.0019	mg/L	1	03/02/15	03/02/15
6010B/STLC	LEAD (PB)	4.6	0.50	0.002	mg/L	1	02/24/15	02/24/15
APPL ID: AZ10921 -Client Sample ID: QCEB-0213 -Sample Collection Date: 02/13/15 Project: 20153836 Caltrans SR16								
6010B	LEAD (PB)	12.6	5.0	1.58	ug/L	1	02/19/15	02/19/15

Printed: 03/03/15 11:05:24 AM

APPL-F1-SC-NoMC-REG MDLs

Wetlab Results

ARF: 75588

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Kleinfelder
550 West C Street, Suite 1200
San Diego, CA 92101

Attn: Chris Noland

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
APPL ID: AZ10901 -Client Sample ID: SR163-LW02-0.5 -Sample Collection Date: 02/12/15 Project: 20153836 Caltrans SR16							
EPA 9045C	PH	8.42@22.8C	NA		pH Units	02/16/15	02/16/15
APPL ID: AZ10905 -Client Sample ID: SR163-LW03-1.0 -Sample Collection Date: 02/12/15 Project: 20153836 Caltrans SR16							
EPA 9045C	PH	8.82@22.3C	NA		pH Units	02/16/15	02/16/15
APPL ID: AZ10913 -Client Sample ID: SR163-LW01-2.0 -Sample Collection Date: 02/13/15 Project: 20153836 Caltrans SR16							
EPA 9045C	PH	8.14@22.3C	NA		pH Units	02/16/15	02/16/15
APPL ID: AZ10919 -Client Sample ID: SR163-MVP-01-1.0 -Sample Collection Date: 02/13/15 Project: 20153836 Caltrans SR16							
EPA 9045C	PH	8.16@22.3C	NA		pH Units	02/16/15	02/16/15

METALS BLANK

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date	QC Group
6010B	LEAD (PB)	Not detected	0.5	0.09	mg/kg	02/18/15	02/18/15	#MTL3-150218A-AZ10901
6010B	LEAD (PB)	Not detected	0.50	0.002	mg/L	02/24/15	02/24/15	#MTL5-150224A-AZ10901
6010B	LEAD (PB)	Not detected	0.030	0.0019	mg/L	03/02/15	03/02/15	#MTL6M-150302A-AZ10908
6010B	LEAD (PB)	Not detected	0.100	0.0016	mg/L	02/26/15	02/26/15	#61BTC-150226A-AZ10909
6010B	LEAD (PB)	Not detected	5.0	1.58	ug/L	02/19/15	02/19/15	#MTL1-150219A-AZ10921

Laboratory Control Spike Recovery

METALS

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Level mg/kg	SPK Result mg/kg	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group
EPA 6010B	LEAD (PB)	25.0	22.7	90.8	80-120	02/18/15	02/18/15	#MTL3-150218A-AZ10901

Comments:

Laboratory Control Spike Recovery

METALS

APPL Inc.
 908 North Temperance Avenue
 Clovis, CA 93611

Method	Compound Name	Spike Level mg/L	SPK Result mg/L	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group
EPA 6010B	LEAD (PB)	2.50	2.2	88.0	75-125	02/24/15	02/24/15	#MTL5-150224A-AZ10901

Comments:

Laboratory Control Spike Recovery

METALS

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Level mg/L	SPK Result mg/L	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group
EPA 6010B	LEAD (PB)	2.50	2.6	104	80-120	03/02/15	03/02/15	#MTL6M-150302A-AZ10908

Comments:

Laboratory Control Spike Recovery

METALS

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Level mg/L	SPK Result mg/L	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group
EPA 6010B	LEAD (PB)	0.250	0.25	100	80-120	02/26/15	02/26/15	#61BTC-150226A-AZ10909

Comments: _____

Laboratory Control Spike Recovery

METALS

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group
EPA 6010B	LEAD (PB)	250	261	104	80-120	02/19/15	02/19/15	#MTL1-150219A-AZ10921

Comments: _____

WETLAB

Sample/Sample Duplicate Results

Kleinfelder
550 West C Street, Suite 1200
San Diego, CA 92101

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Sample ID: AZ10901

Client ID: SR163-LW02-0.5

Project: 20153836 Caltrans SR163 RAMP ADL STUDY

ARF: 75588

Method	Analyte	Sample ID	Sample Result	Sample Dup Result	RPD	Max	MDL	PQL	Units	Sample Extract Date	Sample Analysis Date	Sample Dup Extract Date	Sample Dup Analysis Date
EPA 9045C	PH	AZ10901	8.42@22.8C	8.5@22.8C	0.9	20		NA	pH Units	02/16/15	02/16/15	02/16/15	02/16/15



785586 A-500

PROJECT NO.	PROJECT NAME	PROJECT NAME		MATRIX	OF CONTAINERS	TYPE OF CONTAINERS	ANALYSIS	RECEIVING LAB	INSTRUCTIONS/REMARKS
		LP NO. (PO. NO.)	SAMPLERS (Signature/Number)						
DATE MM/DD/YY	SAMPLE I.D. HH-MM-SS	SAMPLE I.D.							
2/12/15	2250	SR163-LW02-05	SOIL	7	6	X	X	APPL LABS 908 N. TEMPERANCE AVE ST. LOUIS, CA 92411	STANDARD TAT
	2300	SR163-LW02-1.0		2		X	X		
	2315	SR163-LW02-2.0		2		X	X		
	2325	SR163-LW03-0.5		2		X	X		* RUN PI WET IF CA-WET > 5mg/L and/or if total lead is between 50 and 1,000 mg/kg
	2330	SR163-LW03-1.0		2		X	X		
	2330	SR163-100		2		X	X		
	2350	SR163-LW03-2.0		2		X	X		
2/13/15	0005	SR163-LW04-0.5		2		X	X		* RUN TCLP if total lead is between 100 mg/kg and 1000 mg/kg
	0010	SR163-LW04-1.0		2		X	X		
	0015	SR163-LW04-3.0		2		X	X		
	0020	SR163-LW01-0.5		2		X	X		
	0020	SR163-100-2		2		X	X		
	0045	SR163-LW01-2.0		2		X	X		
	0055	SR163-LW05-0.5		2		X	X		
	0100	SR163-LW05-1.0		2		X	X		
	0115	SR163-LW05-2.0		2		X	X		
	0025	SR163-LW01-1.0		2		X	X		
	0125	SR163-MVP-01-0.5		2		X	X		
	0130	SR163-MVP-01-1.0		2		X	X		
	0135	SR163-MVP-01-3.0		2		X	X		

Send Results To:
Cnoland > ekleinfelder.000
gkellar
Attn:

Instructions/Remarks:
FEDEX:
806516010310

Requisitioned by: (Signature) [Signature]
Date/Time: 2/13/15 1800
Received by: (Signature) [Signature]
Date/Time: 2/14/15 11:15 am [Signature]
Requisitioned by: (Signature) [Signature]
Date/Time: [Signature]
Received for Laboratory by: (Signature) [Signature]
White - Sampler

APPENDIX C

**Statistical Data Evaluation
(The Bodhi Group, January 21, 2015)**



Revised March 23, 2015
Project No. 9061015

Mr. Mark Peabody
Project Manager
Kleinfelder, Inc.
550 West C Street, Suite 1200
San Diego, California 92101

Subject: Statistical Analysis of Lead Concentrations in Soil
On Ramp from State Route 163 to Interstate 8
Caltrans D11 TO25, Kleinfelder Project No. 20153836.001A

Dear Mr. Peabody:

This technical memorandum summarizes the results of our statistical analysis of lead concentrations in soil reported by Kleinfelder from the project ADL survey. The data were provided in Microsoft Excel format.

For questions pertaining to this analysis, please contact the undersigned at 858.513.1469 or by email at sree@thebodhigroup.com.

Sincerely,
The Bodhi Group, Inc.

Sree Gopinath, P.E.
Principal Engineer



1. INTRODUCTION

The California Department of Transportation (Caltrans) is proposing improvements (Project) to the ramp (Site) from State Route 163 (SR163) to Interstate 8 (I-8). Project construction will result in soil disturbance, excavation, and reuse of excavated soil.

In the more urbanized highway corridors, including the Site, shallow soil is typically contaminated with aurally-deposited lead (ADL) caused by historic emissions from vehicle exhausts. The lead concentrations in shallow soil may exceed State and Federal hazardous waste criteria or may be at concentrations that require special handling and placement.

The California Department of Toxic Substances Control (DTSC) issued a variance to Caltrans (Variance, No. V09HQSCD006) for the management of soil contaminated with ADL. The Variance requires the comparison of representative concentrations of lead (soluble and total) and pH with hazardous waste and other criteria for proper classification of soil. Based on the classification, soil could be managed for reuse within the Project or removed for disposal at an off-site in-State permitted facility.

2. OBJECTIVE

Determine representative concentrations of lead and pH in soil that will be co-excavated during Project construction. For co-excavated soil with sufficient data, representative concentrations will be evaluated using statistical methods. Co-excavated soil refers to soil that is combined into one stockpile distinct from soil in other stockpiles. Representative concentrations of each co-excavated soil is compared with Variance criteria for proper ADL soil type classification to determine reuse or proper disposal.

3. ANALYSIS

A total of 18 soil samples were collected from 6 soil boring locations at the Site (not including field duplicates). Three soil samples were collected from each soil boring at discrete depth intervals of 0.5 feet below ground surface (bgs), 1 foot bgs, and 2 or 3 feet bgs. The samples were analyzed for concentrations of total lead (Total) and soluble lead extracted and analyzed by the waste extraction test (WET). Four soil samples were analyzed for soil pH; nine soil samples were analyzed for soluble lead extracted with a modified WET using de-ionized water (WET-DI); and three soil samples were analyzed by the toxicity characteristic leaching procedure (TCLP). Two field duplicates (FD) were also collected and analyzed for Total, WET, and WET-DI concentrations as a Quality Assurance measure. Concentrations in the field duplicates were in agreement with the parent sample. Any uncertainty in the difference between the parent and FD results was biased toward protecting the environment and human health by selecting the higher concentration.

For each co-excavated soil unit with sufficient data for statistical analysis, parametric procedures were used to evaluate if the true mean concentrations were below the criteria specified in the Variance. That is, the null hypothesis states that the mean concentration is less than the Variance criterion for a false positive rate (α) of 0.05 and a false negative rate (β) of 0.20.

Since the true mean concentration is not known, a value that would not be exceeded 95 percent of the time (95 percent upper confidence limit of the mean, or 95 UCL) was calculated for the selected α and β values. Non-detect concentrations were treated with the Kaplan-Meier method.

3.1. All Excavated Soil Treated as One Stockpile

The table below summarizes the results of the statistical analyses.

Total Concentrations in milligrams per kilogram (mg/kg)								
Depth (ft)	Number of Samples	% of Non Detect	Min. value	Max. value	Mean	Median	Standard Deviation	95% UCL
0.5-3.0	18	0%	3.0	336	67.3	17.1	97.9	132.2

WET Concentrations in milligrams per liter (mg/L)								
Depth (ft)	Number of Samples	% of Non Detect	Min. value	Max. value	Mean	Median	Standard Deviation	95% UCL
0.5-3.0	18	0	0.06	30.9	4.8	1.4	7.7	10.1

WET-DI Concentrations (mg/L)								
Depth (ft)	Number of Samples	% of Non Detect	Min. value	Max. value	Mean	Median	Standard Deviation	95% UCL
0.5-3.0	9	33.3	<0.002	0.15	0.03	0.01	0.05	0.06

TCLP Concentrations (mg/L)								
Depth (ft)	Number of Samples	% of Non Detect	Min. value	Max. value	Mean	Median	Standard Deviation	95% UCL
0.5-1.0	3	0	0.09	0.95	NC	NC	NC	NC

NC: Not calculated due to insufficient distinct values to be statistically significant

pH								
Depth (ft)	Number of Samples	% of Non Detect	Min. value	Max. value	Mean	Median	Standard Deviation	95% UCL
0.5-2.0	4	0	8.1	8.8	NC	NC	NC	NC

NC: Not calculated due to insufficient distinct values to be statistically significant

The representative (or maximum) values of TOTAL, WET, WET-DI, TCLP, and pH concentrations were compared with Variance criteria to evaluate soil classification. The resulting soil classification is “Y1”. The Variance defines “Y1” as hazardous waste, which requires a minimum of 1-foot of clean overburden for reuse on the project site. If taken off-site, the waste will require disposal as hazardous

waste. Excavation of “Y1” soil type will require notification and a Lead Compliance Plan for worker safety.

3.2. Excavated Soil Categorized by Depth

The data set was further categorized by depth to determine if certain depth horizons correspond to statistically distinct populations.

The WET-DI, TCLP, and pH data sets had values that did not exceed Variance criteria; and therefore, analyses of these data sets would not result in reclassification of the soil type; i.e., the maximum value of WET-DI was 0.15 mg/L, less the Variance criterion of 1.5 mg/L; and the maximum value of TCLP was 0.95 mg/L, less than the Variance criterion (and federal hazardous waste criterion) of 5 mg/L. The pH data set had values between 8.1 and 8.8, which do not trigger reclassification.

The maximum value of the Total data set did not exceed the Variance threshold of 1,000 mg/kg (total threshold limit concentration). The WET data set is the only variable that could potentially result in reclassification of soil type. For comparison, the Total data set was also evaluated.

Location	Depth (ft)	Total (mg/kg)			WET (mg/L)			ADL Soil Type
		Mean	Maximum	95% UCL	Mean	Maximum	95% UCL	
All	All (0.5-3.0)	67.3	336	132.2	4.8	30.9	10.1	Y1
All	0.5	85.6	336	189.6	5.2	16.1	10.2	Y1
All	1	83.5	295	177.0	7.3	30.9	17.1	Y1
All	0.5 and 1 (<=1)	84.5	336	219.4	6.2	30.9	17.2	Y1
All	1, 2, and 3 (>=1)	58.1	295	149.6	4.6	30.9	14.1	Y1
All	2 and 3 (>1)	32.8	86.9	190.9	1.9	5.2	3.8	X

The results indicate that any combination of soil that includes any portion of the top 12-inches results in a waste classification of Y1 or hazardous. Conversely, soil that excludes the top 12-inches has a classification of X or non-hazardous, which does not have restriction for reuse in the Project Site.

3.3. Excavated Soil Categorized by Location

The data set was further categorized by area: Samples from the proposed Maintenance Vehicle Pullout (MVP) area was analyzed separately from other samples to determine if the separate areas correspond to statistically distinct populations.

As indicated previously, since the WET-DI, TCLP, and pH data sets had values that did not exceed Variance criteria and would not result in reclassification of the soil type, these data sets were not statistically analyzed. In addition, since the total lead concentrations were also below Variance criteria, further analysis of the Total data set was not performed.

The WET data set is the only variable that could potentially result in reclassification of soil type by area. The table below shows the results of analysis of data sets segregated by area

Location	Depth (ft)	WET (mg/L)	ADL Soil Type
Maintenance Vehicle Pullout	0.5	16.1	Y1
	1.0	30.9	Y1
	3.0	4.6	Y1

The values were distinct and therefore not subject to statistical analysis. As shown above, soil in the 0.5 and 1.0 foot depth were classified as Y1 (hazardous). Even though the sample from 3.0 feet bgs had a WET lead concentration of 4.6 mg/L, it is recommended to treat the soil as Y1 (hazardous) to account for potential uncertainties in sampling and analysis.

Soil from areas other than the MVP area were statistically analyzed to determine if they were part of a distinct population. The results are tabulated below.

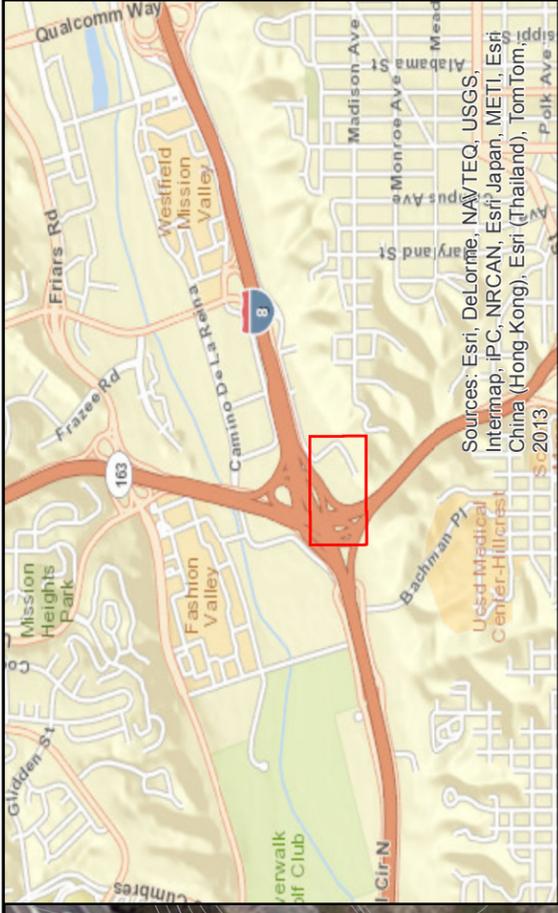
Location	Depth (ft)	WET (mg/L)			ADL Soil Type
		Mean	Maximum	95% UCL	
"LW" Areas	All (0.5-3.0)	2.3	8.4	4.9	Y1
All	0.5	3.0	8.2	6.0	Y1
All	1	2.6	8.4	5.8	Y1
All	0.5 and 1 (<=1)	2.8	8.4	6.0	Y1
All	1, 2, and 3 (>=1)	2.0	8.4	6.1	Y1
All	2 and 3 (>1)	1.4	5.2	3.4	X

Note: Analysis of fewer than six distinct data values can yield unreliable results

Even though the data set for all depths had a representative WET concentration of 4.9 mg/L, below the Variance threshold (and hazardous waste criteria) of 5.0 mg/L, it is recommended to treat the soil as Y1 (hazardous) to account for potential uncertainties in sampling and analysis.

The results indicate that segregating soil from the MVP area does not result in reclassification of the ADL soil type.

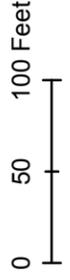
Figures



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, Swisstopo, 2013



Legend
 Sample Locations



Project No. 9061015

Date: 02/2015

Drawn By: SG

**Aerially-Deposited Lead
 Sample Locations
 Ramp from SR163 to I-8**

San Diego, California

Figure 1