FOR CONTRACT NO: 11-2976U4
PROJECT ID: 1100020490

INFORMATION HANDOUT

PERMITS

COASTAL DEVELOPMENT PERMIT
GENERAL ORDER 88-B RAILROAD PERMIT

MATERIALS INFORMATION

LEAD STUDY REPORT
BATTERRY BACKUP SYSTEM DIAGRAMS

ROUTE: 11-SD-5-R10.0, R10.7

RESOLUTION NO. 23-2011

A RESOLUTION OF THE PLANNING COMMISSION
OF THE CITY OF NATIONAL CITY, CALIFORNIA,
APPROVING A COASTAL DEVELOPMENT PERMIT FOR
THE WIDENING OF BAY MARINA & CIVIC CENTER DRIVES
AND INTERSTATE 5 ON & OFF- RAMPS IN THE COASTAL ZONE
APPLICANT: CALTRANS
CASE FILE NO. 2011-23 CDP

WHEREAS, the Planning Commission of the City of National City considered a Coastal Development Permit for the widening of Bay Marina & Civic Center Drives and Interstate 5 on & off-ramps in the Coastal Zone, at a duly advertised public hearings held on September 19, 2011, at which time oral and documentary evidence was presented; and,

WHEREAS, at said public hearings the Planning Commission considered the staff report contained in Case File No. 2011-23 CDP maintained by the City and incorporated herein by reference along with evidence and testimony at said hearing; and,

WHEREAS, this action is taken pursuant to all applicable procedures required by State law and City law; and,

WHEREAS, the action recited herein is found to be essential for the preservation of public health, safety, and general welfare.

NOW, THEREFORE, BE IT RESOLVED by the Planning Commission of the City of National City, California, that the testimony and evidence presented to the Planning Commission at the public hearing held on September 19, 2011, support the following findings:

1. That the granting of this coastal development permit is consistent with and implements the Certified Local Coastal Program, since the project involves minor freeway and street alterations within existing rights-of-way in an area designated by the Local Coastal Program for such use.

2. That there are no required conditions of approval necessary to carry out the Certified Local Coastal Program specified in the implementing ordinance that are applicable to the granting of the coastal development permit, since the development will not affect coastal resources or access, since there are no unusual hazards associated with the development, and since the proposal incorporates Best Management Practices and complies with Marshland Preservation Policies.

3. That granting of this coastal development permit is consistent with all other City plans and ordinances, since the project is consistent with the Harbor District

Specific Area Plan, complies with applicable Land Use Code requirements, and since the freeway use involved in the project is identified by the General Plan as an appropriate use in the project area.

BE IT FURTHER RESOLVED that copies of this Resolution be transmitted forthwith to the applicant and to the City Council.

BE IT FINALLY RESOLVED that this Resolution shall become effective and final on the day following the City Council meeting where the Planning Commission resolution is set for review, unless an appeal in writing is filed with the City Clerk prior to 5:00 p.m. on the day of that City Council meeting. The City Council may, at that meeting, appeal the decision of the Planning Commission and set the matter for public hearing.

CERTIFICATION:

This certifies that the Resolution was adopted by the Planning Commission at their meeting of September 19, 2011, by the following vote:

AYES: Farias, Alvarado, Baca, Pruitt, Reynolds, Flores

NAYS:

ABSENT: DeLaPaz

ABSTAIN:

CHAIRMAN

STATE OF CALIFORNIA EDMUND G. BROWN JR., *Governor*

PUBLIC UTILITIES COMMISSION
180 Promenade Circle, Suite 115
Sacramento, CA 95834-2939

January 23, 2012

File Number: G.12-01-004
Civic Center Drive
National City, San Diego County

Brian Finkbeiner
District 11 Railroad Coordinator
California Department of Transportation
4050 Taylor Street, MS – 310
San Diego, CA 92110

Re: General Order 88-B Request for Authority to Alter the Civic Center Drive Highway-Rail Crossing, CPUC Crossing No. 036-4.90 and DOT No. 661808P, in National City, San Diego County.

Dear Mr. Finkbeiner:

This refers to your letter, dated January 6, 2012 (received January 12, 2012), requesting authorization, pursuant to Commission General Order (GO) 88-B, to alter the existing at-grade crossing of Metropolitan Transit System (MTS) San Diego to San Ysidro Subdivision railroad tracks and Civic Center Drive in National City (City), San Diego County, identified as CPUC Crossing Number 036-4.90 and DOT Number 661808P.

The roadway is currently two lanes over two MTS tracks, one in each direction, and the crossing is equipped with two median mounted Commission Standard 8 (flashing light signal assembly) and two curb mounted Commission Standard 9 (flashing light signal assembly with automatic gate arm) warning devices. In addition to MTS rail transit passenger trains, the San Diego and Imperial Valley Railroad (SDIY) operates freight trains over this line.

Caltrans proposes the following alterations to the Civic Center Drive crossing:

- Install a traffic signal at the intersection of Civic Center Drive and Wilson Avenue and interconnect with the railroad warning devices to provide simultaneous preemption;
- Re-stripe eastbound Civic Center Drive to include one left turn lane and one thru lane at the intersection of Civic Center Drive and Wilson Avenue; and
- Paint curb red on the north and south side of Civic Center Drive to prohibit parking at the crossing.

The Commission's Rail Crossings Engineering Section (RCES) investigated the request by Caltrans, and finds it adequately addresses compliance and safety. As Caltrans, MTS, SDIY and City are in agreement as to the design and apportionments of the cost under the provisions of GO 88-B, the improvements as described in your letter dated January 6, 2012, and summarized above are authorized.

Improvements shall comply with all applicable Commission General Orders and the California Manual on Uniform Traffic Control Devices published by the California Department of Transportation.

This project is categorically exempt from the requirements of the California Environment Quality Act of 1970, as amended. [California Pubic Resources Code 21084]

This authorization shall expire if the above conditions are not complied with or if the work is not completed within three years of the date of this letter. Upon written request to this office, the time to complete the project may be extended. Any written request for a time extension must include concurrence letters by involved parties in support of the time extension. If an extension is requested, the Commission's Rail Crossing Engineering Section (RCES) may reevaluate the crossing prior to granting an extension.

Within 30 days after completion of this project, Caltrans shall notify RCES that the authorized work is completed, by submitting a completed Commission Standard Form G title *Report of Changes at Highway Grade Crossings and Separation*. Form G requirements and forms can be obtained at the CPUC web site Form G page at http://www.cpuc.ca.gov/formg. This report may be submitted electronically to rces@cpuc.ca.gov as outlined on the web page.

MTS should also submit an updated FRA inventory form to the Federal Railroad Administration, reflecting the changes. CPUC requests a concurrent copy of the updated inventory form be submitted to rces@cpuc.ca.gov .

If you have any questions, please contact Bill Lay at (213) 576-1399 or bll@cpuc.ca.gov .

Sincerely,

Daren Gilbert, Manager
Rail Transit and Crossings Branch
Consumer Protection and Safety Division

C: Paul C. Jablonski
Metropolitan Transit System
1255 Imperial Avenue, Suite 1000
San Diego, CA 92101

Matt Domen
San Diego and Imperial Valley Railroad
1501 National Avenue, Suite 200
San Diego, CA 92113

Stephen Manganiello
City of National City
1243 National City Boulevard
National City, CA 91950

REQUEST TO CPUC STAFF FOR AUTHORIZATION TO ALTER HIGHWAY-RAIL CROSSING PURSUANT TO GENERAL ORDER 88-B

1. Date Submitted: January 6, 2012

2. Applicant Info

Organization Name:	California Department of Transportation
Contact Person:	Brian Finkbeiner
Title:	District 11 Railroad Coordinator
Street Address:	4050 Taylor Street, MS-310
City:	San Diego
Zip:	92110
Phone:	(619)688-3186
Email:	brian.finkbeiner@dot.ca.gov

3. Crossing proposed to be altered

PUC Crossing Number:	036-4.90
U.S. DOT Crossing Number:	661808P
Street Name:	Civic Center Drive
City:	National City
County:	San Diego
Railroad Responsible for Crossing:	San Diego and Arizona Eastern
Other Railroads Operating on Tracks:	Metropolitan Transit System, San Diego and Imperial Valley Railroad

4. Describe Proposed Alterations (including any temporary reduced clearance variance requests):

The San Diego Association of Governments (SANDAG), in cooperation with the California Department of Transportation (Caltrans) District 11 and the Unified Port of San Diego (UPSD), proposes improvements to Civic Center Drive and the northbound (NB) Interstate 5 (I-5) on-ramp from Wilson Avenue / Civic Center Drive. The operational improvements will provide more efficient access to the freeway system. The major operational improvements for this project include the addition of a new traffic signal at the intersection of Civic Center Drive with the NB I-5 on-ramp / Wilson Avenue, partial widening and realignment of the NB I-5 on-ramp and the addition of lanes along Civic Center Drive and Wilson Avenue by means of restriping work only. The proposed signal is approximately 190 feet east of the at-grade MTS / SD&AE railroad crossing and the proposed Caltrans signal controller will be interconnected with the MTS controller. Simultaneous preemption will be provided and this signal will operate in an "all- red flash" phase in order to clear any eastbound vehicles which may be queued onto the

tracks. Parking has been prohibited on the north and south sides of Civic Center Drive from the MTS tracks easterly to the I-5 NB onramp / Wilson Avenue intersection by means of painting the curbs red.

5. Describe the public benefits to be achieved by the proposed alterations:

The installation of the traffic signal at the intersection of Civic Center Drive and Wilson Avenue / NB I-5 onramp will benefit the public by providing more efficient traffic sequencing throughout this roadway section, improving the intersection Level of Service and providing more efficient access to the freeway system.

6. Explain why a separation of grades is not practicable:

Not applicable.

7. Describe crossing warning devices

Current:	2 Commission Standard 8, 2 Commission Standard 9
Proposed:	2 Commission Standard 8, 2 Commission Standard 9

8. Temporary Traffic Controls - Include a statement of temporary traffic controls to be provided during construction:

All required work that is to done in the vicinity of the RR tracks will be done under a "full road" closure. During this construction period traffic will be detoured along city streets and will not cross the tracks at the Civic Center Drive location. Standard temporary traffic control devices and detours will be provided in accordance with the California Manual of Traffic Control Devices (2006) and in Caltrans Standard Plans. Closures will occur only at night as specified by Caltrans Traffic Operations Branch.

9. Signature

I, Brian Finkbeiner, am an employee of the California Department of Transportation and am authorized to sign this GO 88-B authorization request letter on its behalf.

Brian Finkbeiner, Assoc. Right of Way Agent — Date: 1/5/2012

Attachments:

1. Vicinity Map
2. Layout
3. Pavement Delineation Sheet
4. Sign Sheet
5. Electrical Sheets
6. Queuing Analysis

10. Evidence of Agreement:

I, Paul C. Jablonski, am an employee of Metropolitan Transit System, and authorized to sign this letter of agreement on its behalf, hereby declare that Metropolitan Transit System concurs with the proposed project described above.

Paul C. Jablonski- Chief Executive Officer — Date 1/9/12

1255 Imperial Avenue, Suite 1000, San Diego, CA, 92101

Address

I, Paul C. Jablonski, am an employee of San Diego and Arizona Eastern Railway, and authorized to sign this letter of agreement on its behalf, hereby declare that San Diego and Arizona Eastern Railway concurs with the proposed project described above.

Paul C. Jablonski- Board Member/Alternate — Date 1/9/12

1255 Imperial Avenue, Suite 1000, San Diego, CA, 92101

Address

Note: If there are additional interested parties, make additional copies of this page.

10. Evidence of Agreement:

I, Matt Domen, am an employee of San Diego and Imperial Valley Railroad, and authorized to sign this letter of agreement on its behalf, hereby declare that San Diego and Imperial Valley Railroad concurs with the proposed project described above.

1-3-12

Matt Domen- Asst. General Manager Date

1501 National Avenue, Suite 200, San Diego, CA, 92113

Address

INDEX OF PLANS

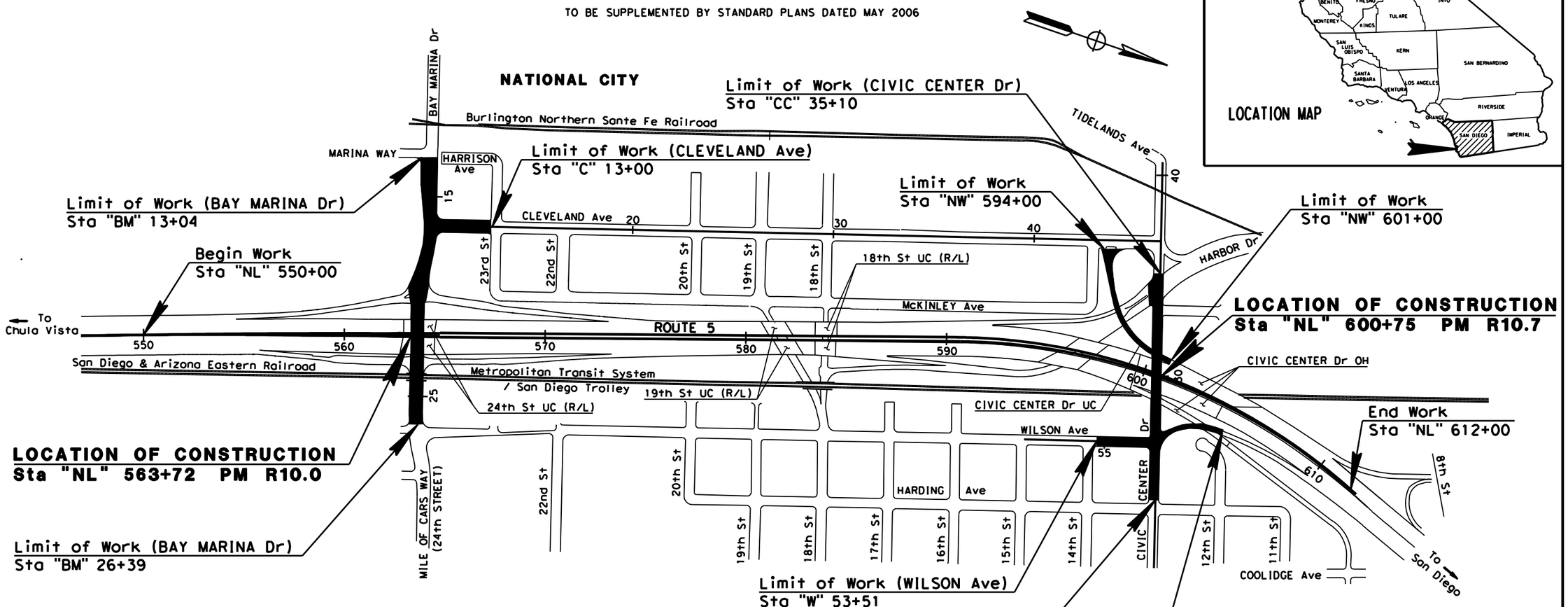
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY

IN SAN DIEGO COUNTY
IN NATIONAL CITY
AT 24TH STREET UNDERCROSSING AND
AT CIVIC CENTER DRIVE UNDERCROSSING

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R10.0, R10.7	1	



WARNING - HIGH VOLTAGE 600v DC
SAN DIEGO TROLLEY OCS NOT SHOWN

PROJECT MANAGER: MICHAEL J. WEBSTER
DESIGN ENGINEER: JOEL P. SIMS

PROJECT ENGINEER DATE
REGISTERED CIVIL ENGINEER

REGISTERED PROFESSIONAL ENGINEER — JOEL P. SIMS — No. C49715 — Exp. 09-30-12 — 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.

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

NO SCALE

CONTRACT No.	11-2976U4
PROJECT ID	1100020490

DATE PLOTTED => $DATE
TIME PLOTTED => $TIME
LAST REVISION 11-14-11

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	5	R10.0, R10.7		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER JOEL P. SIMS No. 49715 Exp. 09-30-12 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.

NOTE:

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

CURVE DATA

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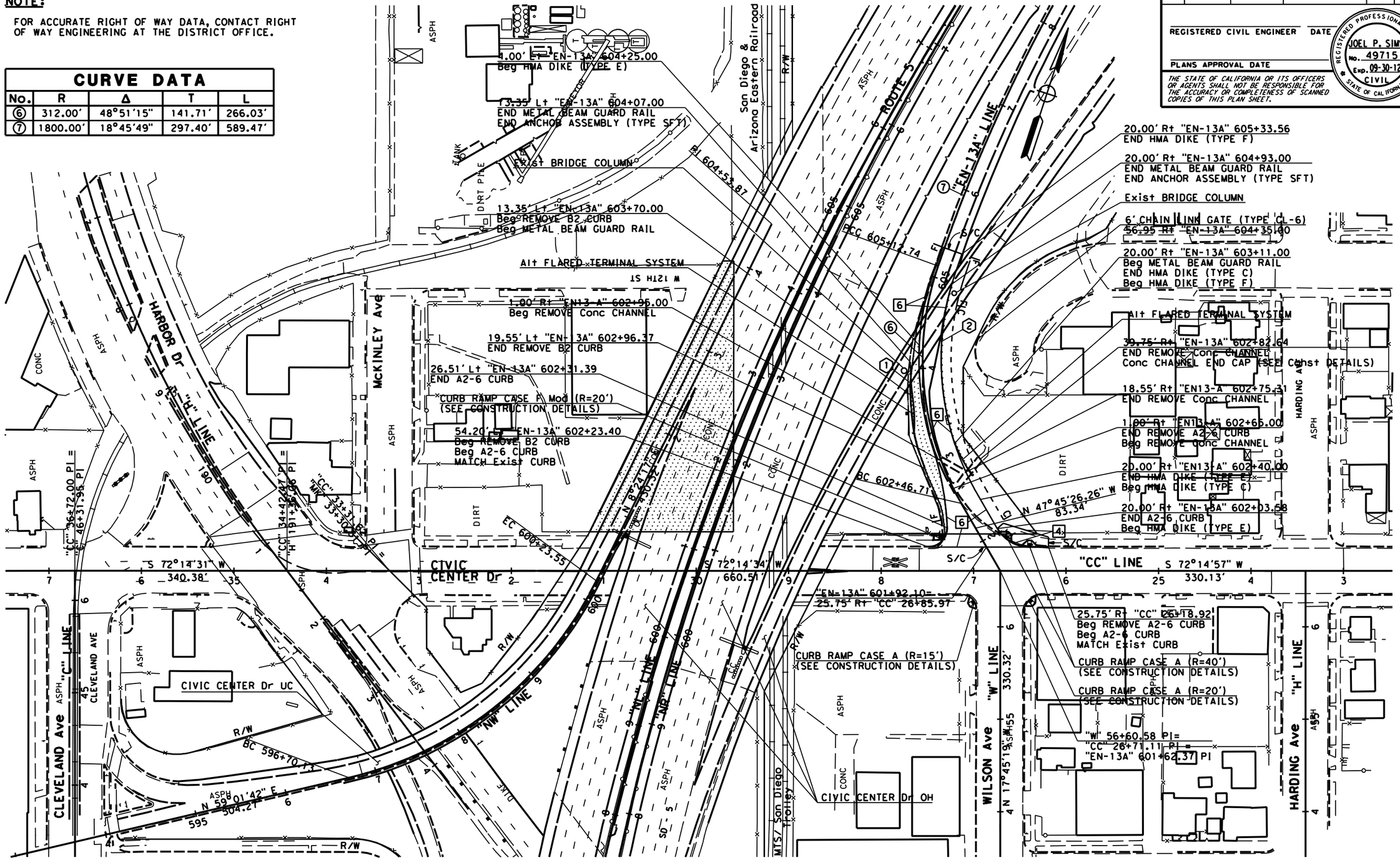
7	1800.00'	18°45'49"	297.40'	589.47'



WARNING - HIGH VOLTAGE 600v DC
SAN DIEGO TROLLEY OCS NOT SHOWN

LAYOUT

SCALE: 1"=50'

L-2

REVISED BY	DATE REVISED
RADHIKA MOTHKURI	JOEL SIMS
CALCULATED-DESIGNED BY	CHECKED BY
FUNCTIONAL SUPERVISOR	MICHAEL J. WEBSTER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

DESIGN

LAST REVISION 11-14-11 DATE PLOTTED => $DATE TIME PLOTTED => $TIME

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11	SD	5	R10.0, R10.7		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER JOEL P. SIMS No. 49715 Exp. 09-30-12 CIVIL STATE OF CALIFORNIA

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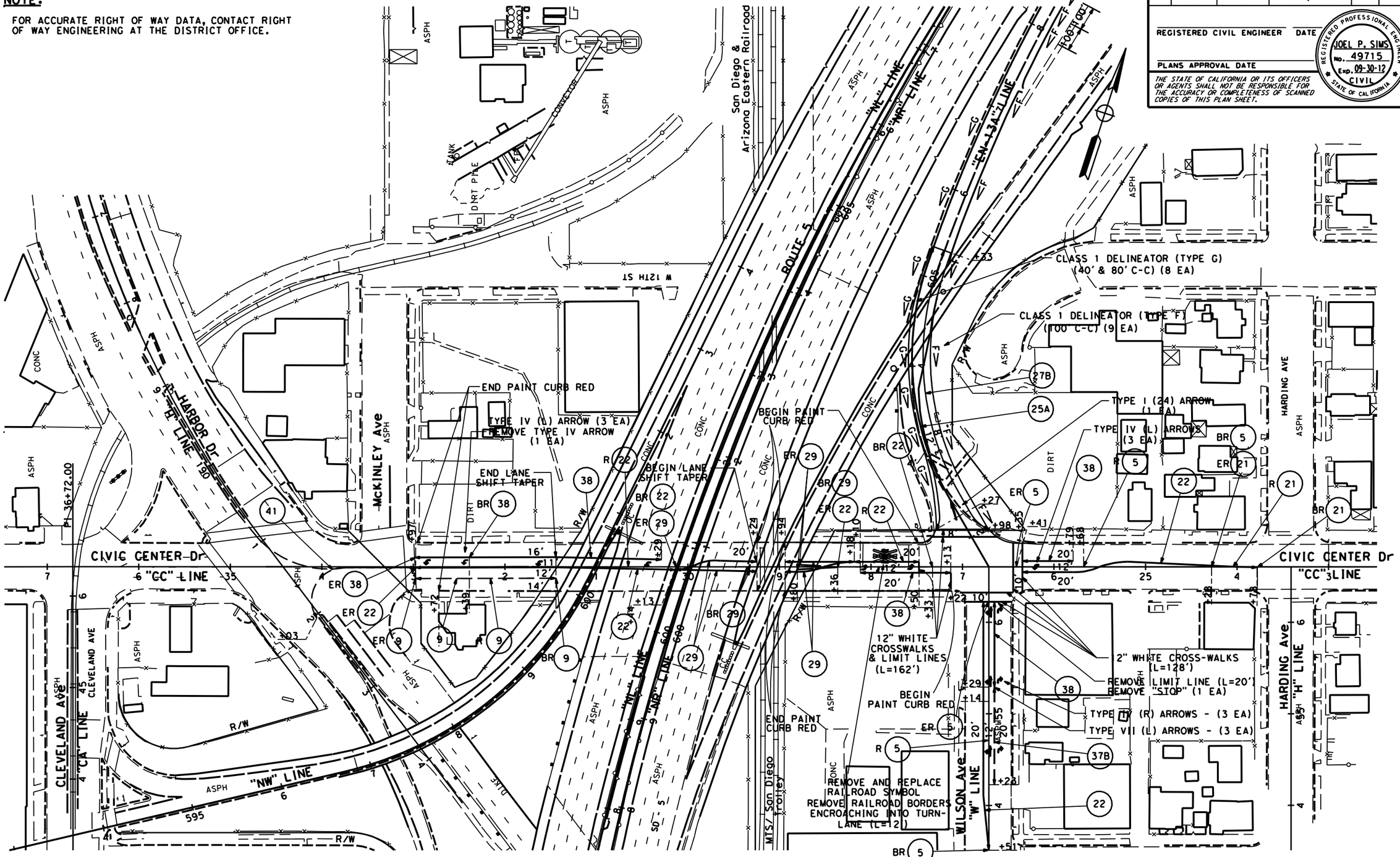
NOTE:

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



WARNING - HIGH VOLTAGE 600v DC
SAN DIEGO TROLLEY OCS NOT SHOWN

APPROVED FOR PAVEMENT DELINEATION WORK ONLY

PAVEMENT DELINEATION PLAN

SCALE: 1"=50'

PD-3

REVISED BY	DATE REVISED
JOEL SIMS	RADHIKA MOTHKURI
CALCULATED-DESIGNED BY	CHECKED BY
FUNCTIONAL SUPERVISOR	MICHAEL J. WEBSTER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

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11-03-11	TIME PLOTTED => $TIME

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11	SD	5	R10.0, R10.7		

REGISTERED CIVIL ENGINEER DATE

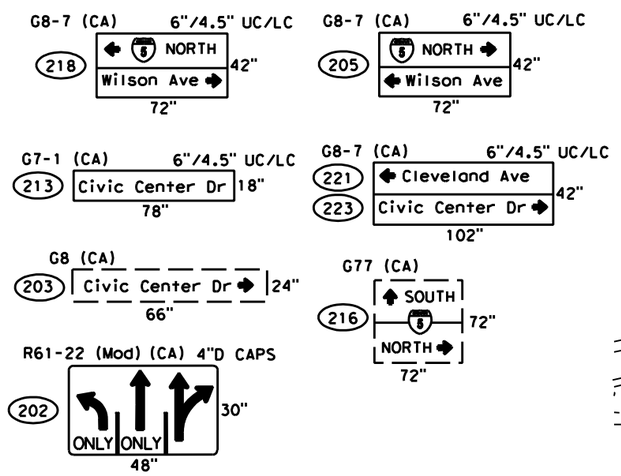
PLANS APPROVAL DATE

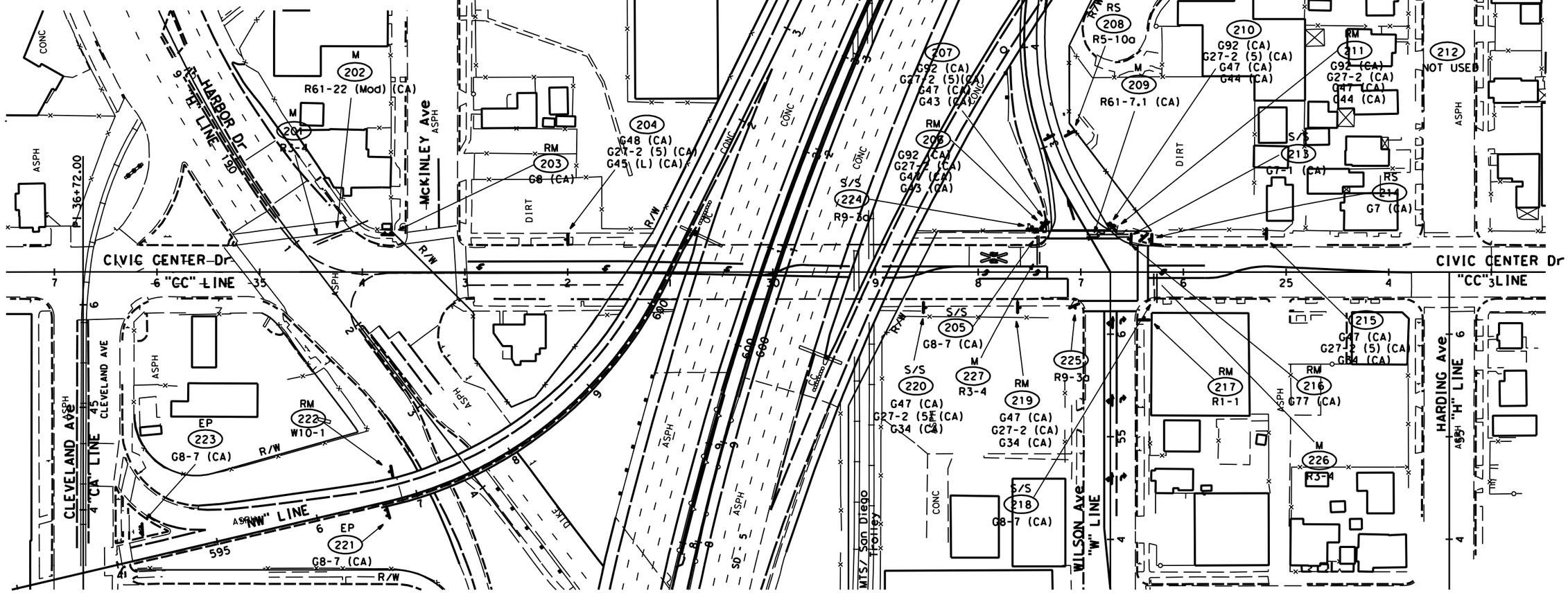
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER JOEL P. SIMS No. 49715 Exp. 09-30-12 CIVIL STATE OF CALIFORNIA

NOTE:

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





WARNING - HIGH VOLTAGE 600v DC
SAN DIEGO TROLLEY OCS NOT SHOWN

APPROVED FOR SIGN WORK ONLY

SIGN PLAN

SCALE: 1"=50'

S-2

REVISED BY	DATE REVISED
JOEL SIMS	RADHIKA MOTHKURI
CALCULATED-DESIGNED BY	CHECKED BY
FUNCTIONAL SUPERVISOR	MICHAEL J. WEBSTER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

DESIGN

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	5	R10.0, R10.7		

REGISTERED ELECTRICAL ENGINEER DATE

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER FARIBA RAMOS No E15619 Exp 12-31-11 ELECTRICAL STATE OF CALIFORNIA

FOR ACCURATE RIGHT OF WAY AND ACCESS DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

NOTES:

1 - EXISTING LIGHTING SYSTEM PARTIALLY SHOWN.

2 - EXISTING NATIONAL CITY LIGHTING SYSTEM PARTIALLY SHOWN.

3 - STATE-FURNISHED TYPE 332 CABINET. FURNISH AND INSTALL VDU, VIDEO DISPLAY, AND COMMUNICATION CARD IN CABINET.

4 - DETAIL U ES-7N. SEE SIGN PLANS.

5 - TYPE III SERVICE ENCLOSURE. SEE E-8 FOR WIRING DIAGRAM.

6 - RS . EXISTING NATIONAL CITY LIGHTING STANDARD.

7 - LEAVE 50' SLACK OF SIC IN THE PULL BOX FOR FUTURE USE.

8 - TERMINATE EVC IN RED SECTION OF SIGNAL HEAD. LEAVE TWO FEET OF SLACK.

9 - FOR PULL BOXES SEE E-12 FOR DETAILS.

10 - FURNISH AND INSTALL COMMUNICATION EQUIPMENT PER COMPONENT DIAGRAM. SEE ELECTRICAL DETAILS ON SHEET E-14.

11 - FURNISH AND INSTALL BATTERIES AND EXTERNAL BBU SYSTEM CABINET. SEE ELECTRICAL DETAILS ON SHEET E-13.

12 - SEE E-9 FOR CIRCUIT CONTINUITY.

13 - CONDUIT TO ENTER PER SDG&E REQUIREMENTS.

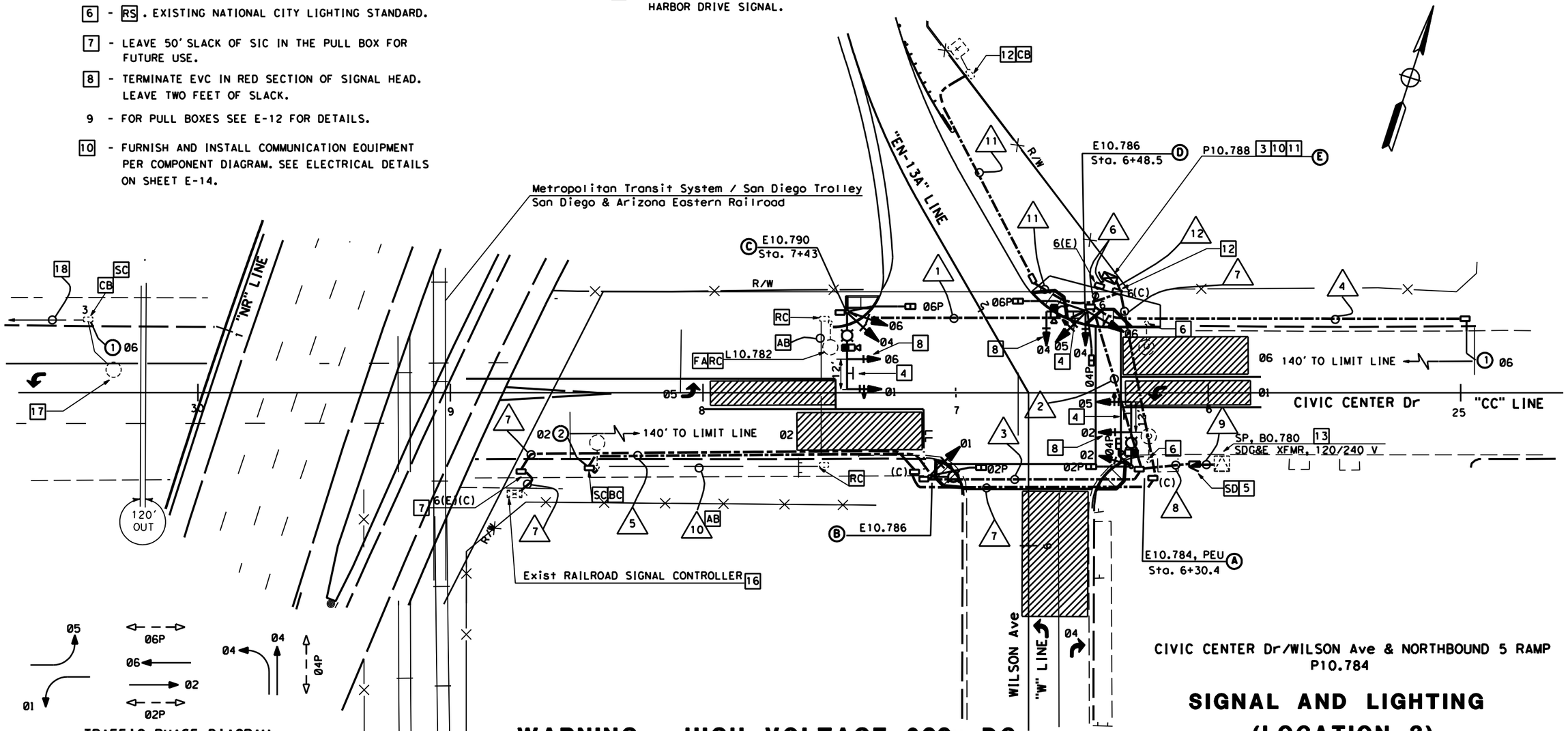
14 - FOR CONDUIT AND CONDUCTOR SCHEDULE AND NOTES SEE E-8.

15 - FOR EQUIPMENT AND POLE SCHEDULE SEE E-8.

16 - CONNECT SIC TO Exist RAILROAD SIGNAL CONTROLLER.

17 - AB Exist ADVANCED LOOPS, 250' FROM LIMIT LINE AT CIVIC CENTER DRIVE AND HARBOR DRIVE.

18 - Exist 1" CONDUIT WITH 1 dic TO CIVIC CENTER DRIVE AND HARBOR DRIVE SIGNAL.



CIVIC CENTER Dr/WILSON Ave & NORTHBOUND 5 RAMP
P10.784

SIGNAL AND LIGHTING (LOCATION 3)

WARNING - HIGH VOLTAGE 600v DC
SAN DIEGO TROLLEY OCS NOT SHOWN

SCALE : 1" = 20'

E-7

APPROVED FOR ELECTRICAL WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
TRAFFIC ELECTRICAL

FUNCTIONAL SUPERVISOR: DALE WILSON
CALCULATED-DESIGNED BY: FARIBA RAMOS
CHECKED BY: ENRIQUE BERNAL
REVISED BY / DATE REVISED

LAST REVISION 10-02-11 | DATE PLOTTED => $DATE | TIME PLOTTED => $TIME

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11-SD-5 10/31/2011 EA: 11-2976U	2012-AM-CIVIC CENTER/NB 5 RAMP								
	L: Left, T: through, R: Right								
Direction	**Volume (# Lane)**			**95% Queue Length (feet)**			**Level of Service**	**Intersection Capacity Unit**	**Intersection Signal Delay (seconds)**
	L	T	R	L	T	R			
NB	165 (2)	n/a	15 (1)	42	97	N/A	**B**	**50.30%**	**14.8**
SB	N/A	N/A	N/A	N/A	N/A	N/A			
EB	**75(1)**	**140(1)**	**65 (1)**	**103**	**86**	**N/A**			
WB	15(1)	185 (1)	200 (1)	26	174	N/A			
Remarks: The railroad tracks are approximately 190' from the limit line.									

11-SD-5 10/31/2011 EA: 11-2976U	2012-PM-CIVIC CENTER/NB 5 RAMP								
	L: Left, T: through, R: Right								
Direction	**Volume (# Lane)**			**95% Queue Length (feet)**			**Level of Service**	**Intersection Capacity Unit**	**Intersection Signal Delay (seconds)**
	L	T	R	L	T	R			
NB	170 (2)	n/a	20 (1)	31	113	N/A	**B**	**47.90%**	**15.8**
SB	N/A	N/A	N/A	N/A	N/A	N/A			
EB	**125(1)**	**250(1)**	**45 (1)**	**177**	**141**	**N/A**			
WB	15(1)	115 (1)	120 (1)	26	88	N/A			
Remarks: The railroad tracks are approximately 190' from the limit line.									

11-SD-5 10/31/2011 EA: 11-2976U	2032-AM-CIVIC CENTER/NB 5 RAMP								
	L: Left, T: through, R: Right								
Direction	**Volume (# Lane)**			**95% Queue Length (feet)**			**Level of Service**	**Intersection Capacity Unit**	**Intersection Signal Delay (seconds)**
	L	T	R	L	T	R			
NB	215 (2)	n/a	15 (1)	51	121	N/A	**C**	**57.90%**	**20.4**
SB	N/A	N/A	N/A	N/A	N/A	N/A			
EB	**100(1)**	**180(1)**	**80 (1)**	**141**	**114**	**N/A**			
WB	15(1)	250 (1)	255 (1)	26	269	N/A			
Remarks: The railroad tracks are approximately 190' from the limit line.									

11-SD-5 10/31/2011 EA: 11-2976U	2032-PM-CIVIC CENTER/NB 5 RAMP								
	L: Left, T: through, R: Right								
Direction	**Volume (# Lane)**			**95% Queue Length (feet)**			**Level of Service**	**Intersection Capacity Unit**	**Intersection Signal Delay (seconds)**
	L	T	R	L	T	R			
NB	225 (2)	n/a	25 (1)	45	158	N/A	**B**	**54.50%**	**18.2**
SB	N/A	N/A	N/A	N/A	N/A	N/A			
EB	**160(1)**	**325(1)**	**55 (1)**	**186**	**187**	**N/A**			
WB	15(1)	150 (1)	155 (1)	27	158	N/A			
Remarks: The railroad tracks are approximately 190' from the limit line.									

ROUTE 5 AND BAY MARINA DRIVE
LEAD STUDY REPORT
NATIONAL CITY, CALIFORNIA

CALTRANS CONTRACT NO. 11A1638
EA 297610

March 17, 2010

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

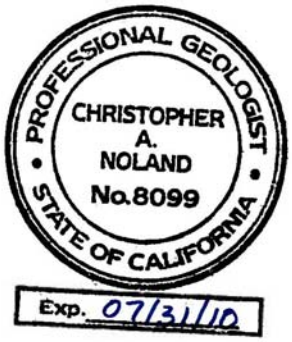
Prepared for:

State of California
Department of Transportation – District 11
4050 Taylor Street, MS-242
San Diego, California 92110

ROUTE 5 AND BAY MARINA DRIVE
LEAD STUDY REPORT
NATIONAL CITY, CALIFORNIA
CALTRANS CONTRACT NO. 11A1638
EA 297610

Kleinfelder Project No. 108977

Prepared by:



Christopher Noland, PG (8099)
Project Geologist

Reviewed by:

Lizanne Simmons, PG (7431)
Task Order Leader

Mark Peabody, PE (C46787)
Project Manager

KLEINFELDER WEST, INC.
5015 Shoreham Place
San Diego, California, 92122
(858) 320-2000

March 17, 2010

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1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

This report has been prepared to summarize procedures and results of a lead investigation conducted on both sides of Bay Marina Drive, directly west of Interstate 5, in National City (Site), California for the State of California Department of Transportation (Caltrans). This report summarizes soil sampling for lead in soil conducted on January 14, 2010 on the onramp and offramp shoulders on both sides of Bay Marina Drive (site, Figure 1) in National City, California.

1.2 PROJECT OBJECTIVES AND SCOPE OF WORK

This report was prepared under State of California Department of Transportation Contract No. 11A1638 and Task Order No. 12. Task Order No. 12 scope of work was to collect and analyze soil samples to evaluate the presence of metals (burn ash materials) in soil where highway excavation will take place.

Caltrans proposes to widen the onramp and offramp at the interchange of Bay Marina Drive at Interstate 5 south. Improvements are planned for the shoulder areas of the onramp and offramp of Bay Marina Drive at Interstate 5 south. The project involves widening Bay Marina Drive to add right and left hand turn lanes and signalizing the Bay Marina Drive and Cleveland Avenue intersection. The expansion of the onramp and offramp construction will be completed within the Caltrans right-of-way. Based on historical site use (freeway) and previous uses near the site, there is the potential that lead from burn ash or aerially deposited lead (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 evaluate the potential for reuse onsite. It will also be used to evaluate disposal options for potentially lead-contaminated soil, and potential health and safety issues for future on-site workers.

The objective of the study was to provide data for evaluation to allow the optimal management of lead in soils associated with a Caltrans project based on project design information known at this time. Samples were collected to provide information about

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lead containing soils along both onramp and offramp areas (Caltrans right-of-way) within the project boundaries 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 lead study performed within the project limits. The scope of work was provided to Kleinfelder by Caltrans in the Task Order description and incorporated in Kleinfelder's *EA297610/Route 5 at Bay Marina Drive Sampling and Testing Work Plan* (Work Plan) (Kleinfelder, 2010), dated January 13, 2010. Consistent with the Task Order and as described in the Work Plan, 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 (SHSP).
- Coordinated traffic control as necessary.
- Advanced 15 borings using hand auger methods to a maximum depth of 3 feet below ground surface (bgs) or until refusal. Two soil samples were collected from each hand auger boring.
- Obtained global positioning system (GPS) location readings at each boring location.
- Submitted 30 soil samples to Calscience Environmental Laboratories, Inc (Calscience) of Garden Grove, California, a state-certified laboratory, for analysis of total lead by United States Environmental Protection Agency (U.S. EPA) Method 6010B.
- Analyzed 30 soil samples for leachable lead by the California waste extraction test (WET) method using citric acid as the extractant.
- Analyzed 30 soil samples for leachable lead by the Toxicity Characteristic Leaching Procedure (TCLP).
- Analyzed 3 soil samples for pH by U.S. EPA Method 9045C.
- Prepared this report, including a summary of the assessment methods and field observations, data evaluation and discussion, findings, conclusions and recommendations.

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1.3 REPORT ORGANIZATION

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

- Section 1 describes the project 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.
- Appendix A contains the plates.
- Appendix B includes a table with the coordinates of the sample locations.
- Appendix C includes the analytical reports from the laboratory.
- Appendix D presents the evaluation and results of the statistical analysis.

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2.0 BACKGROUND

2.1 SITE IMPROVEMENTS

Improvements are planned for the shoulder areas of the onramp and offramp of Bay Marina Drive at Interstate 5 south. The project involves widening Bay Marina Drive to add right and left hand turn lanes and signalizing the Bay Marina Drive and Cleveland Avenue intersection.

These improvements will result in soil being disturbed and, depending on analytical results and project requirements, re-used onsite.

2.2 PREVIOUS SITE INVESTIGATIONS

Past historic uses in the vicinity around Sweetwater River and the Route 5/54 interchange were industrial in nature and included a disposal site. The commercial disposal site was in operation during the 1930s through the 1950s. Areas of informal disposal may have also occurred on higher ground north of the Sweetwater River, where refuse was gathered, salvageable materials removed, and the remainder burned. This remainder that was burned is identified as burn ash. The burned material was dumped into the adjacent marsh. Refuse in the disposal area may have included military, commercial, and residential wastes. The burn ash is defined as “debris, refuse, ash, and ash contaminated soil that was produced from the burning of municipal solid waste.” Burn ash is often found to contain elevated levels of metals from food cans, crystal glassware, and lead paint on wood debris. Chemicals associated with burn ash sites may include metals, polynuclear aromatic hydrocarbons, polychlorinated biphenyls, dioxins and dibenzofurans, and radioactive materials.

The area of soil that is going to be disturbed has the possibility of containing burn ash from previous uses at the site to the south. During construction of the site to the south, site soils were found to be contaminated with burn ash material that contained a variety of heavy metals. The area of soil that is going to be disturbed also has the possibility of containing ADL due to the proximity to a major freeway (Interstate 5).

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2.3 WASTE CLASSIFICATION, ADL VARIANCE, AND SOIL REUSE CRITERIA

Although the original scope of the study was to evaluate whether lead in soil was due to burn ash material, it does not preclude that fact that the area is located adjacent to a major interstate. 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 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 Soluble Threshold Limit Concentration (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 offsite.

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In September 2000, the DTSC issued a 5-year variance (District 11 [00-H-VAR-06]) 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 allows 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. The DTSC modified the variance for a third time in July 2009 (DTSC, 2009), which supersedes the first two variances. The current variance has an expiration date of July 2014. The following are the current DTSC variance conditions:

- For Variance Condition 9.c., "lead-contaminated" soil containing 1.5 mg/L or less extractable lead (using a modified WET with deionized [DI] 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 5 feet above the maximum water table elevation and is covered by 1 foot of clean soil. The pH of the reused soil also must be above 5.0, otherwise the soil must be placed as specified in Variance Condition 9.e.
- For Variance Condition 9.d., "lead-contaminated" soil containing less than 150 mg/L extractable 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 protected from infiltration by a pavement structure which will be maintained by Caltrans.

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 extractable lead (DI-WET) cannot be reused within a Caltrans right-of-way and must be properly disposed offsite. 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

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TCLP is considered to be a federal or RCRA-hazardous waste and cannot be reused within a Caltrans right-of-way.

This information described above is summarized in Figure 1 of the Caltrans ADL Guidance (Caltrans, 2007) that presents a soils management flow chart to evaluate the applicability of the DTSC variance. Based on information on the flow chart, soils with a 95 percent UCL on the mean for total lead less than 1,000 mg/kg and with a 95 percent UCL for soluble lead by WET-DI less than 0.5 mg/L are considered non-hazardous and can be released to the contractor for use in accordance with project specifications.

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3.0 SAMPLING ACTIVITIES

3.1 PRE-FIELD ACTIVITIES

Kleinfelder prepared and submitted a work plan (Kleinfelder, 2010a) and a SHSP (Kleinfelder, 2010b). The health and safety plan was reviewed daily with field personnel for potential hazards, emergency contact information, and hospital route.

Prior to ground-disturbance activities, Kleinfelder visited each sample point to mark excavation locations in white paint and whisker stakes. Underground Service Alert (USA) was notified 48 hours in advance of subsurface sampling activities and USA issued ticket number A00111566.

3.2 SAMPLING LOCATIONS AND RATIONALE

The sampling strategy for the site included random sampling. Using Visual Sample Plan software (VSP, 2009), a public domain software developed by the United States Department of Energy and accepted by most regulatory agencies, a statistically defensible random sampling pattern was attained for the site. The software assists development of cost-effective, statistically-based sampling plans, and is applicable for any two-dimensional sampling plan.

Fifteen sampling locations were placed on the site using information provided by the software, with three locations on the north side of Bay Marina Drive and 12 locations on the south side. Two soil samples were collected at each location - one from the surface and one a random depth no greater than 3 feet below ground surface. The random depths were selected by randomly drawing paper squares labeled with depth increments (0.5, 1, 1.5, 2, 2.5, and 3) from out of a hat.

3.3 HAND AUGER DRILLING AND SOIL SAMPLING METHODS

Hand auger borings were advanced on January 10 at locations shown on Figures 2 and 3 in Appendix A. Borings were advanced using a manually operated, pre-cleaned, stainless steel hand auger. Work was performed in the unpaved shoulder areas.

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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 sample identification information and placed in a secured, chilled ice chest. Standard chain-of-custody procedures were used during sampling and transportation to Calscience, the laboratory subcontracted by Kleinfelder.

The sample locations were recorded during utility location using a hand-held Trimble GPS unit and coordinates are provided in Table B-1 (Appendix B). The approximate locations of these borings are shown on Figures 2 and 3 in Appendix A.

3.5 ANALYTICAL METHODS

All 30 soil samples were analyzed for total lead by U.S. EPA Method 6010B, TCLP, and the WET method using citric acid as the extractant. Three samples were measured for hydrogen ion potential (pH) using U.S. EPA Method 9045D.

3.6 DECONTAMINATION AND BORING ABANDONMENT

Sampling equipment (i.e., hand auger cutter head, soil sampler, etc.) was washed with a solution of Alconox® detergent, rinsed with tap water, and then rinsed with distilled 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) in accordance with the work plan. Soil cuttings originating from each boring were placed back within the original borehole as described in the work plan.

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4.0 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

This section includes a summary of the site conditions observed during the field work and a summary of the analytical results. Additionally, this section presents a discussion of the data quality assessment. The analytical results for the soil samples are presented in Table 1. Certified Level II laboratory reports are included as Appendix C.

4.1 SITE CONDITIONS

Fill was encountered in the borings and was described as silty sand with gravel. This material was present from 0 to 3 feet bgs. Typical burn ash materials (broken or fused glass, ceramic, and/or metal fragments) were not encountered in the borings Groundwater was not encountered in the borings to a maximum depth of 3 feet bgs.

A an open regulatory case involving petroleum contamination with groundwater is located approximately 750 feet north to northwest of the site at 2150 McKinley Avenue (SCS Engineers, 2009). Groundwater at the site is approximately 23 feet bgs. Elevation at the site is similar that of the open case; therefore, it is expected that site groundwater elevations are also similar.

4.2 SOIL SAMPLE RESULTS

4.2.1 Total Lead

Total lead was detected in all of the 30 soil samples, and ranged in concentration from 0.947 to 567 mg/kg (Table 1). Thirteen samples contained total lead concentrations that equaled or exceeded the 50 mg/kg screening criterion of leachability, ranging from 52.2 to 567 mg/kg. Near surface samples generally contained higher concentrations of total lead compared to the deeper samples, as this trend occurred in 14 of the 15 borings.

4.2.2 Hydrogen Ion Concentration

The pH of the 3 soil samples analyzed ranged from 7.34 to 7.73. The analyzed concentrations are greater than the criterion of 5.0 listed in the DTSC variance (DTSC, 2009). Because none of the samples had a pH below 5, the soil is not limited to reuse in areas covered by pavement based on reported pH values.

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4.2.3 California WET Soluble Lead

California WET soluble lead (citrate extraction) was reported at concentrations above 5.0 mg/L (the STLC action level) in 10 of the 30 soil samples analyzed. The maximum WET soluble lead concentration was 46.1 mg/L, reported in the surface sample collected at B14.

4.2.5 TCLP Soluble Lead

TCLP soluble lead was analyzed on the total lead samples. TCLP analysis is performed to evaluate if soils do not qualify for reuse due to designation as a RCRA hazardous waste. TCLP soluble lead concentrations ranged from below laboratory reporting limits to 0.821 mg/L. Samples analyzed by TCLP did not exceed the RCRA hazardous waste limit of 5.0 mg/L. Based on the results of sampling, composite material generated during grading and excavation would be expected to have TCLP concentrations below the RCRA hazardous waste limit as calculated by the statistical analysis presented in Section 5.

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 Bay Marina Drive and Interstate 5 lead study project. The data quality assessment was performed using the U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (U.S. EPA, 2004) as a reference.

A total of 30 samples were collected and submitted to Calscience for one or more of the following analyses:

- Total lead by U.S. EPA Method 6010B.
- pH by EPA Method 9045D.
- Soluble lead by California WET Method.
- Soluble lead by TCLP

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One hundred percent of the data generated for this project underwent a data assessment review by a Kleinfelder project chemist, independent of project activities. A total of 3 Level II sample delivery groups (SDGs) were evaluated during the data quality assessment, which consisted of evaluating the following parameters:

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

Field and laboratory personnel implemented QA/QC procedures consistent with the quality assurance criteria specified in the *EA 297610/Route 5 at Bay Marina Drive Sampling and Testing* (Kleinfelder, 2010a) during the soil sampling events. Laboratory QC samples analyzed were consistent with the analytical method requirements.

During the data quality assessment, the following discrepancy was observed:

- Two MS samples for soluble lead analysis reported the following qualifier: Spike recovery and relative percent difference control limits do not apply resulting from the parameter concentration exceeding the spike concentration by a factor of four or greater.

This qualifier should not result in compromising lab data quality.

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5.0 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). 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 for soluble lead (DI-WET) is less than 1.5 mg/L (DTSC, 2009), then the soil is considered non-hazardous and can be released to the contractor for reuse on-site in accordance with project specifications. DI-WET analyses were not performed on samples analyzed.

Aggregated data, averaging lead concentrations over depth to reflect the construction process, was used for the analysis. Results below laboratory detection limits for total lead and DI-WET soluble lead were handled in the statistical analysis by taking half the value of the laboratory detection limit.

The U.S. EPA statistical analysis package, ProUCL (version 4.0, April 2007) 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.

Table 2 provides a summary of the 90 and 95 percent UCLs calculated for total lead and soluble lead concentrations, respectively, that were 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?”

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Additionally, statistical analyses were also performed for WET citrate soluble lead to address the criterion for offsite disposal. Based on the results of the analyses, the 95 percent UCL for the WET citrate procedure was calculated at 12.8 mg/L, which is greater than the 5 mg/L limit set forth for STLC. At the time of report preparation, project specific details, such as the depth of disturbance, net import and export volumes, etc., are not known. Once these details are available, additional evaluation is recommended, as the statistical results may not be representative of the soil actually disturbed. For example, the 95 percent UCL for the soil shallower than 1 foot bgs is 22.2 mg/L, which is greater than the 5 mg/L limit set for STLC (Table 2). Statistical analysis was not performed for samples greater than 1 foot bgs, since the maximum STLC concentration was 3.17 mg/L, which is below the 5 mg/L limit set for STLC. Therefore, if excess soils from only the upper foot of the site require offsite disposal, they may be classified as California hazardous waste when they are profiled for disposal.

Statistical analyses were performed on the 30 sample results for soluble lead by TCLP. The 95 percent UCL for the TCLP was not calculated since the maximum TCLP concentration reported was 0.821 mg/L, which is below the Federal waste limit of 5.0 mg/L. Composite material generated during grading and excavation would be expected to have TCLP concentrations below the RCRA hazardous waste limit. Therefore the soils are not excluded for reuse at the site under the DTSC variance.

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6.0 CONCLUSIONS AND RECOMMENDATIONS

The Task Order scope of work was to collect and analyze soil samples to evaluate the presence of metals (burn ash materials) in soil where highway excavation will take place. Although the original scope of the study was to evaluate whether lead in soil was due to burn ash material, it does not preclude that fact that the area is located adjacent to a major interstate highway. Typical burn ash components (e.g. ash material or debris such as broken or fused glass and ceramics, metal fragments, etc.) were not observed in borings, as stated in Section 4.1. Also, near surface samples generally contained higher concentrations of total lead compared to the deeper samples, occurring in 14 of the 15 borings, as stated in Section 4.2.1. As a result of this trend and the lack of burn ash material observed in the borings, Kleinfelder consulted with Caltrans to discuss the possibility that lead impacts to soil in borings may have resulted from ADL rather than from the adjacent burn ash site. Thus, this report evaluates this possibility and the appropriate handling of soil affected by ADL under the terms of variance granted by the DTSC to Caltrans District 11 for highway construction projects, as stated in Section 5.0. As part of Kleinfelder's consultation with Caltrans, further testing of soil samples using the DI-WET procedure was considered, as this is typical under the terms of the ADL variance. Nonetheless, further testing of the samples using the DI-WET procedure was not performed since the soil was adequately characterized for disposal purposes.

6.1 VARIANCE CONCLUSIONS

Samples analyzed for total lead have a maximum concentration of 567 mg/kg, which is below the variance concentration of 1,411 mg/kg for placement five feet above water and below one foot of non-hazardous soil. Based on the TOTAL data set alone, the soil is not hazardous and can be reused on site. However, the samples should be tested for extractable lead using a modified WET procedure with deionized water as the extractant to confirm that for soil reused under 1-foot of non-hazardous soil cover if the extractable lead is equal to or less than 1.5 mg/L, and if used beneath pavement, the extractable lead is equal to or less than 150 mg/L. Since the maximum WET concentration is 46.1 mg/L using an acidic extractant, it is highly unlikely that the maximum extractable lead using deionized water as extractant would exceed 46.1 mg/L (which is well below the limit of 150 mg/L) for use beneath pavement.The three soil samples analyzed had

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reported pH values above the variance criterion of 5 which indicates that there are no restrictions on the use of the contaminated soil solely on the basis of the pH.

Should offsite disposal be required because of excess soil, the soil should be handled based on the criteria described in Section 6.2.

6.2 WASTE CHARACTERIZATION CONCLUSIONS

The analytical results of this lead study indicate that the soil samples collected at the 15 sample locations at the Site do not contain total lead in excess of the California TTLC of 1,000 mg/kg. The standard-WET soluble lead test results indicate that soil concentrations are in excess of the California STLC of 5 mg/L in 10 of the 30 samples analyzed for soluble lead by WET at various locations along the site. Statistical analyses performed on all samples yielded results that indicated soil should be treated as a California hazardous waste should offsite disposal be required. However, soil designated for export from specific locations in the project site may have representative concentrations that differ from those calculated with the entire data set. For example, if only the surface soil (less than 1 foot bgs) is removed for offsite disposal, it may be classified as California hazardous waste as the 95 percent UCL for soluble lead by WET for this depth interval is greater than the limit of 5 mg/L. The soil below 1 foot bgs is below the STLC limit of 5 mg/L, and therefore, can be disposed as a California non-hazardous waste.

TCLP soluble lead concentrations were not greater than 5.0 mg/L. Therefore, it is likely that soil excavated from the site would be classified for disposal as non-hazardous waste pursuant to federal limits of less than the 5.0 mg/L.

6.3 RECOMMENDATIONS

Based on the results of the soil sampling activities conducted, current and future uses of the site, and anticipated general construction activities that may be associated with proposed construction along the median of the subject corridor, the general recommendations listed below are provided.

- Due to the absence of burn ash material in borings, and the presence of lead-impacted soil mainly in the surface soil, it appears that the soil is affected by

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ADL; therefore, the DTSC variance should be evaluated and used as appropriate for soil disposal, reuse, or both.

- Also, if soil disposal is no longer anticipated and soil reuse under soil cover in accordance with the ADL variance is desired for this project, then additional DI-WET should be performed to further assess variance criteria.
- Due to the presence of lead-impacted soil, construction activities should be performed in accordance with a site-specific health and safety plan and a soil management plan.
- If excavations are planned deeper than 3 feet bgs, additional sampling and laboratory analytical testing should be conducted to characterize the area of excavation.
- Soil subject to export may need to be further characterized to satisfy the requirements of the permitted disposal facility.
- If imported soil is brought on-site, soil should be tested to comply with Caltrans Standard Specifications.

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7.0 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

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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.

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8.0 REFERENCES

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

Caltrans. *See* California Department of Transportation.

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

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

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

DTSC. *See* Department of Toxic Substances Control.

Kleinfelder West, Inc. 2010a. EA 297610/Route 5 at Bay Marina Drive Sampling and Testing Work Plan, National City, CA. January 13.

_____. 2010b. Site Specific Health and Safety Plan, 805 North ADL Survey, San Diego, California. January 12.

Kleinfelder. *See* Kleinfelder West, Inc.

SCS Engineers. 2009. Additional Subsurface Assessment Activities, National City Transfer and Storage Company, 2150 McKinley Avenue, National City, California. June 2.

United States Environmental Protection Agency. 2004. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. October.

_____. 2007. ProUCL version 4.0. April.

U.S. EPA. *See* United States Environmental Protection Agency.

Visual Sample Plan Version 5.9. 2009. Battelle Memorial Institute under contract with the United States Department of Energy.

VSP. *See* Visual Sample Plan.

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TABLES

Table 1
Soil Analytical Results

				Method	SW6010B	SW7420	SW6010B	SW9045D
				Preparation	SW3050B	STLC	SW1311 (TCLP)	SW3550B
				Chemical Name	lead	lead	lead	pH
				Units	mg/kg	mg/l	mg/l	pH units
Sample Location	**Sample Name**	**Date**	**Start Depth (ft)**	**Bottom Depth (ft)**				
B1	B1-0	1/14/2010	0.0	0.5	145	6.37	0.101	
B1	B1-3.0	1/14/2010	3.0	3.5	5.38	0.229	< 0.100 U	
B2	B2-0	1/14/2010	0.0	0.5	374	23.3	0.170	
B2	B2-1.5	1/14/2010	1.5	2.0	5.18	0.370	< 0.100 U	7.47
B3	B3-0	1/14/2010	0.0	0.5	204	7.36	0.138	
B3	B3-0.5	1/14/2010	0.5	1.0	52.2	2.30	< 0.100 U	
B4	B4-0	1/14/2010	0.0	0.5	19.6	1.22	< 0.100 U	
B4	B4-1.5	1/14/2010	1.5	2.0	4.34	0.140	< 0.100 U	
B5	B5-0	1/14/2010	0.0	0.5	567	25.4	0.505	
B5	B5-2.5	1/14/2010	2.5	3.0	5.68	0.123	< 0.100 U	
B6	B6-0	1/14/2010	0.0	0.5	19.8	0.720	< 0.100 U	
B6	B6-1.0	1/14/2010	1.0	1.5	12.4	0.329	< 0.100 U	
B7	B7-0	1/14/2010	0.0	0.5	71.5	3.19	< 0.100 U	
B7	B7-1.5	1/14/2010	1.5	2.0	3.16	< 0.100 U	< 0.100 U	7.73
B8	B8-0	1/14/2010	0.0	0.5	7.15	0.387	< 0.100 U	
B8	B8-3.0	1/14/2010	3.0	3.5	1.88	< 0.100 U	< 0.100 U	
B9	B9-0	1/14/2010	0.0	0.5	30.9	5.59	< 0.100 U	
B9	B9-0.5	1/14/2010	0.5	1.0	5.64	< 0.100 U	< 0.100 U	
B10	B10-0	1/14/2010	0.0	0.5	161	15.6	< 0.100 U	
B10	B10-2.0	1/14/2010	2.0	2.5	5.35	< 0.100 U	< 0.100 U	
B11	B11-0	1/14/2010	0.0	0.5	196	4.58	< 0.100 U	
B11	B11-2.5	1/14/2010	2.5	3.0	4.46	< 0.100 U	< 0.100 U	
B12	B12-0	1/14/2010	0.0	0.5	156	7.16	0.190	
B12	B12-1.0	1/14/2010	1.0	1.5	175	3.17	0.147	7.34
B13	B13-0	1/14/2010	0.0	0.5	534	43.2	0.821	
B13	B13-1.5	1/14/2010	1.5	2.0	3.47	0.136	< 0.100 U	
B14	B14-0	1/14/2010	0.0	0.5	388	46.1	0.486	
B14	B14-3.0	1/14/2010	3.0	3.5	7.54	0.565	< 0.100 U	
B15	B15-0	1/14/2010	0.0	0.5	162	12.8	0.251	
B15	B15-2.5	1/14/2010	2.5	3.0	0.947	0.361	< 0.100 U	

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Table 2
Summary of the 95 Percent Upper Confidence Limits

Data Set	Lead (all depths)	Lead (< 1 foot bgs)	Lead (> 1 foot bgs)	Percent Upper Confidence Limit
Total Lead (mg/kg)	161.7	-	-	90
Leaching Lead (WET) (mg/L)	12.8	22.2	4.4	95
Leaching Lead (TCLP) (mg/L)	-	-	1.5	-

Notes:
- indicates percent upper confidence limit was not calculated

Acronyms/Abbreviations:
bgs – below ground surface
mg/kg – milligrams per kilogram
mg/L – milligrams per liter
TCLP – toxicity characteristic leaching procedure
WET – waste extraction test

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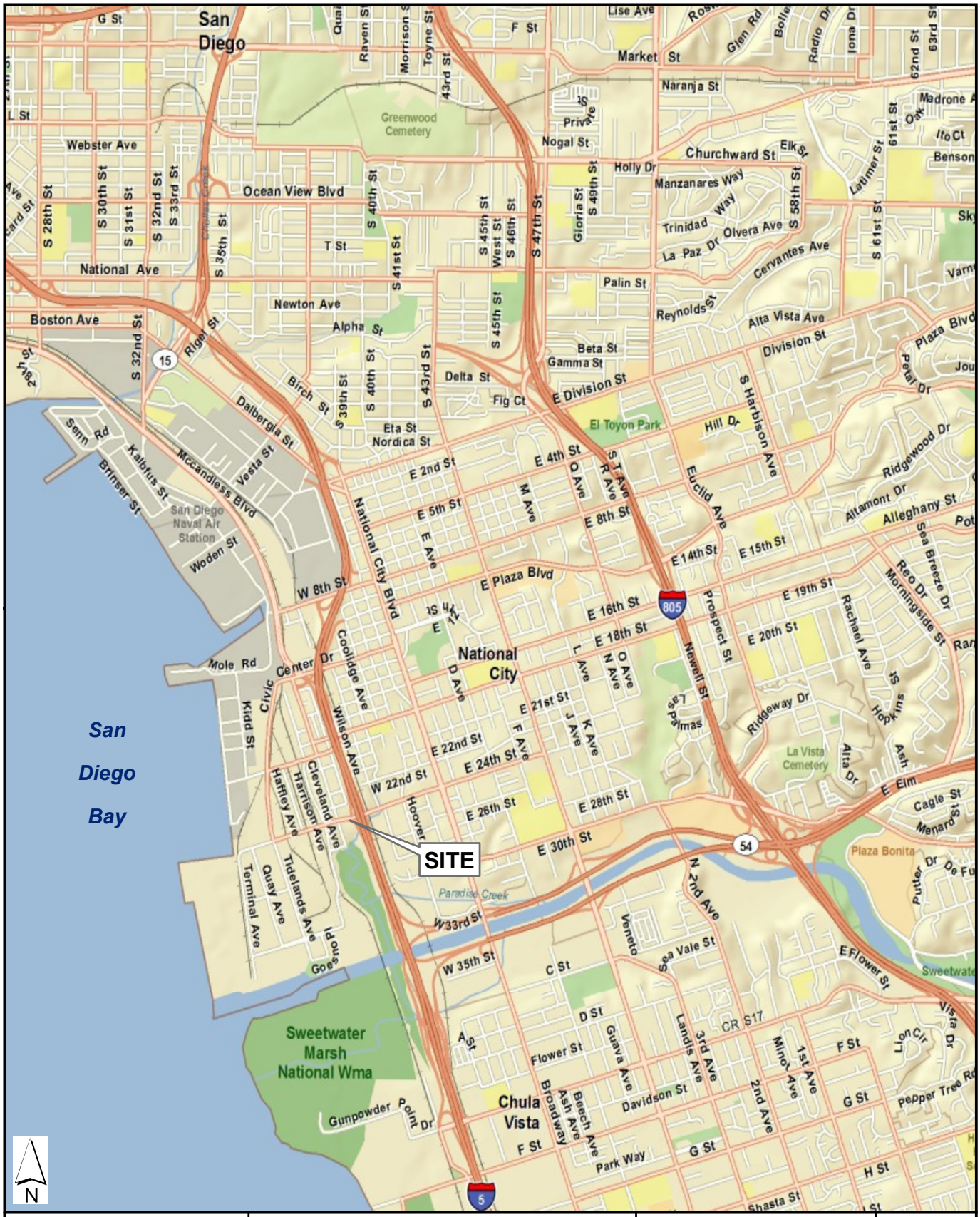
APPENDIX A

Figures



Miles

0 0.25 0.5 0.75

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO: 108977
DRAWN BY: E D GOFF
CHECKED BY: C NOLAND
DATE: JANUARY 2010

GeomorphIS

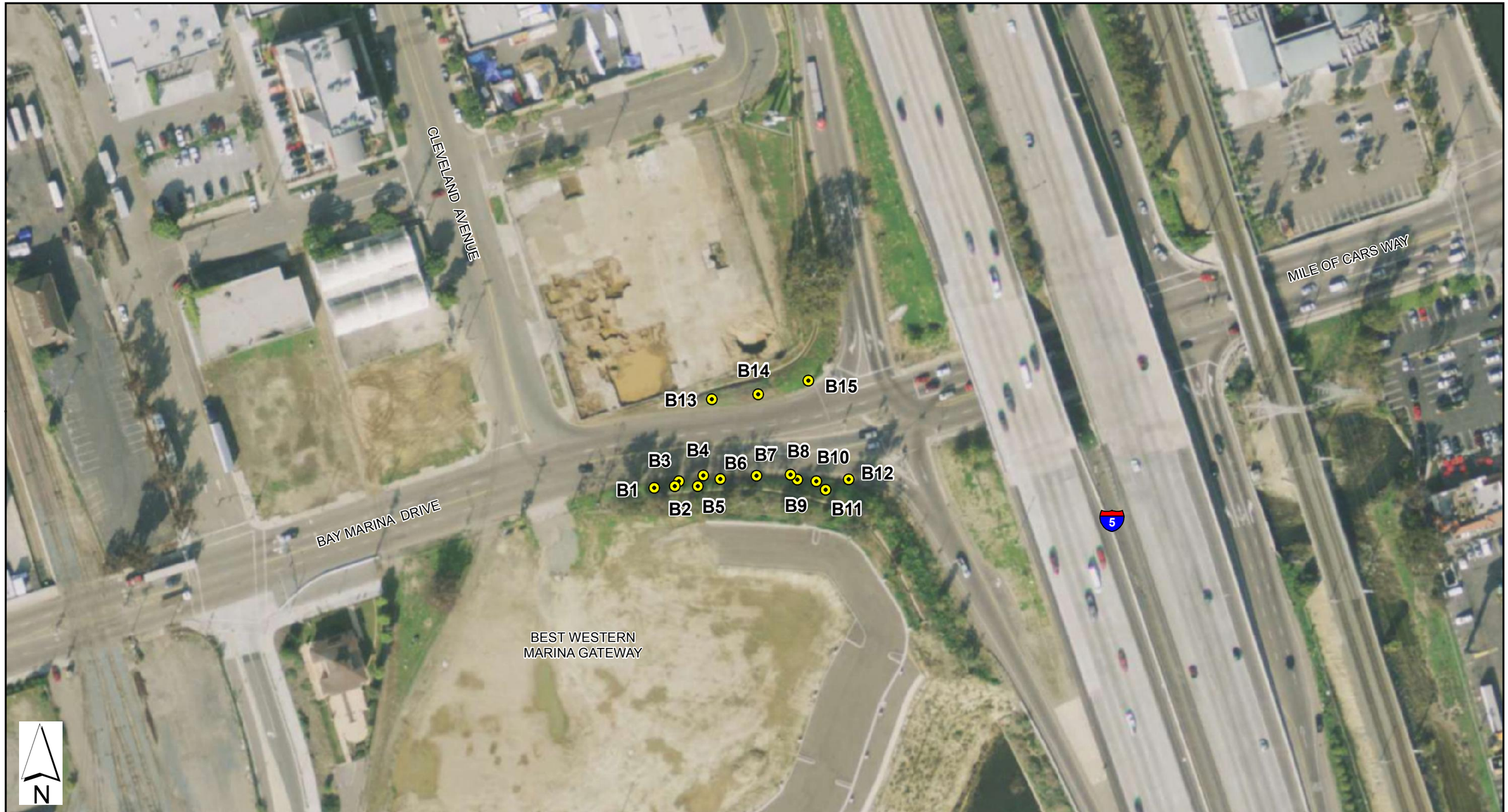
VICINITY MAP

CALTRANS EA 297610
I-5 AND BAY MARINA DRIVE
NATIONAL CITY, CA

FIGURE
1

Basemap: ESRI Street Map

File: Projects\Caltrans\NationalCity_TO12\Figure1



Feet

0 100 200 300

NOTE: ALL LOCATIONS ARE APPROXIMATE

LEGEND

B12 APPROXIMATE SAMPLE LOCATION AND LOCATION ID

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DRAWN BY: E D GOFF
CHECKED BY: C NOLAND
DATE: JANUARY 2010

GeomorphIS

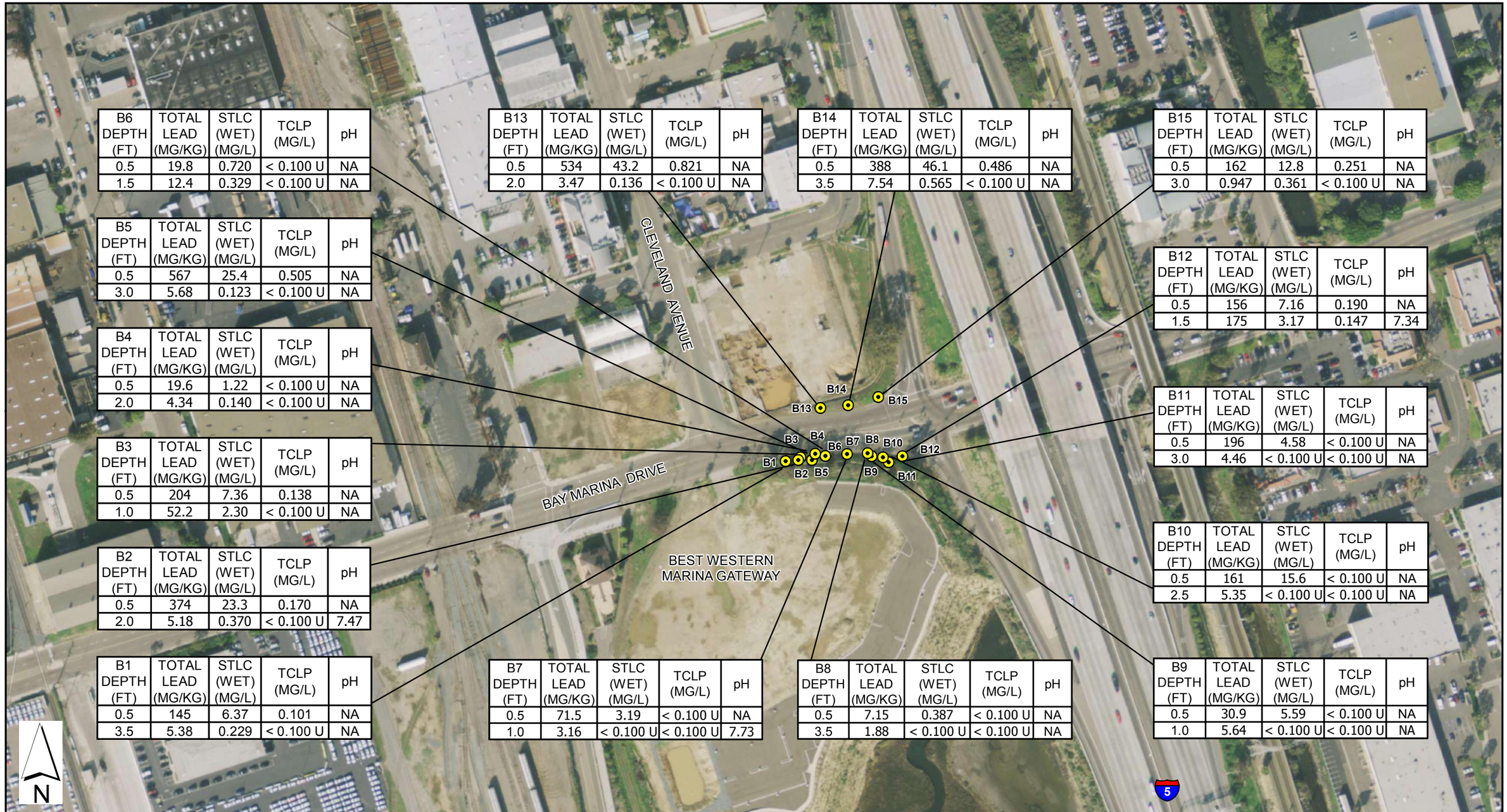
SITE PLAN

CALTRANS EA 297610
I-5 AND BAY MARINA DRIVE
NATIONAL CITY, CA

FIGURE
2

Imagery: GlobeXplorer ImageConnect

File: Projects\Caltrans\NationalCity_TO12\Figure2



B6 DEPTH (FT)	TOTAL LEAD (MG/KG)	STLC (WET) (MG/L)	TCLP (MG/L)	pH
0.5	19.8	0.720	< 0.100 U	NA
1.5	12.4	0.329	< 0.100 U	NA

B5 DEPTH (FT)	TOTAL LEAD (MG/KG)	STLC (WET) (MG/L)	TCLP (MG/L)	pH
0.5	567	25.4	0.505	NA
3.0	5.68	0.123	< 0.100 U	NA

B4 DEPTH (FT)	TOTAL LEAD (MG/KG)	STLC (WET) (MG/L)	TCLP (MG/L)	pH
0.5	19.6	1.22	< 0.100 U	NA
2.0	4.34	0.140	< 0.100 U	NA

B3 DEPTH (FT)	TOTAL LEAD (MG/KG)	STLC (WET) (MG/L)	TCLP (MG/L)	pH
0.5	204	7.36	0.138	NA
1.0	52.2	2.30	< 0.100 U	NA

B2 DEPTH (FT)	TOTAL LEAD (MG/KG)	STLC (WET) (MG/L)	TCLP (MG/L)	pH
0.5	374	23.3	0.170	NA
2.0	5.18	0.370	< 0.100 U	7.47

B1 DEPTH (FT)	TOTAL LEAD (MG/KG)	STLC (WET) (MG/L)	TCLP (MG/L)	pH
0.5	145	6.37	0.101	NA
3.5	5.38	0.229	< 0.100 U	NA

B13 DEPTH (FT)	TOTAL LEAD (MG/KG)	STLC (WET) (MG/L)	TCLP (MG/L)	pH
0.5	534	43.2	0.821	NA
2.0	3.47	0.136	< 0.100 U	NA

B14 DEPTH (FT)	TOTAL LEAD (MG/KG)	STLC (WET) (MG/L)	TCLP (MG/L)	pH
0.5	388	46.1	0.486	NA
3.5	7.54	0.565	< 0.100 U	NA

B15 DEPTH (FT)	TOTAL LEAD (MG/KG)	STLC (WET) (MG/L)	TCLP (MG/L)	pH
0.5	162	12.8	0.251	NA
3.0	0.947	0.361	< 0.100 U	NA

B12 DEPTH (FT)	TOTAL LEAD (MG/KG)	STLC (WET) (MG/L)	TCLP (MG/L)	pH
0.5	156	7.16	0.190	NA
1.5	175	3.17	0.147	7.34

B11 DEPTH (FT)	TOTAL LEAD (MG/KG)	STLC (WET) (MG/L)	TCLP (MG/L)	pH
0.5	196	4.58	< 0.100 U	NA
3.0	4.46	< 0.100 U	< 0.100 U	NA

B10 DEPTH (FT)	TOTAL LEAD (MG/KG)	STLC (WET) (MG/L)	TCLP (MG/L)	pH
0.5	161	15.6	< 0.100 U	NA
2.5	5.35	< 0.100 U	< 0.100 U	NA

B9 DEPTH (FT)	TOTAL LEAD (MG/KG)	STLC (WET) (MG/L)	TCLP (MG/L)	pH
0.5	30.9	5.59	< 0.100 U	NA
1.0	5.64	< 0.100 U	< 0.100 U	NA

B7 DEPTH (FT)	TOTAL LEAD (MG/KG)	STLC (WET) (MG/L)	TCLP (MG/L)	pH
0.5	71.5	3.19	< 0.100 U	NA
1.0	3.16	< 0.100 U	< 0.100 U	7.73

B8 DEPTH (FT)	TOTAL LEAD (MG/KG)	STLC (WET) (MG/L)	TCLP (MG/L)	pH
0.5	7.15	0.387	< 0.100 U	NA
3.5	1.88	< 0.100 U	< 0.100 U	NA

NOTES:
MG/KG - MILLIGRAMS PER KILOGRAM
MG/L - MILLIGRAMS PER LITER
NA - NOT ANALYZED
STLC - SOLUBLE THRESHOLD LIMIT CONCENTRATION
TCLP - TOXICITY CHARACTERISTIC LEACHING PROCEDURE
WET - WASTE EXTRACTION TEST WITH CITRIC ACID

ALL LOCATIONS ARE APPROXIMATE

LEGEND

B12 APPROXIMATE SAMPLE LOCATION AND LOCATION ID

Feet
0 100 200 300

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO: 108977
DRAWN BY: E D GOFF
CHECKED BY: C NOLAND
DATE: FEBRUARY 2010

GeomorphIS

ANALYTICAL RESULTS

CALTRANS EA 297610
I-5 AND BAY MARINA DRIVE
NATIONAL CITY, CA

FIGURE
3

Imagery: GlobeXplorer ImageConnect

File: Projects\Caltrans\NationalCity_TO12\Figure3

APPENDIX B

Table B-1 – Sample Location Coordinates

Table B-1
Sample Location Coordinates

Boring ID[1]	EASTING[2]	NORTHING[2]
B1	6297165.714	1820901.452
B2	6297187.221	1820903.310
B3	6297191.429	1820908.336
B4	6297216.977	1820914.489
B5	6297211.156	1820903.208
B6	6297234.746	1820910.580
B7	6297272.347	1820914.096
B8	6297307.753	1820915.271
B9	6297315.006	1820910.094
B10	6297334.676	1820908.285
B11	6297344.503	1820899.545
B12	6297368.278	1820910.217
B13	6297225.913	1820993.748
B14	6297273.979	1820998.787
B15	6297326.266	1821013.079

[1] - Coordinates collected with Trimble GeoXT with sub-meter capability
[2] - Eastings and Northings in feet

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APPENDIX C

Laboratory Analytical Reports and Chain-of-Custody Documentation

Calscience Environmental Laboratories, Inc.

January 22, 2010

Chris Noland
Kleinfelder, Inc.
5015 Shoreham Place
San Diego, CA 92122-5993

Subject: **Calscience Work Order No.: 10-01-1148**
Client Reference: EA297610 / CT-NAT.CITY / 108977

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 1/15/2010 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Danielle Gonsman
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B1-0	**10-01-1148-1-A**	**01/14/10 09:35**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 14:27**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	145	0.500	1		mg/kg

B1-3.0	**10-01-1148-2-A**	**01/14/10 09:50**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 14:28**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	5.38	0.500	1		mg/kg

B2-0	**10-01-1148-3-A**	**01/14/10 09:51**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 14:29**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	374	0.500	1		mg/kg

B2-1.5	**10-01-1148-4-A**	**01/14/10 09:53**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:22**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	5.18	0.500	1		mg/kg

B3-0	**10-01-1148-5-A**	**01/14/10 09:55**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:23**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	204	0.500	1		mg/kg

B3-0.5	**10-01-1148-6-A**	**01/14/10 09:56**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:24**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	52.2	0.500	1		mg/kg

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B4-0	**10-01-1148-7-A**	**01/14/10 09:58**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:25**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	19.6	0.500	1		mg/kg

B4-1.5	**10-01-1148-8-A**	**01/14/10 10:00**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:26**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	4.34	0.500	1		mg/kg

B5-0	**10-01-1148-9-A**	**01/14/10 10:17**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:30**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	567	0.500	1		mg/kg

B5-2.5	**10-01-1148-10-A**	**01/14/10 10:20**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:31**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	5.68	0.500	1		mg/kg

B6-0	**10-01-1148-11-A**	**01/14/10 10:22**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:32**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	19.8	0.500	1		mg/kg

B6-1.0	**10-01-1148-12-A**	**01/14/10 10:24**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:33**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	12.4	0.500	1		mg/kg

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B7-0	**10-01-1148-13-A**	**01/14/10 10:37**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:34**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	71.5	0.500	1		mg/kg

B7-1.5	**10-01-1148-14-A**	**01/14/10 10:40**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:35**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	3.16	0.500	1		mg/kg

B8-0	**10-01-1148-15-A**	**01/14/10 10:43**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:36**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	7.15	0.500	1		mg/kg

B8-3.0	**10-01-1148-16-A**	**01/14/10 10:48**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:37**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	1.88	0.500	1		mg/kg

B9-0	**10-01-1148-17-A**	**01/14/10 11:12**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:38**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	30.9	0.500	1		mg/kg

B9-0.5	**10-01-1148-18-A**	**01/14/10 11:14**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:40**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	5.64	0.500	1		mg/kg

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B10-0	**10-01-1148-19-A**	**01/14/10 11:21**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:43**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	161	0.500	1		mg/kg

B10-2.0	**10-01-1148-20-A**	**01/14/10 11:27**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:44**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	5.35	0.500	1		mg/kg

B11-0	**10-01-1148-21-A**	**01/14/10 11:35**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:45**	**100118L06**

Parameter	Result	RL	DF	Qual	Units
Lead	196	0.500	1		mg/kg

B11-2.5	**10-01-1148-22-A**	**01/14/10 11:45**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:47**	**100118L06**

Parameter	Result	RL	DF	Qual	Units
Lead	4.46	0.500	1		mg/kg

B12-0	**10-01-1148-23-A**	**01/14/10 11:55**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:48**	**100118L06**

Parameter	Result	RL	DF	Qual	Units
Lead	156	0.500	1		mg/kg

B12-1.0	**10-01-1148-24-A**	**01/14/10 12:00**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:49**	**100118L06**

Parameter	Result	RL	DF	Qual	Units
Lead	175	0.500	1		mg/kg

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B13-0	**10-01-1148-25-A**	**01/14/10 12:40**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:51**	**100118L06**

Parameter	Result	RL	DF	Qual	Units
Lead	534	0.500	1		mg/kg

B13-1.5	**10-01-1148-26-A**	**01/14/10 12:45**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:52**	**100118L06**

Parameter	Result	RL	DF	Qual	Units
Lead	3.47	0.500	1		mg/kg

B14-0	**10-01-1148-27-A**	**01/14/10 12:29**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:53**	**100118L06**

Parameter	Result	RL	DF	Qual	Units
Lead	388	0.500	1		mg/kg

B14-3.0	**10-01-1148-28-A**	**01/14/10 12:35**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:54**	**100118L06**

Parameter	Result	RL	DF	Qual	Units
Lead	7.54	0.500	1		mg/kg

B15-0	**10-01-1148-29-A**	**01/14/10 12:17**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:58**	**100118L06**

Parameter	Result	RL	DF	Qual	Units
Lead	162	0.500	1		mg/kg

B15-2.5	**10-01-1148-30-A**	**01/14/10 12:25**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 15:59**	**100118L06**

Parameter	Result	RL	DF	Qual	Units
Lead	0.947	0.500	1		mg/kg

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-002-13,111**	**N/A**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 13:42**	**100118L06**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.500	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-002-13,112**	**N/A**	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10 13:40**	**100118L05**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.500	1		mg/kg

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 1311
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B1-0	**10-01-1148-1-A**	**01/14/10 09:35**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:07**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	0.101	0.100	1		mg/L

B1-3.0	**10-01-1148-2-A**	**01/14/10 09:50**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:08**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B2-0	**10-01-1148-3-A**	**01/14/10 09:51**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:09**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	0.170	0.100	1		mg/L

B2-1.5	**10-01-1148-4-A**	**01/14/10 09:53**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:10**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B3-0	**10-01-1148-5-A**	**01/14/10 09:55**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:10**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	0.138	0.100	1		mg/L

B3-0.5	**10-01-1148-6-A**	**01/14/10 09:56**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:11**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 1311
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B4-0	**10-01-1148-7-A**	**01/14/10 09:58**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:12**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B4-1.5	**10-01-1148-8-A**	**01/14/10 10:00**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:12**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B5-0	**10-01-1148-9-A**	**01/14/10 10:17**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:15**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	0.505	0.100	1		mg/L

B5-2.5	**10-01-1148-10-A**	**01/14/10 10:20**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:15**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B6-0	**10-01-1148-11-A**	**01/14/10 10:22**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:16**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B6-1.0	**10-01-1148-12-A**	**01/14/10 10:24**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:17**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 1311
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B7-0	**10-01-1148-13-A**	**01/14/10 10:37**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:17**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B7-1.5	**10-01-1148-14-A**	**01/14/10 10:40**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:18**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B8-0	**10-01-1148-15-A**	**01/14/10 10:43**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:19**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B8-3.0	**10-01-1148-16-A**	**01/14/10 10:48**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:20**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B9-0	**10-01-1148-17-A**	**01/14/10 11:12**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:20**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B9-0.5	**10-01-1148-18-A**	**01/14/10 11:14**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:21**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 1311
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B10-0	**10-01-1148-19-A**	**01/14/10 11:21**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:23**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B10-2.0	**10-01-1148-20-A**	**01/14/10 11:27**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:24**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B11-0	**10-01-1148-21-A**	**01/14/10 11:35**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:25**	**100120LA5**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B11-2.5	**10-01-1148-22-A**	**01/14/10 11:45**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:25**	**100120LA5**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B12-0	**10-01-1148-23-A**	**01/14/10 11:55**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:26**	**100120LA5**

Parameter	Result	RL	DF	Qual	Units
Lead	0.190	0.100	1		mg/L

B12-1.0	**10-01-1148-24-A**	**01/14/10 12:00**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:27**	**100120LA5**

Parameter	Result	RL	DF	Qual	Units
Lead	0.147	0.100	1		mg/L

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 1311
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B13-0	**10-01-1148-25-A**	**01/14/10 12:40**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:28**	**100120LA5**

Parameter	Result	RL	DF	Qual	Units
Lead	0.821	0.100	1		mg/L

B13-1.5	**10-01-1148-26-A**	**01/14/10 12:45**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:28**	**100120LA5**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B14-0	**10-01-1148-27-A**	**01/14/10 12:29**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:29**	**100120LA5**

Parameter	Result	RL	DF	Qual	Units
Lead	0.486	0.100	1		mg/L

B14-3.0	**10-01-1148-28-A**	**01/14/10 12:35**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:30**	**100120LA5**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

B15-0	**10-01-1148-29-A**	**01/14/10 12:17**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:32**	**100120LA5**

Parameter	Result	RL	DF	Qual	Units
Lead	0.251	0.100	1		mg/L

B15-2.5	**10-01-1148-30-A**	**01/14/10 12:25**	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10 18:33**	**100120LA5**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 1311
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-003-10,078**	**N/A**	**Aqueous**	**ICP 5300**	**01/19/10**	**01/20/10 17:58**	**100120LA5**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

Method Blank	**097-01-003-10,079**	**N/A**	**Aqueous**	**ICP 5300**	**01/19/10**	**01/20/10 17:57**	**100120LA4**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.100	1		mg/L

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 3550B
		Method:	EPA 9045D

Project: EA297610 / CT-NAT.CITY / 108977

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B2-1.5	**10-01-1148-4-A**	**01/14/10 09:53**	**Solid**	**PH 4**	**01/15/10**	**01/15/10 19:50**	**A0115PHD2**

Parameter	Result	RL	DF	Qual	Units
pH	7.47	0.01	1		pH units

B7-1.5	**10-01-1148-14-A**	**01/14/10 10:40**	**Solid**	**PH 4**	**01/15/10**	**01/15/10 19:50**	**A0115PHD2**

Parameter	Result	RL	DF	Qual	Units
pH	7.73	0.01	1		pH units

B12-1.0	**10-01-1148-24-A**	**01/14/10 12:00**	**Solid**	**PH 4**	**01/15/10**	**01/15/10 19:50**	**A0115PHD2**

Parameter	Result	RL	DF	Qual	Units
pH	7.34	0.01	1		pH units

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

LABORATORY ID: 10-01-1148

Method: EPA 7420 STLC Lead
Matrix: Soil/Solid

CLIENT: Kleinfelder, Inc.
PROJECT: EA297610 / CT-NAT.CITY / 108977

Results

Sample ID	STLC Lead (mg/L)	Reporting Limit (mg/L)	Date Extracted	Date Analyzed
B1-0	6.37	0.200	01/19/10	01/21/10
B1-3.0	0.229	0.100	01/19/10	01/21/10
B2-0	23.3	1.00	01/19/10	01/21/10
B2-1.5	0.370	0.100	01/19/10	01/21/10
B3-0	7.36	0.200	01/19/10	01/21/10
B3-0.5	2.30	0.100	01/19/10	01/21/10
B4-0	1.22	0.100	01/19/10	01/21/10
B4-1.5	0.140	0.100	01/19/10	01/21/10
B5-0	25.4	1.00	01/19/10	01/21/10
B5-2.5	0.123	0.100	01/19/10	01/21/10
B6-0	0.720	0.100	01/19/10	01/21/10
B6-1.0	0.329	0.100	01/19/10	01/21/10
B7-0	3.19	0.100	01/19/10	01/21/10
B7-1.5	ND	0.100	01/19/10	01/21/10
B8-0	0.387	0.100	01/19/10	01/21/10
B8-3.0	ND	0.100	01/19/10	01/21/10
B9-0	5.59	0.200	01/19/10	01/21/10
B9-0.5	ND	0.100	01/19/10	01/21/10
B10-0	15.6	1.00	01/19/10	01/21/10
B10-2.0	ND	0.100	01/19/10	01/21/10
Method Blank	ND	0.100	01/19/10	01/21/10

Quality Assurance and Control Information

Matrix Sample Spike ID: B4-1.5

Batch ID: 100121LA5	Spike Conc. ppm	LCS Result ppm	**LCS Rec (%)**	LCS Control Limits	**MS Rec (%)**	**MSD Rec (%)**	Control Limits	**RPD (%)**	RPD Control Limits
Lead	1.000	0.938	**94**	50-130	**92**	**88**	50-130	**4**	0-20

Laboratory Notes

Key: Rec=Recovery, ND=Not Detected at the reporting level, *= Out of control limit

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

LABORATORY ID: 10-01-1148

Method: EPA 7420 STLC Lead
Matrix: Soil/Solid

CLIENT: Kleinfelder, Inc.
PROJECT: EA297610 / CT-NAT.CITY / 108977

Results

Sample ID	STLC Lead (mg/L)	Reporting Limit (mg/L)	Date Extracted	Date Analyzed
B11-0	4.58	0.100	01/19/10	01/21/10
B11-2.5	ND	0.100	01/19/10	01/21/10
B12-0	7.16	0.200	01/19/10	01/21/10
B12-1.0	3.17	0.100	01/19/10	01/21/10
B13-0	43.2	1.00	01/19/10	01/21/10
B13-1.5	0.136	0.100	01/19/10	01/21/10
B14-0	46.1	1.00	01/19/10	01/21/10
B14-3.0	0.565	0.100	01/19/10	01/21/10
B15-0	12.8	1.00	01/19/10	01/21/10
B15-2.5	0.361	0.100	01/19/10	01/21/10
Method Blank	ND	0.100	01/19/10	01/21/10

Quality Assurance and Control Information

Matrix Sample Spike ID: B11-2.5

Batch ID: 100121LA6	Spike Conc. ppm	LCS Result ppm	**LCS Rec (%)**	LCS Control Limits	**MS Rec (%)**	**MSD Rec (%)**	Control Limits	**RPD (%)**	RPD Control Limits
Lead	1.000	0.947	**95**	50-130	**101**	**98**	50-130	**3**	0-20

Laboratory Notes

Key: Rec=Recovery, ND=Not Detected at the reporting level, *= Out of control limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Kleinfelder, Inc.
5015 Shoreham Place
San Diego, CA 92122-5993

Date Received:	01/15/10
Work Order No:	10-01-1148
Preparation:	EPA 3050B
Method:	EPA 6010B

Project EA297610 / CT-NAT.CITY / 108977

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
B1-0	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10**	**100118S05**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	4X	4X	75-125	4X	0-20	Q

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Kleinfelder, Inc.
5015 Shoreham Place
San Diego, CA 92122-5993

Date Received:	01/15/10
Work Order No:	10-01-1148
Preparation:	EPA 3050B
Method:	EPA 6010B

Project EA297610 / CT-NAT.CITY / 108977

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
B12-0	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10**	**100118S06**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	4X	4X	75-125	4X	0-20	Q

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 1311
		Method:	EPA 6010B

Project EA297610 / CT-NAT.CITY / 108977

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
B2-0	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10**	**100120SA4**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	106	107	84-120	1	0-7	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 1311
		Method:	EPA 6010B

Project EA297610 / CT-NAT.CITY / 108977

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
B15-2.5	**Solid**	**ICP 5300**	**01/19/10**	**01/20/10**	**100120SA5**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	103	103	84-120	0	0-7	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

Kleinfelder, Inc.		Date Received:	01/15/10
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 3550B
		Method:	EPA 9045D

Project: EA297610 / CT-NAT.CITY / 108977

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
B12-1.0	**Solid**	**PH 4**	**01/15/10**	**01/15/10**	**A0115PHD2**

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
pH	7.34	7.24	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Kleinfelder, Inc.		Date Received:	N/A
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-002-13,112	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10**	**100118L05**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	111	112	80-120	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Kleinfelder, Inc.		Date Received:	N/A
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 3050B
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-002-13,111	**Solid**	**ICP 5300**	**01/18/10**	**01/19/10**	**100118L06**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	110	108	80-120	2	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Kleinfelder, Inc.		Date Received:	N/A
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 1311
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-003-10,079	**Aqueous**	**ICP 5300**	**01/19/10**	**01/20/10**	**100120LA4**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	105	102	80-120	3	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Kleinfelder, Inc.		Date Received:	N/A
5015 Shoreham Place		Work Order No:	10-01-1148
San Diego, CA 92122-5993		Preparation:	EPA 1311
		Method:	EPA 6010B

Project: EA297610 / CT-NAT.CITY / 108977

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-003-10,078	**Aqueous**	**ICP 5300**	**01/19/10**	**01/20/10**	**100120LA5**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	104	105	80-120	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 10-01-1148

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture.

KLEINFELDER
Bright People. Right Solutions.

1148

PROJECT NO.	PROJECT NAME	RECEIVING LAB:
108977	EA 297610 / CT-NAT. CITY	Calscience, 7440 Lincoln Way, Garden Grove, CA 92841
L.P. NO. (PO. NO.)	SAMPLERS: (Signature/Number)	
	[signature]	

INSTRUCTIONS/REMARKS: * ~~If soil sample contains hazardous concentrations of lead analyze for metals elements scan 6010.~~

	DATE MM/DD/YY	SAMPLE I.D. TIME HH-MM-SS	SAMPLE I.D.	MATRIX	NO. OF CONTAINERS	TYPE OF CONTAINERS	Total lead 6010	see ①	see ②	pH							
1	01/14/10	0935	B1-0	SOIL	1	GLASS JAR	X	X	X								
2		0950	B1-3.0	SOIL	1		X	X	X								
3		0951	B2-0		1		X	X	X								
4		0953	B2-1.5		1		X	X	X	X							
5		0955	B3-0		1		X	X	X								
6		0956	B3-0.5		1		X	X	X								
7		0958	B4-0		1		X	X	X								
8		1000	B4-1.5		1		X	X	X								
9		1017	B5-0		1		X	X	X								
10		1020	B5-2.5		1		X	X	X								
11		1022	B6-0		1		X	X	X								
12		1024	B6-1.0		1		X	X	X								
13		1037	B7-0		1		X	X	X								
14		1040	B7-1.5		1		X	X	X	X							
15		1043	B8-0		1		X	X	X								
16		1048	B8-3.0		1		X	X	X								
17		1112	B9-0		1		X	X	X								
18		1114	B9-0.5		1		X	X	X								
19		1121	B10-0		1		X	X	X								
20		1127	B10-2.0		1		X	X	X								

① Soluble lead with citric acid as the extractant using EPA 7420

② TCLP of Lead by EPA 6010

~~if concentrations are greater than 50mg/Kg~~ CAN

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	01/15/10 1210	[signature] CEL
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	1/15/10 1630	[signature]
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)

Instructions/Remarks:

Send Results To: cnoland@kleinfelder.com

Attn:

ENV-02 REV 05/08)

White – Sampler Canary – Return Copy To Shipper Pink – Lab Copy

CHAIN OF CUSTODY

COC № 04934

KLEINFELDER
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T148

PROJECT NO. 108977
PROJECT NAME EA297610 / CT-NAT. CITY
L.P. NO. (PO. NO.)
SAMPLERS: (Signature/Number) [signature]

RECEIVING LAB: CALSCIENCE
7440 LINCOLN WAY
GARDEN GROVE, CA 92841
CAN

INSTRUCTIONS/REMARKS
*~~If soil sample contains lead > 50 mg/kg then analyze metals elements scan (6010)~~

	DATE MM/DD/YY	SAMPLE I.D. TIME HH-MM-SS	SAMPLE I.D.	MATRIX	NO. OF CON-TAINERS	TYPE OF CON-TAINERS	TOTAL LEAD 6010	See ①	See ②	pH	
2 1	01/14/10	1135	B11-0	SOIL	1	GLASS JAR	X	X	X		
2 2		1145	B11-2.5		1		X	X	X		
2 3		1155	B12-0		1		X	X	X		
2 4		1200	B12-1.0		1		X	X	X	X	
2 5		1240	B13-0		1		X	X	X		
~~2 6~~			~~B-13-1.5~~								
2 7	01/14/10	1245	B13-1.5	SOIL	1	GLASS JAR	X	X	X		
27 8		1229	B14-0		1		X	X	X		
28 9		1235	B14-3.0		1		X	X	X		
29 10		1217	B15-0		1		X	X	X		
30 11		1225	B15-2.5		1		X	X	X		
12											
13											
14											
15											
16											
17											
18											
19											
20											

CAN 01/14/10

① Soluble lead with citric acid as the extractant using EPA 7420

② TCLP of Lead by EPA 6010

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	01/15/10 1210	[signature] CEL
[signature]	1/15/10 1630	[signature]

Instructions/Remarks:

Send Results To: cholard@kleinfelder.com

Attn:

ENV-02 REV 05/08)

White – Sampler Canary – Return Copy To Shipper Pink – Lab Copy

CHAIN OF CUSTODY

COC № 04937

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 10-01-1148

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Kleinfelder

DATE: 01/15/10

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 0.9 °C + 0.5 °C (CF) = 1.4 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter ☐ Metals Only ☐ PCBs Only Initial: [illegible]

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: [illegible]

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: POP

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Correct containers and volume for analyses requested	☑	☐	☐
Analyses received within holding time (pH)	☑ 1/15/10	☑	☐
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☑8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s** ☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na** ☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:**_____ **Checked by:** POP

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** YL

Preservative: **h:** HCL **n:** HNO3 **na$_2$:** $Na_2S_2O_3$ **Na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **znna:** $ZnAc_2$+NaOH **f:** Field-filtered **Scanned by:** POP

APPENDIX D

Statistical Data Evaluation

Appendix D

1.0 Statistical Analysis

The data sets for total concentrations of lead (TOTAL), soluble concentrations of lead from the Waste Extraction Test for comparison with the Soluble Threshold Limit Concentration (STLC), and soluble concentrations of lead from the Toxicity Characteristic Leaching Procedure (TCLP) were statistically analyzed. The summary statistics are presented below in (Table 1).

Table 1 - Summary Statistics

Summary Statistics for Raw Full Data Sets												
Variable	NumObs	ND%	Minimum	Maximum	Mean	Median	Variance	SD	% exceeding regulatory limit			
TOTAL	30	0%	0.947	567	111	19.7	25723	160.4		0%		
STLC	30	17%	0.1	46.1	7.04	0.97	149.2	12.21		33%		
TCLP	30	70%	0.1	0.821	0.164	0.1	0.0259	0.161		0%		
Percentiles for Raw Full Data Sets												
Variable	NumObs		5%ile	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
TOTAL	30		1.414	3.16	4.46	5.265	19.6	161.5	175	374	461	557.1
STLC	30		0.1	0.1	0.123	0.138	0.72	6.765	7.36	23.3	34.3	45.23
TCLP	30		0.1	0.1	0.1	0.1	0.1	0.12	0.147	0.251	0.496	0.726

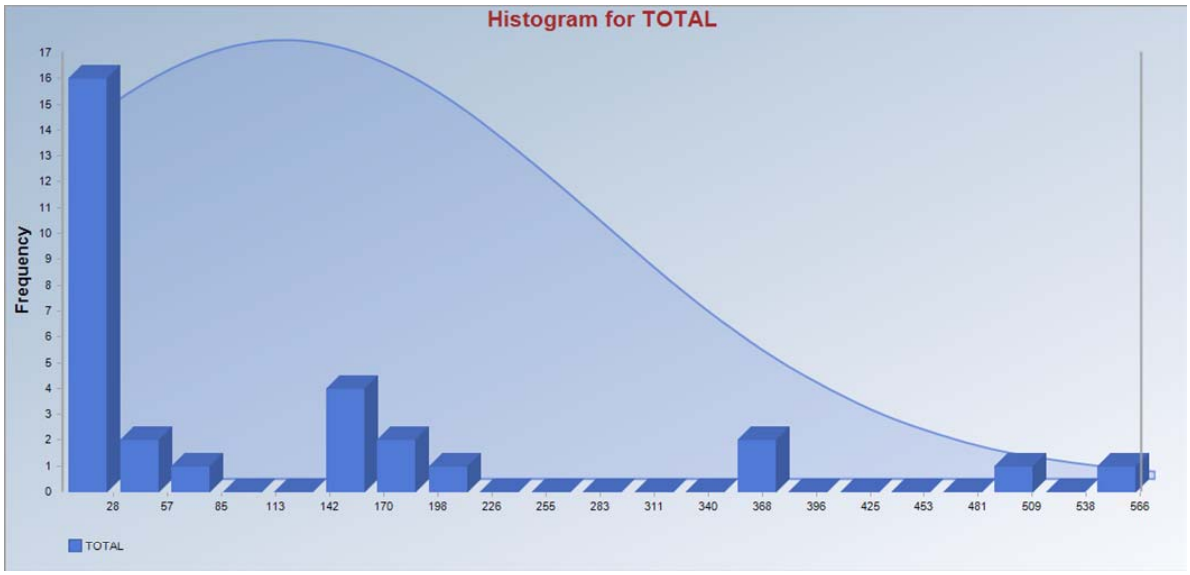
Since individual samples in the TCLP data set did not exceed the TCLP criteria of 5 milligrams per liter (mg/L) for hazardous waste classification, this data set was excluded from further statistical analyses. The TOTAL data set did not include individual samples that exceeded the total threshold limit concentration (TTLC) of 1,000 mg/kg; however, statistical analyses on the TOTAL data was performed to provide additional guidance for reuse or disposal of the soil under the DTSC variance for reuse of lead-contaminated soils. The STLC data set was retained for further statistical analysis, since 33% of the samples exceeded the STLC regulatory criteria of 5 mg/L for classification as California-hazardous.

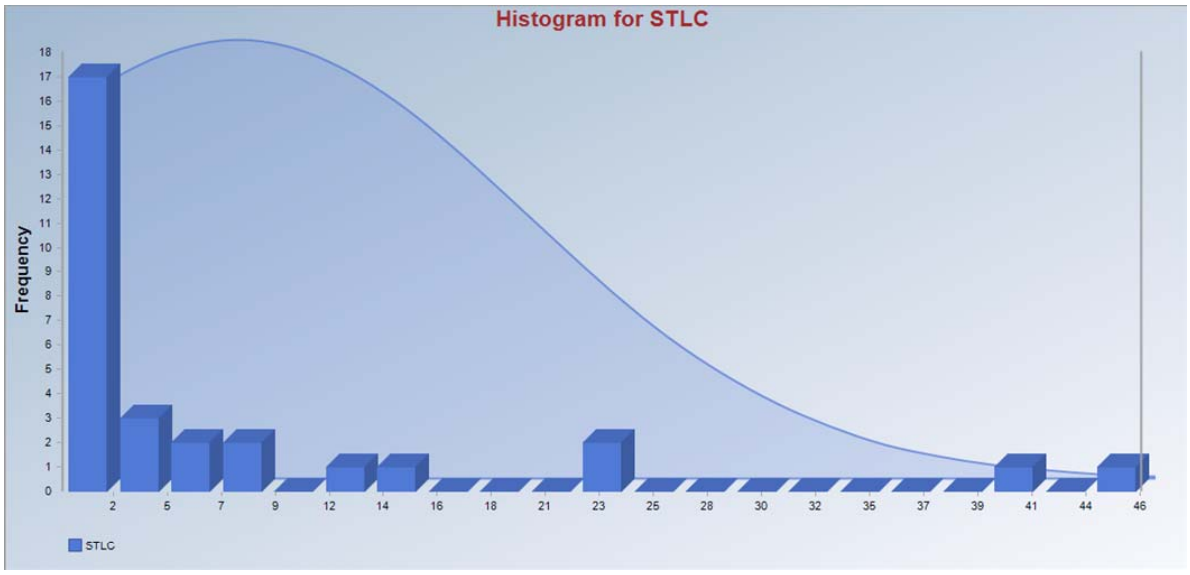
Goodness-of-Fit (GOF) tests were performed on the TOTAL and STLC data sets to evaluate suitable statistical methods to calculate the concentrations represented by Upper Confidence Limits of the mean as described in the Work Plan. Table 2 below summarizes the tests results and indicate that both data sets did not fit known distributions and therefore, Non-parametric statistical methods were used. ND values were substituted with the numeric value of the Reporting Limit (RL).

Table 2 - Goodness of Fitness Tests (0.05 Significance Level)

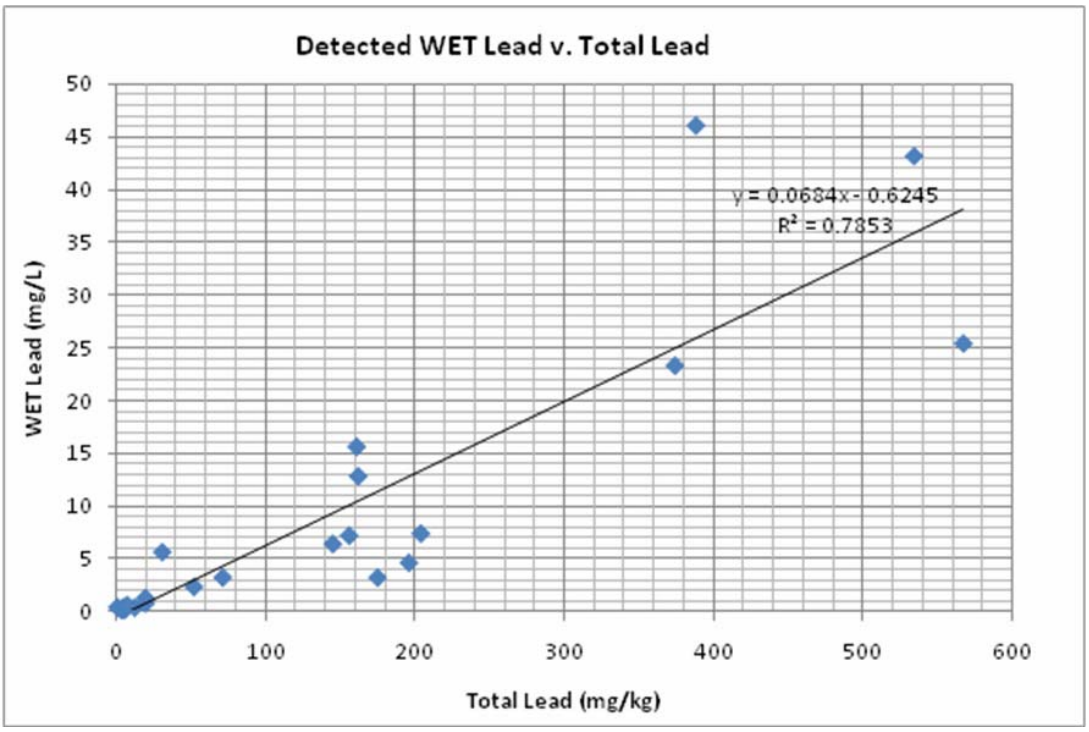
Variable	Normal	Lognormal	Gamma	Recommended
TOTAL	No	No	No	Use Non-parametric method
STLC	No	No	No	Use Non-parametric method

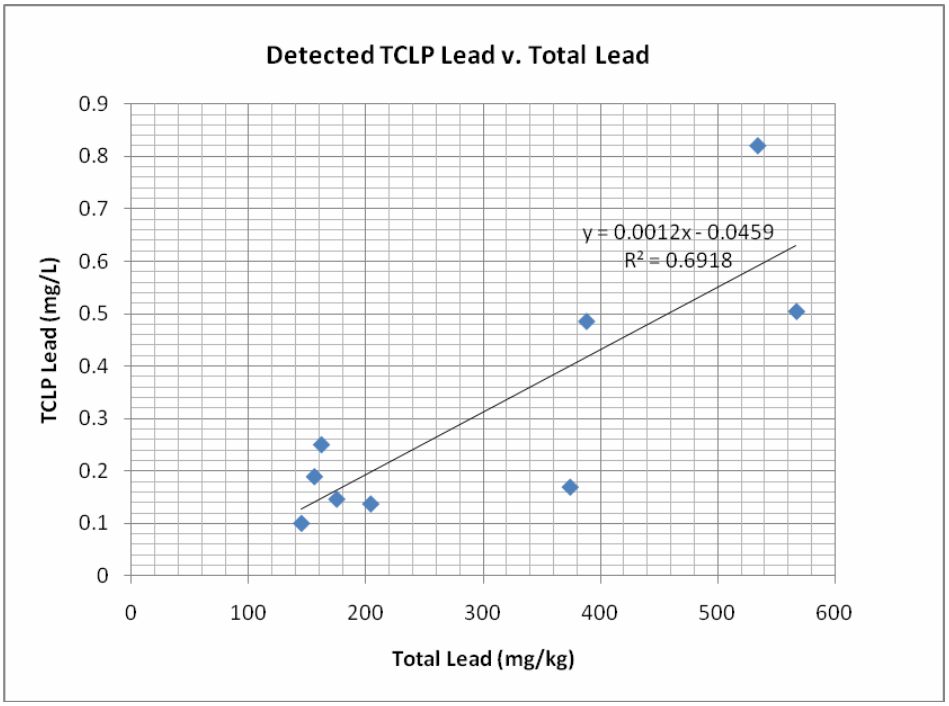
Histogram plots for the TOTAL and STLC data sets are presented below.

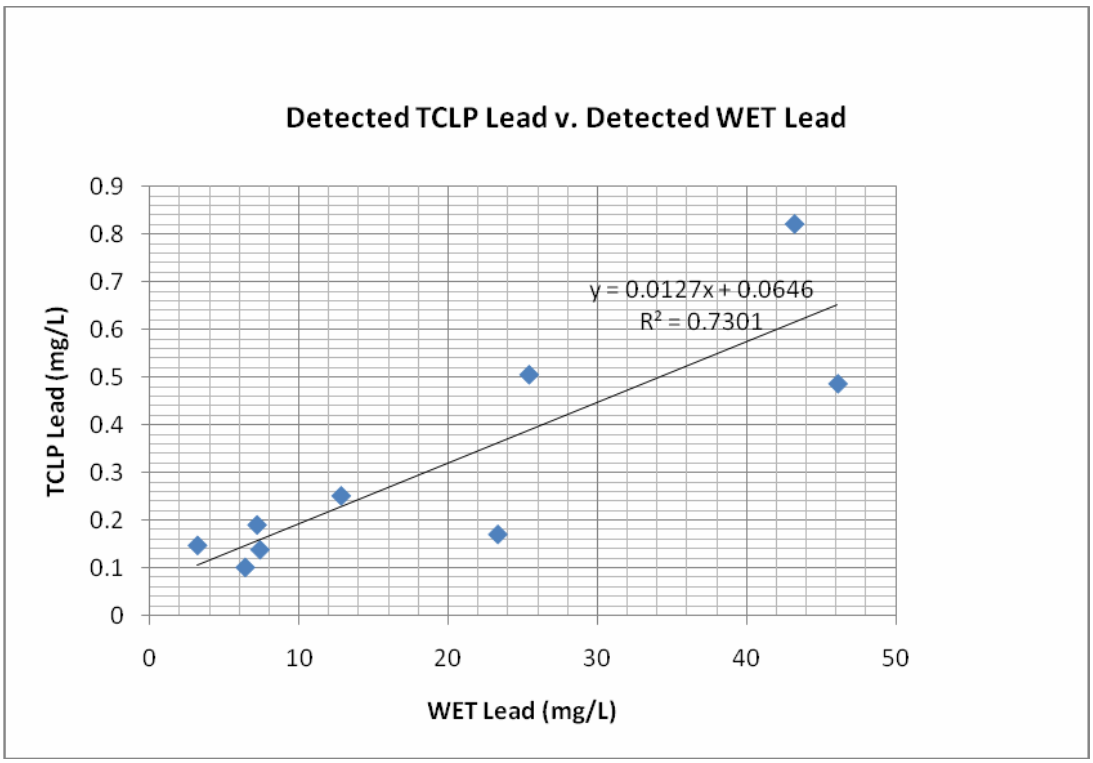




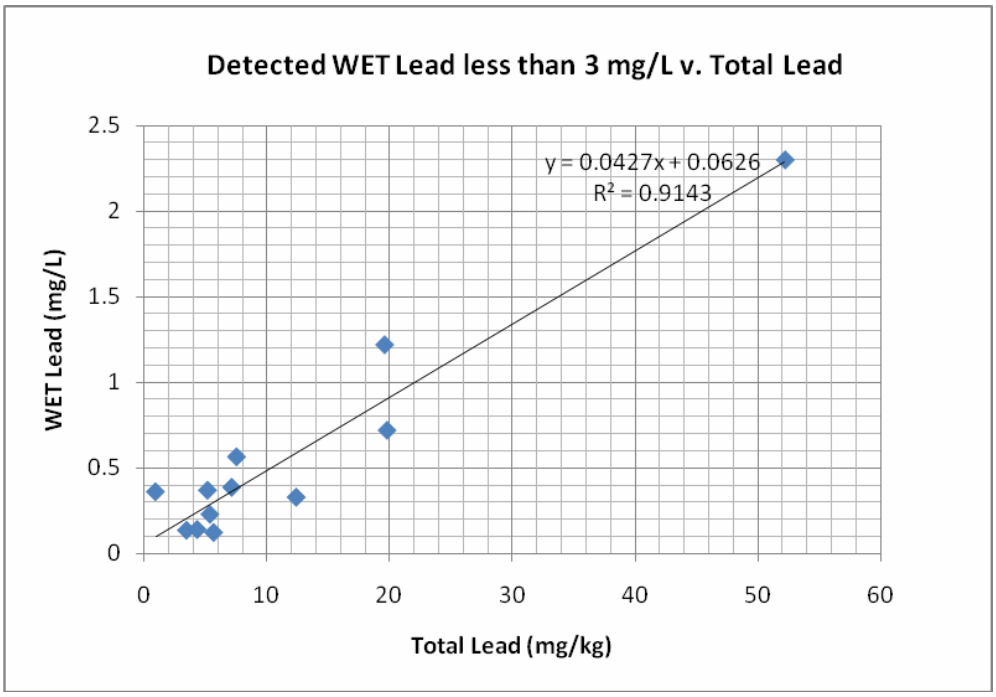
Linear regression analyses were performed between the three data sets to evaluate if there were meaningful correlations between the data sets. The results indicate that there are no meaningful correlations between the detected concentrations of the three data sets ($R^2 << 1$).







When detected STLC values less than 3 mg/L were plotted against the corresponding TOTAL values, there was a better correlation (R^2>0.9) and a smaller intercept when compared to plotting ALL detected STLC values against corresponding TOTAL values.



2.0 Calculation of Upper Confidence Levels

The 90% Upper Confidence Level (UCL) of the TOTAL data set was computed using the Bootstrap-t re-sampling Non-parametric Distribution free method as 161.7. The 90% UCL calculated using other methods ranged from 149.4 for Students-t (not recommended) to 198.8 using the Chebyshev Inequality method.
The 95% UCL of the STLC data set was computed using the Bootstrap-t method as 12.8. The 95% UCL using other methods ranged from 10.8 for Students-t (not recommended) to 16.8 using the Chebyshev Inequality method.

3.0 Comparison of UCL with Variance and Regulatory Limits

The maximum concentration of the TOTAL data set was 567 mg/kg, which is well below the variance levels of 1,411 mg/kg (for placement five feet above water and below 1-ft of non-hazardous soil) and 3,397 mg/kg (for placement five feet above water and below pavement). The maximum concentration is also below the TTLC of 1,000 mg/kg for hazardous waste classification. Based on the TOTAL data set alone, the soil is not hazardous and can be reused on site. However, the samples should be tested for extractable lead using a modified WET procedure with deionized water as the extractant to confirm that for soil reused under 1-foot of non-hazardous soil cover if the extractable lead is equal to or less than 1.5 mg/L and if used beneath pavement, the extractable lead is equal to or less than 150 mg/L. Since the maximum WET concentration is 46.1 mg/L using an acidic extractant, it is highly unlikely that the maximum extractable lead using deionized water as extractant would exceed 46.1 mg/L (which is well below the limit of 150 mg/L) for use beneath pavement.

The 95% UCL of the STLC data (12.8 mg/L) is above the STLC of 5 mg/L and indicates that the soil, if excavated for disposal in California, would be classified as hazardous waste per the California Code of Regulations (CCR) Title 22 Section 66261. The STLC data set was segregated into soil above 1-feet (identified as STLC <1) and below 1-feet (STLC >1) to evaluate if the horizons of soil above and below 1 foot would have different waste classifications for disposal. The summary statistics for each of the sub-data sets are shown below in Tables 3 and 4.

Table 3 - Summary Statistics for STLC <1

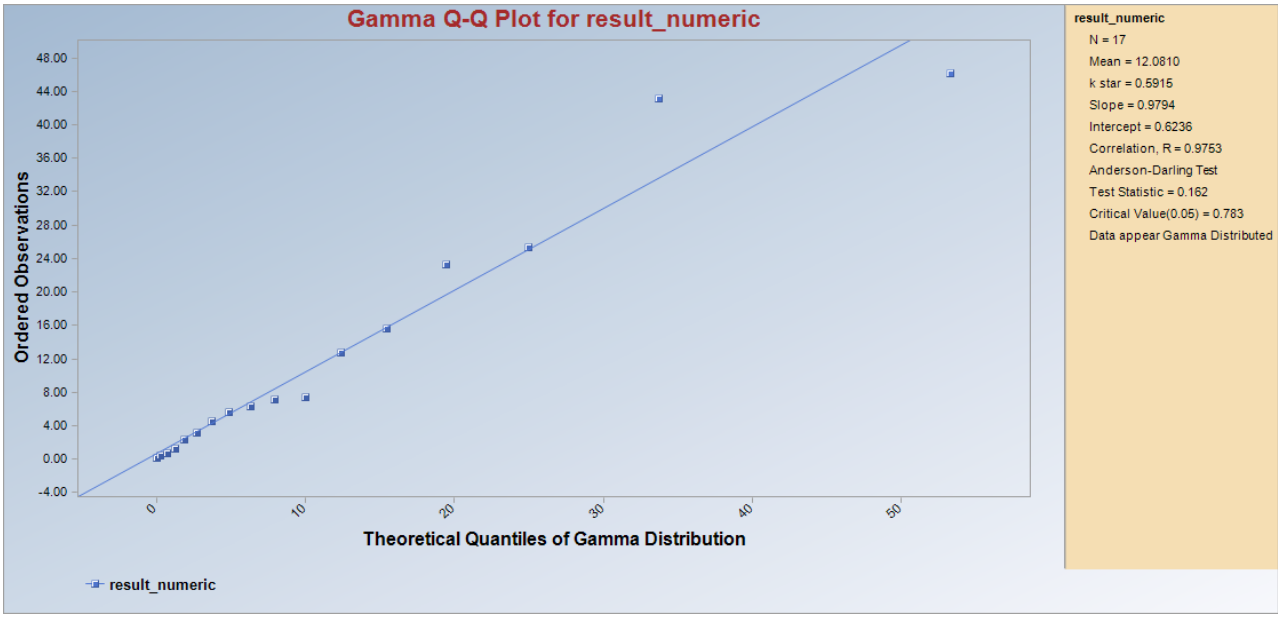
Summary Statistics for Raw Full Data Sets												
Variable	NumObs	ND%	Minimum	Maximum	Mean	Median	Variance	SD	% exceeding regulatory limit			
STLC<1	17	6%	0.1	46.1	12.08	6.37	207.6	14.41		59%		
Percentiles for Raw Full Data Sets												
Variable	NumObs		5%ile	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
STLC<1	17		0.1	0.301	0.92	1.49	5.98	14.9	20.22	30.74	43.64	45.61

Table 4 - Summary Statistics for STLC >1

Summary Statistics for Raw Full Data Sets												
Variable	NumObs	ND%	Minimum	Maximum	Mean	Median	Variance	SD	% exceeding regulatory limit			
STLC>1	13	31%	0.1	3.17	0.448	0.14	0.69	0.831		0%		
Percentiles for Raw Full Data Sets												
Variable	NumObs		5%ile	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
STLC>1	13		0.1	0.1	0.1	0.1	0.138	0.353	0.365	0.507	1.477	2.831

Since the maximum concentration for STLC>1 data set is 3.2 mg/L and none of the individual samples exceeded the hazardous waste criteria of 5 mg/L, additional statistical analysis of this data subset was not performed. Soil from this horizon - deeper than 1 feet at the locations sampled - can be disposed of as non-hazardous waste in California.

Since 59% of the samples in the STLC<1 data subset exceeded the hazardous waste criteria of 5 mg/L, additional statistical analysis was performed on this data subset. The STLC<1 data set appeared to fit a gamma distribution (see Q-Q plot) below.



The 95% UCL gamma was estimated at 22.2 mg/L, indicating that if the soil were excavated and disposed of in California, it would be classified as hazardous waste.

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Theresa Gabriel 12-20-07
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Theresa A. Gabriel No. E15129 Exp. 6-30-10 ELECT STATE OF CALIFORNIA

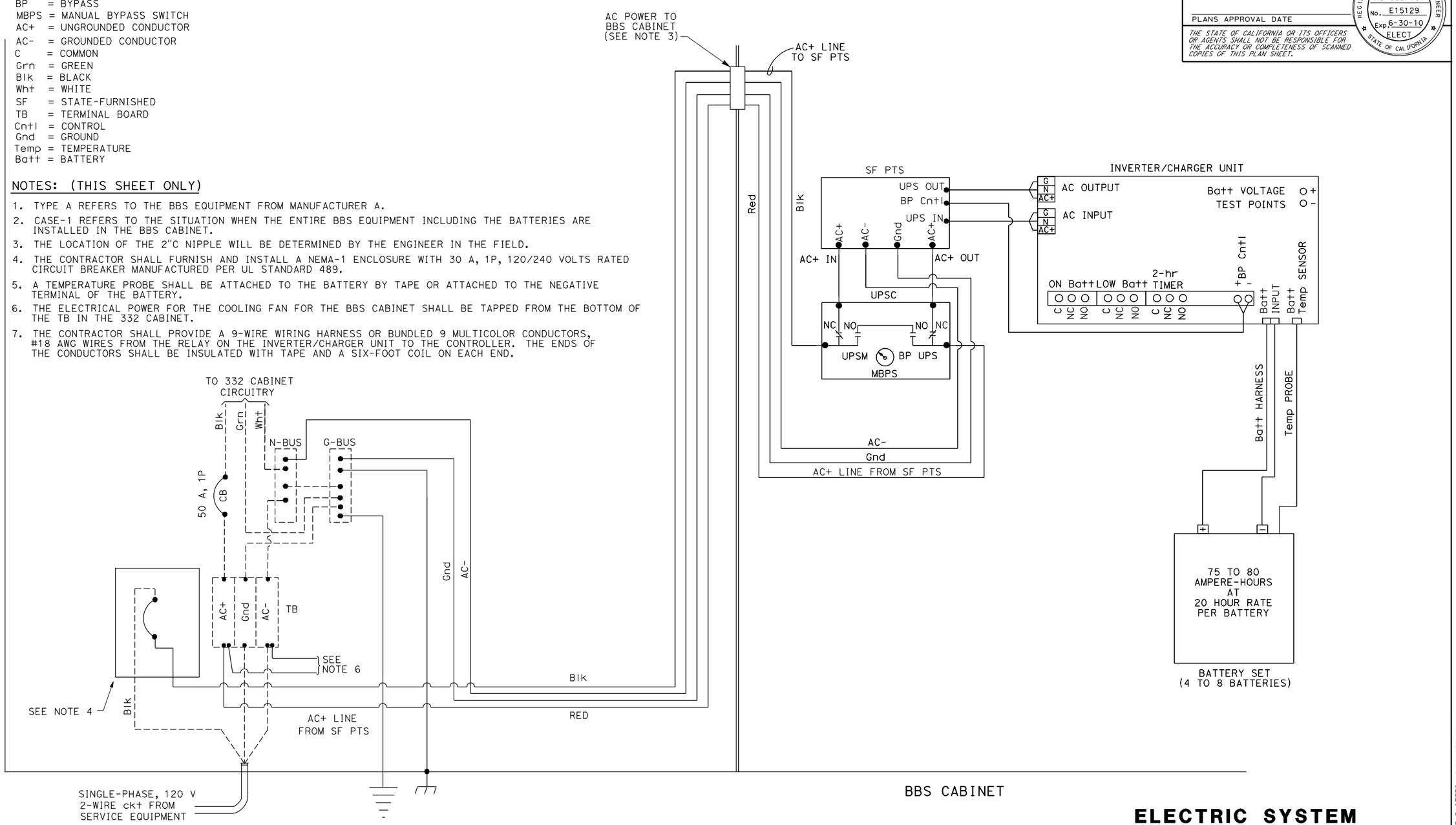
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

LEGEND: (THIS SHEET ONLY)

PTS = POWER TRANSFER SWITCH
UPS = UNINTERRUPTIBLE POWER SUPPLY
UPSC = UNINTERRUPTIBLE POWER SUPPLY CONTROLLER
UPSM = UPS MODE
BP = BYPASS
MBPS = MANUAL BYPASS SWITCH
AC+ = UNGROUNDED CONDUCTOR
AC- = GROUNDED CONDUCTOR
C = COMMON
Grn = GREEN
Blk = BLACK
Wht = WHITE
SF = STATE-FURNISHED
TB = TERMINAL BOARD
Cntl = CONTROL
Gnd = GROUND
Temp = TEMPERATURE
Batt = BATTERY

NOTES: (THIS SHEET ONLY)

1. TYPE A REFERS TO THE BBS EQUIPMENT FROM MANUFACTURER A.
2. CASE-1 REFERS TO THE SITUATION WHEN THE ENTIRE BBS EQUIPMENT INCLUDING THE BATTERIES ARE INSTALLED IN THE BBS CABINET.
3. THE LOCATION OF THE 2"C NIPPLE WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL A NEMA-1 ENCLOSURE WITH 30 A, 1P, 120/240 VOLTS RATED CIRCUIT BREAKER MANUFACTURED PER UL STANDARD 489.
5. A TEMPERATURE PROBE SHALL BE ATTACHED TO THE BATTERY BY TAPE OR ATTACHED TO THE NEGATIVE TERMINAL OF THE BATTERY.
6. THE ELECTRICAL POWER FOR THE COOLING FAN FOR THE BBS CABINET SHALL BE TAPPED FROM THE BOTTOM OF THE TB IN THE 332 CABINET.
7. THE CONTRACTOR SHALL PROVIDE A 9-WIRE WIRING HARNESS OR BUNDLED 9 MULTICOLOR CONDUCTORS, #18 AWG WIRES FROM THE RELAY ON THE INVERTER/CHARGER UNIT TO THE CONTROLLER. THE ENDS OF THE CONDUCTORS SHALL BE INSULATED WITH TAPE AND A SIX-FOOT COIL ON EACH END.



ELECTRIC SYSTEM
(BBS POWER CONNECTION DIAGRAM, TYPE A, CASE-1)

REVISED BY | DATE REVISED
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 3-11-09
DATE PLOTTED => 22-SEP-2009
TIME PLOTTED => 09:16

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Theresa Gabriel 12-20-07
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Theresa A. Gabriel No. E15129 Exp. 6-30-10 ELECT STATE OF CALIFORNIA

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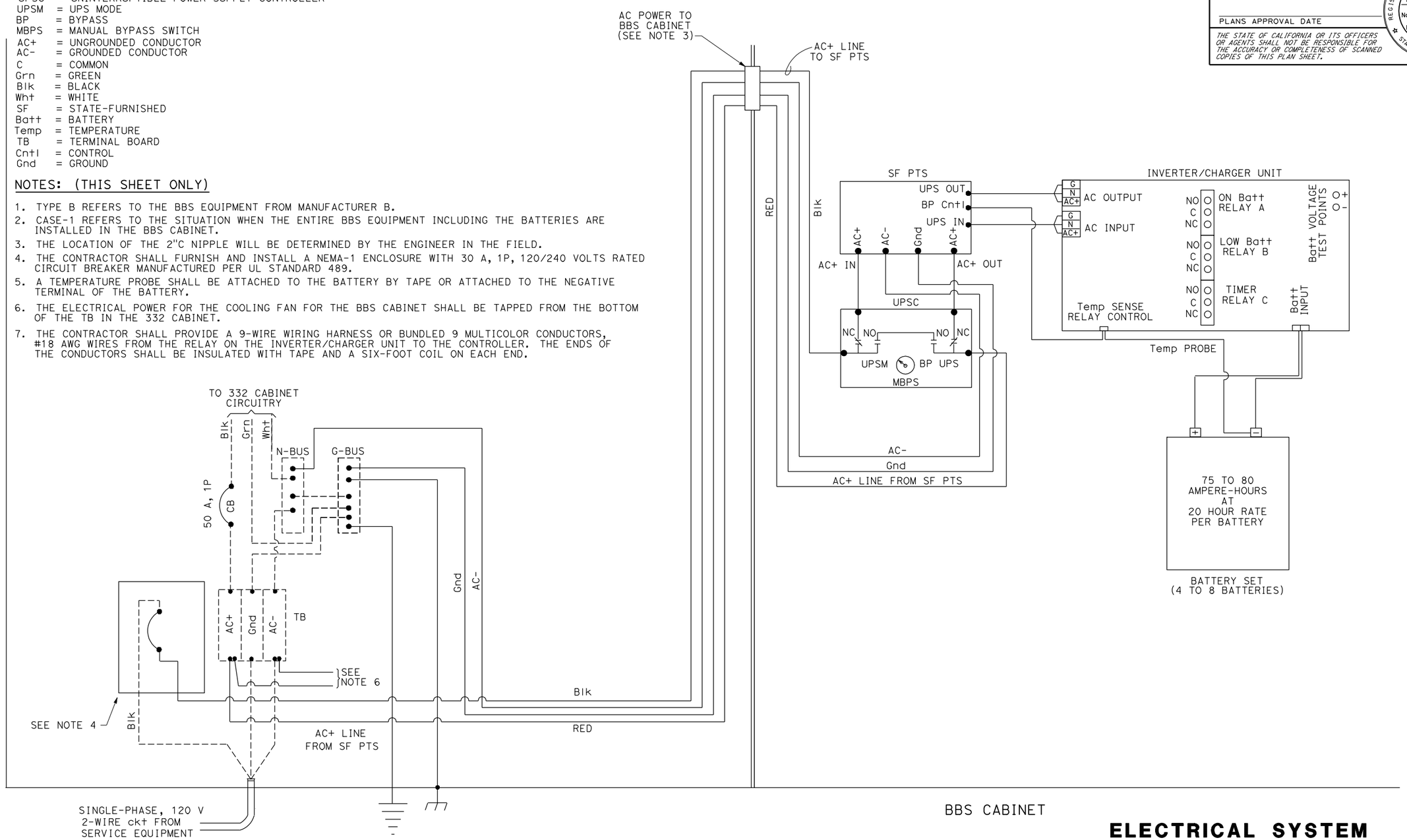
LEGEND: (THIS SHEET ONLY)

PTS = POWER TRANSFER SWITCH
UPS = UNINTERRUPTIBLE POWER SUPPLY
UPSC = UNINTERRUPTIBLE POWER SUPPLY CONTROLLER
UPSM = UPS MODE
BP = BYPASS
MBPS = MANUAL BYPASS SWITCH
AC+ = UNGROUNDED CONDUCTOR
AC- = GROUNDED CONDUCTOR
C = COMMON
Grn = GREEN
Blk = BLACK
Wht = WHITE
SF = STATE-FURNISHED
Batt = BATTERY
Temp = TEMPERATURE
TB = TERMINAL BOARD
Cntl = CONTROL
Gnd = GROUND

NOTES: (THIS SHEET ONLY)

1. TYPE B REFERS TO THE BBS EQUIPMENT FROM MANUFACTURER B.
2. CASE-1 REFERS TO THE SITUATION WHEN THE ENTIRE BBS EQUIPMENT INCLUDING THE BATTERIES ARE INSTALLED IN THE BBS CABINET.
3. THE LOCATION OF THE 2"C NIPPLE WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL A NEMA-1 ENCLOSURE WITH 30 A, 1P, 120/240 VOLTS RATED CIRCUIT BREAKER MANUFACTURED PER UL STANDARD 489.
5. A TEMPERATURE PROBE SHALL BE ATTACHED TO THE BATTERY BY TAPE OR ATTACHED TO THE NEGATIVE TERMINAL OF THE BATTERY.
6. THE ELECTRICAL POWER FOR THE COOLING FAN FOR THE BBS CABINET SHALL BE TAPPED FROM THE BOTTOM OF THE TB IN THE 332 CABINET.
7. THE CONTRACTOR SHALL PROVIDE A 9-WIRE WIRING HARNESS OR BUNDLED 9 MULTICOLOR CONDUCTORS, #18 AWG WIRES FROM THE RELAY ON THE INVERTER/CHARGER UNIT TO THE CONTROLLER. THE ENDS OF THE CONDUCTORS SHALL BE INSULATED WITH TAPE AND A SIX-FOOT COIL ON EACH END.



ELECTRICAL SYSTEM

(BBS POWER CONNECTION DIAGRAM, TYPE B, CASE-1)

REVISED BY | DATE REVISED
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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