FOR CONTRACT NO.: 11-2T1814
PROJECT ID. 1100020050

INFORMATION HANDOUT

WATER QUALITY

STATE WATER RESOURCES CONTROL BOARD

BOARD ORDER NO. 99 - 06
NPDES PERMIT NO. CAS000003

MATERIALS INFORMATION

STRUCTURAL SECTION AND CULVERT RECOMMENDATIONS, DATED DEC. 10, 2009
STRUCTURAL SECTIONS RECOMMENDATIONS - addendum (for outside lane structural section), DATED FEB. 23, 2011
STRUCTURAL SECTIONS RECOMMENDATIONS - addendum 2, DATED JULY 8, 2011
FOUNDATION REPORT FOR EUCLID AVE. UC, DATED JULY 13, 2011
REVISED FOUNDATION REPORT EUCLID AVE. UC, DATED SEPTEMBER 13,2011
FOUNDATION REPORT FOR BONITA ROAD UC, DATED JUNE 21, 2011
FOUNDATION REPORT FOR 805/54 SEPARATION, DATED JULY 7, 2011
FOUNDATION REPORT FOR NAPLES STREET UC, DATED FEBRUARY 15, 2011
FOUNDATION REPORT FOR SWEETWATER ROAD UC, DATED JUNE 29, 2011
FOUNDATION REPORT FOR TELEGRAPH CANYON ROAD UC, DATED JUNE 29, 2011
FOUNDATION REPORT_Type 1 Retaining Wall, I-805 Median, DATED APRIL, 2010
AERIALLY DEPOSITED LEAD,SUMMARY REPORT, DATED MAY 27, 2011
UNITED STATES DEPARTMENT OF THE INTERIOR BIO OPINION, DATED APRIL 19, 2011

ROUTE: 11-SD-54,805-1.8,5.5/9.4 (PM)

STATE WATER RESOURCES CONTROL BOARD
901 P STREET
SACRAMENTO, CALIFORNIA
JULY 15, 1999

FACT SHEET FOR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR STORM WATER DISCHARGES FROM THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION (CALTRANS) PROPERTIES, FACILITIES, AND ACTIVITIES (ORDER NO. 99 – 06 - DWQ)

BACKGROUND

In 1972, The Federal Water Pollution Control Act [also referred to as the Clean Water Act (CWA)] was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful, unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the CWA added section 402(p) which directs that storm water discharges are point source discharges and establishes a framework for regulating municipal and industrial storm water discharges under the NPDES program. On November 16, 1990, the U.S. Environmental Protection Agency (USEPA) promulgated final regulations that establish the storm water permit requirements.

Pursuant to these regulations, storm water permits are required for discharges from a municipal separate storm sewer system (MS4) serving a population of 100,000 or more. USEPA defined MS4 to include road systems owned by states which are in an area with a population greater than 100,000. The regulations also specified a requirement for storm water permits from 11 categories of industry, including construction activities where the construction activity disturbs five acres or more.

In California, the MS4s were issued individual NPDES permits by the Regional Water Quality Control Boards (RWQCB). Caltrans is currently under permit in all of the areas of California that have been determined to require an MS4 permit with the exception of the Salinas area. Industrial activities are covered by General Permits that have been adopted by the State Water Resources Control Board (SWRCB). Caltrans currently seeks coverage under the NPDES General Permit for Construction Activities (Construction General Permit) for construction activities that are over five acres. The exception to this is in the Lake Tahoe area, where the RWQCB adopted its own Construction General Permit for projects over five acres and Waste Discharge Requirements (WDRs) for projects under five acres.

In 1996, Caltrans requested that the SWRCB, consider adopting a single NPDES permit for storm water discharges from all Caltrans properties, facilities, and activities that would cover both the MS4 requirements and the statewide Construction General Permit requirements. The federal regulations allow for the issuance of system-wide MS4 NPDES permits. Caltrans submitted an application for a permit with a draft Storm Water Management Plan (SWMP) in August 1996. The SWRCB gave Caltrans comments on the SWMP and received a revised SWMP from Caltrans in March 1997. Because the RWQCBs have issued NPDES storm water permits to all of the areas currently requiring a permit, with the exception of the Salinas area, this permit was not considered a new storm water permit, and a Part I and Part II application were not required.

The "Interpretative Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems" issued by USEPA on May 17, 1996 outlines the requirements for permittees seeking a second Municipal NPDES Storm Water Permit. The requirements are: (1) name and address of the applicant; (2) name and title of primary administrative and technical contacts; and (3) proposed changes or improvements to the storm water management program and monitoring activities for the upcoming five-year term of the permit. In addition, USEPA recommends that the applicant provide identification of any previously unidentified water bodies and a summary of any known water quality impacts.

This permit is intended to cover all municipal storm water activities by Caltrans in California, both in areas that require an MS4 permit and areas that do not currently require a permit. It is also intended to cover all Caltrans construction activities that require a permit under the federal regulations. It directs that all existing storm water permits for discharges from Caltrans properties, facilities, and activities should be rescinded. RWQCBs may in the future issue individual storm water permits for Caltrans construction activities, as explained below.

This permit shall be implemented and enforced by the nine RWQCBs.

PROHIBITIONS

This permit authorizes storm water and authorized nonstorm water discharges from Caltrans properties, facilities, and activities. This permit prohibits discharges of material other than storm water (nonstorm water discharges) that are not authorized by this permit.

EFFLUENT LIMITATIONS

NPDES permits for storm water discharges must meet all applicable provisions of sections 301 and 402 of the CWA. These provisions require control of pollutant discharges to the Maximum Extent Practicable (MEP) for the MS4 permit requirements and to the standard of Best Available Technology Economically Achievable/Best Conventional Technology (BAT/BCT) for Construction General Permit requirements. It also requires dischargers to implement more stringent controls, if necessary, to meet water quality standards.

It is not feasible at this time to establish numeric effluent limitations for storm water. The reasons why establishment of numeric effluent limitations is not feasible are discussed in detail in SWRCB Orders No. WQ 91-03 and WQ 91-04. Therefore, this permit allows Caltrans to implement Best Management Practices (BMPs) to comply with the requirements of this permit.

RECEIVING WATER LIMITATIONS

Storm water discharges shall not cause or contribute to a violation of an applicable water quality standard. This permit requires Caltrans to reduce or prevent pollutants in storm water discharges and authorized nonstorm water discharges through the development and implementation of BMPs which constitutes compliance with either MEP or BAT/BCT, whichever is applicable. Storm water discharges must also be in compliance with water quality standards. If receiving water quality standards are exceeded, Caltrans is required to submit a written report providing additional BMPs or other measures to be taken that will be implemented to achieve water quality standards.

MS4 PERMIT REQUIREMENTS

MS4 permit requirements are to be implemented to MEP. These requirements are addressed in the SWMP that is an integral and enforceable component of this NPDES Permit. However, the SWMP also refers to other documents that Caltrans has prepared which give the detailed discussion of how the program elements are to be implemented. Where the SWMP was determined to be inadequate, further requirements are outlined in the permit. Caltrans will submit changes to the SWMP on an annual basis. Substantive changes to the SWMP will require approval by the SWRCB.

The SWMP which was submitted in August 1996 defined terms in the development of the program in a way that is inconsistent with the definitions in Title 40 of the Code of Federal Regulations Section 122.22 (40 CFR 122.22). Caltrans is required to rewrite the SWMP in a manner that is consistent with the definitions in the regulations. Caltrans also uses terms such as “winter season” and “significant erodible slope” which are not used in the regulations. Caltrans uses terms such as these to determine the scope of the program, with the understanding that Caltrans is responsible for discharges at all times during the year, and that if implementation of the program using these terms leads to discharge of pollutants, the terms will have to be redefined.

Caltrans is required to submit a revised SWMP within 90 days of the adoption of this permit. Because the SWMP is an integral and enforceable part of this permit, this revised SWMP will be presented to the State Board for approval. The incorporation of this revised SWMP into the permit will be made pursuant to the federal regulations for NPDES permit modification found at 40 CFR Section 122.62 and 40 CFR Section 124.

Caltrans has developed a BMP program for control of pollutants from existing facilities and for new and reconstructed facilities as part of the SWMP. This BMP program must be revised to reflect the definition of pollutant in the federal requirements, including a reevaluation of BMPs. The evaluation of the feasibility of structural BMPs in the SWMP does not reflect the current state of knowledge among other transportation agencies. BMPs are rejected that are routinely used by other transportation agencies. Therefore, the BMP selection in the SWMP does not meet MEP. The federal regulations require the consideration of structural BMPs where they are appropriate. MEP cannot be met without the consideration of structural BMPs. The fact that a BMP has not been used before is not an adequate reason to reject its use if other factors make it appropriate

In addition to the annual submittal of the SWMP, this permit also requires Caltrans to submit a workplan that explains how the program will be implemented in each Region. The purpose of the workplan is to bring the theoretical and proposed program of the SWMP to the practical and implementable level at the regional, watershed and water body level. Through the workplan process, Caltrans will be able to discuss the implementation of the program and show how their priorities will address specific local needs.

The MS4 permit requirements include:

Coordination with Local Agencies

This permit requires Caltrans to develop a program for communication with local agencies and coordination with other MS4 programs where the programs overlap geographically with Caltrans facilities.

Legal Authority

In the April 1998 SWMP, Caltrans submitted a certification of adequate legal authority to implement the program. Through implementation of a storm water program, Caltrans may find that the legal authority is, in fact, not adequate. This permit requires Caltrans to reevaluate the legal authority each year and recertify that it is adequate. Caltrans must submit the analysis of the legal authority as part of the Annual Report each year. If it becomes clear that the legal authority is not adequate to fully implement the SWMP and the requirements of the permit, Caltrans must seek the authority necessary for implementation of the program.

Fiscal Analysis

Caltrans must maintain adequate funding to implement an effective storm water program and must submit an analysis of the funding each year. This includes a report on the funding that is dedicated to storm water as well as an estimate of the funding that has been allocated to various program elements that is not included in the storm water program funding. An example of this would be to estimate the funding that has been made available to the Maintenance Program to implement the development of Maintenance

Facility Pollution Prevention Program Plans (FPPP) and to implement the BMPs that are necessary for water quality. In addition, Caltrans is required to seek adequate funding from the legislature for an effective storm water program.

Vegetation Control Program

This permit requires Caltrans to develop a program for vegetation control that minimizes the use of agricultural chemicals and maximizes the use of appropriate native and adapted vegetation for erosion control and filtering of runoff.

Storm Water System Management

This permit requires Caltrans to develop a program to monitor and clean storm drain inlets. For storm water structures that contain excessive material on a regular basis, Caltrans must determine if an Illicit Connection/Illegal Discharge (IC/ID) Detection investigation is warranted or if an enhanced BMP program is required for the drainage area. Vegetation in storm channels may reduce erosion from these channels and provide filtration and may be subject to sections 401 and 404 of the CWA.

Accidental Spills

This permit requires Caltrans to notify the MS4 permittee of any spills that may have an impact on the MS4's ability to comply with its municipal storm water permit. This means any spill that could reach the MS4 permittee's storm drain system in a large enough quantity to impact the system. Caltrans must also notify the RWQCB of any spill that may reach a receiving water and have an adverse effect on the receiving water. Generally, this notification would be limited to spills that are large enough to require cleanup or lane closure, but only if the spill could have an impact on water quality.

Illicit Connection/Illegal Discharge (IC/DC) Detection

This permit requires Caltrans to have a program to detect and investigate IC/IDs. Because Caltrans is different from a typical municipality, it is not intended that Caltrans should do routine inspections of their system for illicit connections. It is unlikely that a discharger would have access to the Caltrans storm drain system to make an illicit connection. It is also not intended that Caltrans would do routine field screening for illegal discharges. The Caltrans system is too large and spread out for this to be effective. However, Caltrans is required to train field maintenance personnel to recognize IC/IDs and to respond to them. Caltrans is also required to have a method for receiving and responding to public complaints.

Characterization of Discharges

In the areas which require an MS4 permit, Caltrans is required to characterize discharges as specified in 40 CFR 122.26(iv)(d)(1) and (2) over the life of the permit. This requirement was to be done as part of the Part II application for the initial permits that Caltrans received in these areas; so for most areas, this data should already be available. The purpose of this requirement is to provide Caltrans with adequate information about the storm drain system to effectively implement the program. This characterization is a one time requirement. If adequate information was submitted under the original Part II application, this requirement is satisfied and the data should be used as the basis for the Regional Workplans.

Maintenance Facilities

This permit requires Caltrans to prepare FPPP for all maintenance facilities, implement BMP programs at each facility as necessary and periodically inspect each facility. Monitoring is only required as part of the overall monitoring program to determine the effectiveness of the BMP program.

Training and Public Education

The Training and Public Education component consists of three parts to address the three major audiences that Caltrans must address. The three audiences are Caltrans employees, Caltrans contractors, and the general public. Caltrans has prioritized these three parts and has developed and implemented programs for the first two audiences. The program for the final part, which addresses the general public, will be developed and implemented during this permit period.

The detailed requirements in the permit outlining what is to be included in a public education component were recommended by the Public Information/Public Participation Subcommittee of the California Storm Water Quality Task Force. The members of this committee are all responsible for public education programs throughout the State and have experience in developing public education programs.

Program Evaluation and Monitoring

This permit requires Caltrans to evaluate the effectiveness and adequacy of the storm water program on an annual basis. This includes both monitoring and a self-audit of the program. Caltrans has submitted a three-year monitoring strategy that will be updated annually. Caltrans will also be required to submit a detailed monitoring program prior to the upcoming rainy season for each year. The monitoring is intended to demonstrate the effectiveness of its storm water and nonstorm water programs and specifically to achieve the following objectives:

1. Characterization of storm water discharges, including pollutant concentrations and mass loadings, from locations representative of Caltrans owned properties, facilities, and activities. Of particular interest is the discharge of high volume systems which discharge to areas subject to or sensitive to beach closures;

2. Evaluation of effectiveness of maintenance activity control measures;

3. Evaluation of effectiveness of maintenance facility pollution prevention plans;

4. Evaluation of effectiveness of construction erosion prevention and control measures;

5. Evaluation of effectiveness of permanent control measures; and

6. Evaluation of effectiveness of highway operation control measures.

Caltrans has also submitted a Guidance Manual for Stormwater Monitoring Protocols which specifies the manner in which monitoring is to be undertaken.

In addition to monitoring, Caltrans must perform a program audit each year to determine how well the program is being implemented and whether the program is actually adequate. Caltrans must submit an outline of this audit six months in advance of the Annual Report so that the SWRCB can evaluate the methods to be used to perform the audit.

Region Specific Concerns

Each of the RWQCBs was given the opportunity to specify specific water quality concerns in their Region that required special conditions. At this time, these requirements are limited to items that Caltrans is currently responsible for either under a current NPDES permit or under a RWQCB Basin Plan. Region-specific concerns have been identified in the Lahontan RWQCB. Some of the requirements are specific to the Lake Tahoe Hydrologic Unit and are based on the unique quality of the resource. Other requirements are applicable to the entire region.

To accommodate the concerns about the Lake Tahoe Hydrologic Unit, the Lahontan RWQCB has placed requirements in the RWQCB Basin Plan that are, therefore, requirements of this permit. They include (1) numeric effluent limits for storm water, (2) nonstorm water discharge prohibitions, (3) a requirement for the capture and treatment of all storm water from the 20-year storm, (4) erosion control guidelines for high mountain areas, (5) construction site and maintenance facility inspection requirements, and (6) a winter ban on soil disturbance throughout the Lake Tahoe Hydrologic Unit and other high mountain portions of the Region. If the Basin Plan requirements that are referenced in this NPDES Permit are changed during the life of this NPDES Permit, Caltrans can request that the terms of this permit be changed to reflect the changes in the Basin Plan.

In addition, the Lahontan RWQCB requires Caltrans to meet some specific requirements in their construction program. These include involving the RWQCB in the design of the project and early submittal of Storm Water Pollution Prevention Plans (SWPPP).

The Lahontan RWQCB requires that Caltrans submit information to them about the program to control snow and ice throughout the Region. This requirement includes the submittal of information about the use of abrasives and deicing agents throughout the Region, including the location of the use, the source and chemistry of the deicing agents and abrasives, and the volume of abrasive and deicing agents used on individual highway segments. For example, Caltrans must report separately on abrasives and deicing agents use within the Lake Tahoe Hydrologic Unit by volume of material used on State Route 50, State Route 89, State Route 28, and State Route 267, rather than providing only the total volume used in the Lake Tahoe Hydrologic Unit or within a specific Caltrans District. In the Truckee River Hydrologic Unit, the reports would be volume of material used on State Route 89S, State Route 89N, State Route 267, and Interstate 80.

Caltrans is required to develop a monitoring program that evaluates the effectiveness of BMPs used to recover abrasives and deicing materials and that evaluates the impacts of abrasives and deicing materials on surface waters within the Lake Tahoe Hydrologic Unit. A report on the use of deicing agents and abrasives is required each year as part of the Annual Report.

CONSTRUCTION PERMIT REQUIREMENTS

Construction activities which disturb five acres or more outside of the Lake Tahoe Hydrologic Area are currently required to be covered by the Construction General Permit. The current Construction General Permit is SWRCB Order 99- DWQ.

The Lahontan RWQCB has developed an NPDES Storm Water Permit for construction projects that involve more than five acres of soil disturbance and non-NPDES waste discharge requirements for construction projects for projects less than five acres within the Lake Tahoe Hydrologic Unit. The current Lahontan Construction Permit is Lahontan RWQCB Board Order 6-93-63. The WDRs for small projects are contained in Lahontan RWQCB Board Order 6-91-31. All projects within the Lake Tahoe Hydrologic Area are currently subject to one of these two Board Orders depending on the size of the project.

Storm water discharges from all Caltrans construction projects will be covered by this permit except for those projects that the RWQCB determines should be covered by an individual permit. Caltrans will be required to notify the RWQCB that a project is to be covered under this permit at least 30-days prior to the onset of construction. This 30-day notification under this permit is the equivalent of filing a Notice of Intent (NOI) under the Construction General Permit.

The RWQCB can require submittal of the SWPPP up to 30 days prior to the onset of soil disturbance, require changes to the SWPPP, perform inspections, and take enforcement action. Caltrans can negotiate an alternative process with the appropriate RWQCB if an alternative method of complying with the requirement for early submittal of the SWPPP is appropriate.

The permit requires Caltrans to implement an effective construction storm water program. The program that Caltrans plans to implement is contained in their SWMP. This plan, in turn, refers to BMP manuals and the Standard Specifications that contain the details of the BMP implementation.

Caltrans must implement an effective construction storm water program during the entire year throughout the State. Because the construction storm water program will be implemented year round, regardless of whether or not Caltrans elects to implement baseline or more advanced erosion control measures, any discharges of material not authorized by this permit is a violation.

Caltrans construction projects may involve soils that contain lead in quantities that meet the State definition of hazardous waste but not the federal definition. The Department of Toxic Substances Control (DTSC) has issued waivers allowing Caltrans to use these soils in construction projects under a narrow range of conditions. In addition to the waivers, Caltrans also needs authorization from the RWQCB to allow the use of these soils. Caltrans is required to obtain WDRs from the RWQCB for the use of these soils.

ANNUAL REPORT

This permit requires Caltrans to submit an Annual Report each April. The Annual Report will contain (1) an evaluation of the previous year's program, (2) the results of the program audit, including information about compliance with the construction requirements and maintenance facility requirements, (3) a vegetation management report, (4) an IC/ID report, (5) a nonstorm water discharge report, (6) an analysis of the legal authority, (7) an analysis of the fiscal resources for the coming year, (8) a report on the training and public education program, and (9) reports on the regional requirements. The Annual Report must also contain a monitoring report and a monitoring plan for the upcoming year and workplans for each of the regions. There is a one year lag in the reporting of the monitoring program and the program audit in the Annual Report. This lag is intended to allow Caltrans the time to adequately analyze the data that has been generated.

STATE WATER RESOURCES CONTROL BOARD

ORDER NO. 99 - 06 - DWQ
NPDES NO. CAS000003

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT
STATEWIDE STORM WATER PERMIT
AND
WASTE DISCHARGE REQUIREMENTS (WDRs)
FOR THE
STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION (CALTRANS)

The State Water Resources Control Board (SWRCB) finds that:

1. **NPDES PERMIT APPLICATION**: On September 5, 1996, Caltrans, located at 1120 N Street, Sacramento, California 95814 submitted an NPDES Permit application for storm water discharges from the Caltrans highways, properties, facilities, and activities throughout the State of California for Caltrans headquarters and for the District offices including: the North Coast region (District 1), Northern Central Valley and Far Northeastern region (District 2), Sacramento area (District 3), San Francisco Bay area (District 4), Central Coast (District 5), Lower Central Valley (District 6), Los Angeles Basin (District 7), San Bernardino area (District 8), Mono/Inyo area (District 9), Middle Central Valley (District 10), San Diego area (District 11), and Orange County (District 12). The application was accepted on October 4, 1996. As part of the application, Caltrans submitted a Storm Water Management Plan (SWMP) and Monitoring Plan. The SWMP and Monitoring Plan were amended in March 1997 and again in April 1998. The application is considered an application for permit reissuance because Caltrans is currently under permit in all of the parts of the State for which a Municipal Separate Storm Sewer System (MS4) permit is currently required. The MS4 permits that Caltrans holds, the permitting agency, the adoption date, and expiration date are shown in Table 1.

//

//

//

//

//

//

//

//

TABLE 1
CURRENT CALTRANS STORM WATER PERMITS

RWQCB	Caltrans District	Board Order	NPDES Permit Number	Adoption Date	Expiration Date
North Coast	4	97-119	CA0025038	10/22/97	10/22/02
San Francisco Bay	4 and 10	94-098	CAS029998	8/17/94	8/27/99
Los Angeles	7	90-079	CA0061654	6/18/90	6/18/95
Central Valley	6	94-244	CA0083500	9/16/94	9/1/99
Central Valley	3, 4, 6 and 10	95-001	CA0083640	1/27/95	1/1/00
Lahontan	3	6-93-62	CAS616002	6/11/93	6/11/98
Colorado River Basin	8 and 11	94-038	CAS617001	11/15/94	11/17/99
Santa Ana River	8 and 12	94-5	CA8000279	7/8/94	7/8/99
San Diego	8,11, and 12	97-08	CAS029998	3/12/97	3/12/02

2. **FEDERAL AUTHORITY**: In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act [CWA]) was amended to provide that the discharge of pollutants to waters of the United States from any point source is effectively prohibited unless the discharge is in compliance with an NPDES Permit. The 1987 amendments to the CWA added section 402(p) that establishes a framework for regulating municipal and industrial storm water discharges under the NPDES Permit Program.

3. **STATE AUTHORITY:** California Water Code section 13376 provides that any person discharging or proposing to discharge pollutants to waters of the United States must apply for and obtain WDRs. (For this permit, the State term "WDRs" is equivalent to the federal term "NPDES permits" as used in the CWA). Furthermore, municipal and industrial storm water discharges are discharges of waste that could affect the quality of the waters of the State. Applicable State of California regulations are contained in the California Code of Regulations (CCR), Title 23, Division 3, Chapter 9.

4. **CALTRANS DISCHARGES SUBJECT TO MUNICIPAL STORM WATER PERMIT REGULATIONS**: On November 16, 1990, the U.S. Environmental Protection Agency (USEPA) promulgated final regulations that establish application requirements for storm water permits codified at Title 40 of the Code of Federal Regulations (CFR), Section 122.26 (40 CFR 122.26). Federal regulations 40 CFR 122.26(a)(iii) and (iv) require that NPDES storm water permits be issued for discharges from large and medium MS4s. The regulations define "municipal separate storm sewer" to mean "a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains): (i) owned or operated by a State, city, town, borough, county, . . .". Caltrans, as the owner of an MS4, is subject to an NPDES Permit in those areas of the State subject to an MS4 storm water permit. Caltrans performs activities that impact storm water quality. These activities include operation of roads and highways, construction activities, and maintenance activities.

To enable Caltrans to implement a uniform storm water program, this NPDES Permit will cover storm water discharges from all Caltrans highways, properties, activities and facilities throughout the State.

5. **CALTRANS DISCHARGES SUBJECT TO CONSTRUCTION STORM WATER PERMIT REGULATIONS**: Federal regulations (40 CFR 122.26) require discharges of storm water associated with construction activity including clearing, grading, and excavation activities (except operations that result in disturbance of less than five acres of total land area and which are not part of a larger common plan of development or sale) to obtain an NPDES Permit and to implement Best Management Practices (BMPs) that achieve the performance standards of Best Available Technology economically achievable/Best Conventional Pollutant Control Technology (BAT/BCT) to reduce or eliminate storm water pollution.

6. **STORM WATER DISCHARGE DEFINITION**: Storm water discharges consist only of those discharges that originate from precipitation events. Storm water is defined in 40 CFR 122.26(b)(13) as storm water runoff, snowmelt runoff, and surface runoff and drainage. During precipitation events, storm water picks up and transports pollutants into and through municipal storm water conveyance systems and ultimately to waters of the United States.

7. **NONSTORM WATER DISCHARGE DEFINITION:** Nonstorm water discharges consist of all discharges from a municipal storm water conveyance system which do not originate from precipitation events (i.e., all discharges from a conveyance system other than storm water). Nonstorm water discharges include illicit discharges, nonprohibited discharges, and NPDES permitted discharges. An illicit discharge is defined in 40 CFR 122.26(b)(2) as "any discharge to a municipal storm sewer that is not composed entirely of storm water except discharges pursuant to an NPDES Permit (other than the NPDES Permit for discharges from the MS4) and discharges resulting from fire fighting activities." Nonstorm water discharges are addressed in Provision B of this permit.

8. **PERFORMANCE STANDARDS:** CWA section 402(p) establishes two different performance standards for storm water discharges. NPDES permits issued for MS4 storm water discharges require controls to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP). Caltrans can reduce pollutants to MEP through the effective implementation of BMPs. NPDES Permits issued for industrial storm water discharges (including construction activities) must meet BAT for toxic pollutants and BCT for conventional pollutants. In addition, storm water discharges may not cause or contribute to exceedance of water quality standards. The requirements for compliance with water quality standards are described in Provision C., Receiving Water Limitations.

9. **CALTRANS ACTIVITIES**: Caltrans is primarily responsible for the design, construction, management, and maintenance of the State highway system, including freeways, bridges, tunnels, maintenance facilities, and related properties, and facilities.

10. **CALTRANS BUDGET**: Caltrans derives funding from federal, State, and local government sources. The annual operating budget for Caltrans is determined through the

State's financial planning process. The final determination on the budget is made by the Legislature and the Governor.

11. **REGIONAL WATER QUALITY CONTROL BOARD (RWQCB) BASIN PLANS:** Each RWQCB has adopted a Basin Plan containing the policies, prohibitions and requirements that apply to that Region. Caltrans is subject to the policies and prohibitions and requirements contained in these Basin Plans in the Region in which the Basin Plan is applicable.

12. **CALTRANS DISCHARGES**: Caltrans discharges consist of storm water and nonstorm water runoff generated from (a) maintenance and operation of State-owned highways, freeways, and roads; (b) maintenance facilities; (c) other properties, facilities, activities, and construction projects; (d) permanent discharges from subsurface dewatering, and (e) temporary construction related dewatering which discharge directly or through municipal storm water conveyance systems to surface water bodies in the State. These surface water bodies include creeks, rivers, reservoirs, lakes, wetlands, lagoons, estuaries, bays, and the Pacific Ocean and tributaries thereto. These surface waters are waters of the United States as defined in 40 CFR 122.2. This permit regulates storm water discharges on Caltrans highways, properties, and facilities.

13. **POTENTIAL POLLUTANTS IN CALTRANS DISCHARGES**: Discharges of storm water from the Caltrans owned rights-of-way, properties, facilities, and activities, including storm water management activities in construction, maintenance, and operation of State-owned highways within the State of California have been shown to be contributors of pollutants to waters of the United States. As such, the discharge of storm water may be causing or threatening to cause violations of water quality objectives. The quality and quantity of these discharges vary considerably and are affected by hydrology, geology, land use, season, and sequence and duration of hydrologic events. Pollutants occur in both the storm water discharges and nonstorm water discharges. Pollutant sources from Caltrans rights-of-way, properties, facilities, and activities include motor vehicles, highway maintenance, construction site runoff, maintenance facility runoff, illegal dumping, spills, and landscaping care. Pollutant categories include metals (such as copper, lead, and zinc), synthetic organics (petroleum products and pesticides), sediment, nutrients (nitrogen and phosphorus fertilizers), debris, oxygen demanding substances (decaying vegetation, animal waste, and other organic matter), and other pollutants which may cause aquatic toxicity in the receiving waters.

14. **STORM WATER MANAGEMENT PLAN (SWMP)**: The SWMP submitted by Caltrans describes a framework for management of storm water discharges during the term of this permit. The title page and table of contents of the SWMP are attached to this NPDES Permit. The SWMP describes the Caltrans facilities, the institutional arrangements within Caltrans, legal authorities, funding, training and public education and participation, the annual reporting program evaluation process, and monitoring studies to be undertaken. The SWMP includes a discussion of activities to be implemented by each of the Divisions within Caltrans, including programs for design and construction, maintenance, and additional region-specific programs to be undertaken. Revisions to the SWMP for subsequent years will be submitted to the SWRCB as part of the Annual Reporting and Program Evaluation Process. This NPDES Permit directs Caltrans to implement its SWMP.

Where the SWMP was found to be inadequate, this NPDES Permit directs Caltrans to fulfill additional requirements and specifies what these requirements are.

Caltrans SWMP must be revised in accordance with the Provisions of this NPDES Permit to address concerns about the scope, detail of proposed actions, and time frame for implementation.

Caltrans began implementation of this SWMP in March 1997.

15. **ENFORCEABILITY OF THE SWMP**: The SWMP and modifications or revisions to the SWMP that are approved, in accordance with Provision F.1 of this NPDES Permit, and future year workplans to be submitted, in accordance with the SWMP and Provision F.1 of this NPDES Permit, are integral to and an enforceable component of this NPDES Permit.

16. **LOCAL MUNICIPALITIES:** The RWQCBs have issued NPDES Permits for the discharge of storm water from municipal storm water conveyance systems to municipalities in California which require these permits. Caltrans operates highways and highway-related properties, activities, and facilities that cross through all of these permitted areas. Some storm water discharges from Caltrans-owned rights-of-way, properties, facilities, and activities discharge to storm water conveyance systems managed by these municipalities. Some storm water discharges from these municipalities discharge to storm water conveyance systems managed by Caltrans.

17. **LOCAL CONTROL**: This NPDES Permit does not preempt or supersede the authority of local municipal agencies to prohibit, restrict, or control storm water discharges and authorized nonstorm water discharges to storm drain systems or other watercourses within their jurisdictions as allowed by State and federal law.

18. **CALTRANS CONSTRUCTION PROGRAM**: Caltrans performs construction activities that are required to have NPDES Permits for storm water discharges from the construction site. This NPDES Permit will effectively regulate storm water discharges from construction projects within the Caltrans rights-of-way. Caltrans will not be required to obtain coverage under the State NPDES General Permit for Construction Activities (Construction General Permit), SWRCB Board Order 92-08 DWQ.

19. **DREDGE AND FILL MATERIALS:** This NPDES Permit does not authorize discharges of fill or dredged material regulated by the U.S. Army Corps of Engineers under CWA section 404 and does not constitute a waiver of water quality certification under CWA section 401.

20. **RECEIVING WATER LIMITATIONS**: The impact of storm water runoff from highway facilities on the water quality of receiving waters is highly variable. For this reason, this NPDES Permit does not include numeric effluent limitations. Instead, this NPDES Permit will emphasize the use of BMPs to control storm water pollution and the establishment of a monitoring program to determine the impact of storm water runoff from highways on receiving water bodies. The Lahontan RWQCB does have numeric effluent limits for storm water discharges for the Tahoe Basin in the Basin Plan. These numeric effluent limits also appear in their Regional Construction Permits (RWQCB Board Orders 6-91-31 and 6-93-

63) and the Caltrans MS4 Permit RWQCB Board Order No. 6-93-62) for the Tahoe Basin, and these limits apply to this NPDES Permit in that area.

It is the SWRCBs intent that this NPDES Permit shall ensure attainment of applicable water quality objectives and protection of the beneficial uses of receiving waters. This NPDES Permit, therefore, includes standard requirements to the effect that discharges shall not cause or contribute to violations of water quality objectives nor shall they cause certain conditions to occur which create a condition of nuisance or water quality impairment in receiving waters. "Standard" language is the standard for storm water permits; it is not the same as the "standard" language for other NPDES permits. Accordingly, the SWRCB is requiring that these standard requirements be addressed through the implementation of control measures to reduce pollutants in storm water discharges.

Receiving water limitations in this NPDES Permit are based on the federal CWA, RWQCB Basin Plans and policies, USEPA Guidance, Best Professional Judgement, and BMPs.

21. **CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)**: The action to adopt an NPDES Permit is exempt from Provisions of the CEQA (CEQA: Public Resources Code section 21100, et. seq.), pursuant to section 13389 of the California Water Code.

22. **PUBLIC NOTIFICATION**: The SWRCB has notified Caltrans and all known interested agencies and persons of its intent to prescribe an NPDES Permit and WDRs for said discharge and has provided them with an opportunity for a public meeting and an opportunity to submit comments.

23. **PUBLIC HEARING**: The SWRCB in a public meeting held on June 9, 1998 heard and considered all comments pertaining to this NPDES Permit. The permit was adopted at a public meeting held on July 15, 1999.

24. **RWQCB ENFORCEMENT**: Following adoption of this NPDES Permit, the RWQCBs shall enforce the Provisions.

25. **IMPLEMENTATION:** This NPDES permit is in compliance with section 402 of the CWA and shall take effect upon adoption by the SWRCB.

26. **ANTI-DEGRADATION:** This NPDES Permit is consistent with the anti-degradation Provision, section 40 CFR 131.12 and SWRCB Resolution 68-16.

IT IS HEREBY ORDERED that all MS4 storm water permits issued to Caltrans by RWQCBs shall be rescinded insofar as they apply to Caltrans.

IT IS HEREBY ORDERED that in order to meet the Provisions contained in Division 7 of the California Water Code and regulations adopted thereunder and the Provisions of the Federal CWA and the regulations and guidelines adopted thereunder, Caltrans shall comply with the following: (***REPORTING REQUIREMENTS ARE SHOWN IN ITALICS WITH ALL CAPITAL LETTERS***):

A. GENERAL DISCHARGE PROHIBITIONS

1. Any discharge from Caltrans rights-of-way or Caltrans properties, facilities, and activities within those rights-of-way that is not composed entirely of "storm water" to waters of the United States is prohibited unless authorized pursuant to Section B of this NPDES Permit. For some discharges, Caltrans may also need to obtain Water Quality Certification under CWA S2. The discharge of runoff from Caltrans owned rights-of-way or Caltrans properties, facilities, and activities to waters of the United States which have not been reduced to the MEP is prohibited. The discharge of runoff from construction sites containing pollutants which have not been reduced using BAT for toxic pollutants and BCT for conventional pollutants to waters of the United States is prohibited.

2. The discharge of pollutants or dredged or fill material to waters of the United States, except as authorized by an NPDES Permit or a dredged or fill material permit (subject to the exemption described in California Water Code (CWC) section 13376), is prohibited.

3. The discharge of waste to waters of the State in a manner causing or threatening to cause a condition of pollution or nuisance defined in CWC section 13050, is prohibited.

4. The dumping, deposition, or discharge of waste by Caltrans directly into waters of the State or adjacent to such waters in any manner that may allow its being transported into the waters is prohibited unless authorized by the RWQCB.

5. The discharge of any radiological, chemical, or biological warfare agent into waters of the State is prohibited. The discharge shall not contain toxic substances in concentrations that are toxic to or that produce detrimental physiological responses in human, plant, animal, or aquatic life.

6. The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity, or discoloration in waters of the State or which unreasonably affect or threaten to affect beneficial uses of such waters, is prohibited.

7. Wastes or wastewater from road sweeping vehicles or from other maintenance or construction activities shall not be discharged to any surface waters or to any storm drain leading to surface water bodies.

Caltrans shall achieve the pollutant reductions described in General Discharge Prohibitions A.2. above through implementation of the SWMP described in General Requirements, Provision E., below.

B. NONSTORM WATER DISCHARGE PROHIBITIONS

1. Caltrans shall effectively prohibit nonstorm water discharges into its storm water conveyance system unless such discharges are either:

   a. authorized by a separate NPDES permit; or

   b. authorized in accordance with Nonstorm Water Discharge Prohibition B.2. of this NPDES Permit.

2. Exempted Discharges.

   In carrying out nonstrom Water Discharge Prohibition B.1. of this NPDES Permit, the following nonstorm water discharges need not be prohibited unless they are identified as sources of pollutants to receiving waters:

   a. flows from riparian habitats or wetlands;
   b. diverted stream flows;
   c. springs;
   d. rising ground waters; and
   e. uncontaminated ground water infiltration.

   If any of the above categories of discharges or sources of such discharges are identified as sources of pollutants to receiving waters, then such categories or sources shall be addressed as conditionally exempted discharges in accordance with Prohibition B.3.

3. Conditionally Exempted Discharges

   The following nonstorm water discharges need not be prohibited if identified by either Caltrans or the Executive Director as not being sources of pollutants to receiving waters or if appropriate control measures to minimize the adverse impacts of such sources are developed and implemented under the SWMP in accordance with Prohibition B.4.:

   a. uncontaminated pumped ground water;
   b. foundation drains;
   c. water from crawl space pumps;
   d. footing drains;
   e. air conditioning condensate;
   f. irrigation water;
   g. landscape irrigation;
   h. lawn or garden watering;
   i. planned and unplanned discharges from potable water sources;
   j. water line and hydrant flushing;
   k. individual residential car washing; and
   l. discharges or flows from emergency fire fighting activities.

4. Caltrans shall identify and describe the categories of discharges 3.a through 3.l that are to be exempt from Prohibition B.1 in the Annual Report. For each such category, Caltrans shall identify and describe as necessary and appropriate to the category either documentation that the discharges are not sources of pollutants to receiving waters or circumstances in which they are not found to be sources of pollutants to receiving waters. Otherwise, Caltrans shall describe (a) control measures to reduce pollutants to the maximum extent practicable and minimize the adverse impacts of such sources, (b) procedures and Performance Standards for their implementation, (c) procedures for notifying the SWRCB of these discharges, and (d) procedures for monitoring and record management. Such submissions shall be deemed to be incorporated into the SWMP unless disapproved by the Executive Director. If necessary, on a case-by-case basis, Caltrans shall prohibit any individual or class of nonstorm water discharge(s) listed above that is determined by Caltrans to be a significant source of pollutants to waters of the United States.

5. Permit Authorization for Exempted Discharges

   a. Discharges of nonstorm water from sources owned or operated by Caltrans are authorized and permitted by this Order, if they are in accordance with the conditions of this Provision and the SWMP.

   b. Any RWQCB may require dischargers of nonstorm water other than Caltrans to apply for and obtain coverage under an NPDES permit and comply with the control measures developed by Caltrans pursuant to Provision B. Nonstorm water discharges that are in compliance with such control measures may be accepted by Caltrans and are not subject to Prohibition B.1. Caltrans may refer nonstorm water dischargers to the Caltrans system to the RWQCB for permitting or enforcement.

   c. Caltrans may propose additional categories of nonstorm water discharges to be included in the exemption to Discharge Prohibition B.1. Such proposals are subject to approval in accordance with the NPDES permit regulations.

6. If a RWQCB Executive Officer determines that any individual or class of nonstorm water discharge(s) listed in Nonstorm Water Discharge Prohibition B.2 or B.3. above may be a significant source of pollutants to waters of the United States in that region, the RWQCB Executive Officer may require Caltrans to monitor and submit a report on the discharge and to follow the procedures outlined in Nonstorm Water Prohibition B.4. The RWQCB may require that discharge cease in the event that nonstorm water discharges are a significant source of pollutants to waters of the United States.

7. Caltrans shall examine all illicit connection/illegal discharge (IC/ID) investigation results for the presence of elevated levels of pollutants (e.g., chlorine, sediments, or surfactants) which may be the result of one or more classes of nonprohibited nonstorm water discharge(s) identified in Nonstorm Water Discharge Prohibition B.2. or B.3. above. If such elevated levels of pollutants are commonly present, Caltrans shall conduct a follow-up investigation to identify the source of the elevated pollutants.

8. Discharges or flows from health and safety emergencies, such as fire fighting activities and accident response, shall be addressed only when such flows are identified by Caltrans to be significant sources of pollutants to waters of the United States. *(It is not the intention of the SWRCB for Caltrans to prohibit, under any circumstances, the discharge of water or other fire retardants that flow into storm water conveyance systems as a result of their use for protection of life and public or private property. However, there may be instances when specified BMPs are appropriate for fire fighting flows).* Although this NPDES Permit does not prohibit these discharges, they may still be subject to regulation under the federal and/or State law.

9. Caltrans shall submit a ***COMPREHENSIVE NONSTORM WATER REPORT*** each year as part of the Annual Report. This report shall include the analysis of each category of discharge, and the BMPs to be implemented for each category. Caltrans must also periodically evaluate the effectiveness of the modified BMPs by examining illicit discharge/illegal dumping investigation results and take any further action necessary to reduce such pollutant concentrations.

C. RECEIVING WATER LIMITATIONS

C-1- RECEIVING WATER LIMITATIONS FOR MUNICIPAL ACTIVITIES:

1. The discharge of storm water from a facility or activity that causes or contributes to the violation of water quality standards or water quality objectives (collectively WQSs) is prohibited.

2. The discharges shall not cause the following conditions to create a condition of nuisance or to adversely affect beneficial uses of waters of the State:

    a. Floating, suspended solids, or deposited macroscopic particulate matter, or foam;

    b. Bottom deposits or aquatic growths;

    c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

    d. Visible, floating, suspended, or deposited oil or other products of petroleum origin, and /or;

    e. Toxic or deleterious substances present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

3. Caltrans shall comply with Parts C-1.1. and 2. of this permit through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the SWMP and other requirements of this permit including any modifications; the SWMP shall be designed to achieve compliance with Parts C-1.1. and 2. of this permit; if exceedance(s) of WQSs persist notwithstanding implementation of the SWMP and other requirements of this permit, the permittee shall assure compliance with Parts C-1.1. and 2. of this permit by complying with the following procedure:

    a. Upon a determination by either Caltrans or the RWQCB that discharges are causing or contributing to an exceedance of an applicable WQS, Caltrans shall promptly notify and thereafter submit a report to the appropriate RWQCB. The report shall describe BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of water quality standards. The report may be incorporated in the annual update to the SWMP unless the RWQCB directs an earlier submittal. The report shall include an implementation schedule. The RWQCB may require modifications to the report;

    b. Submit any modifications to the report required by the RWQCB within 30 days of notification;

    c. Within 30 days following approval of the report described above by the RWQCB, Caltrans shall revise the SWMP and monitoring program to incorporate the approved modified BMPs that have been and will be implemented, the implementation schedule, and any additional monitoring required; and

    d. Implement the revised SWMP and monitoring program in accordance with the approved schedule.

4. So long as Caltrans has complied with the procedures set forth in Receiving Water Limitations C-1-3. above and are implementing the revised SWMP, Caltrans does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the RWQCB to develop additional BMPs.

C-2-RECEIVING WATER LIMITATIONS FOR CONSTRUCTION ACTIVITIES:

1. Storm water discharges and authorized nonstorm water discharges to any surface or ground water shall not adversely impact human health or the environment.

2. The SWPPP developed for the construction activity covered by this NPDES Permit shall be designed and implemented such that storm water discharges and authorized nonstorm water discharges shall not cause or contribute to an exceedance of any applicable water quality standards contained in a Statewide Water Quality Control

Plan and/or the applicable RWQCB's Basin Plan.

3. Should it be determined by Caltrans, SWRCB or RWQCB staff that storm water discharges and/or authorized nonstorm water discharges are causing or contributing to an exceedance of an applicable water quality standard, Caltrans shall:

   a. Implement corrective measures immediately following discovery that water quality standards were exceeded, followed by notification of the RWQCB by telephone as soon as possible but no later than 48 hours after the discharge has been discovered. This notification shall be followed by a report within 14 days to the appropriate RWQCB, unless otherwise directed by the RWQCB, describing (1) the nature and case of the water quality standard exceedance; (2) the BMPs currently being implemented; (3) any additional BMPs which will be implemented to prevent or reduce pollutants that are causing or contributing to the exceedance of water quality standards**;** and (4) any maintenance or repair of BMPs. This report shall include an implementation schedule for corrective actions and shall describe the actions taken to reduce the pollutants causing or contributing to the exceedance.

   b. Caltrans shall revise its SWPPP and monitoring program immediately after the report to the RWQCB to incorporate the additional BMPs that have been and will be implemented, the implementation schedule, and any additional monitoring needed.

   c. Nothing in this section shall prevent the appropriate RWQCB from enforcing any provisions of this permit while Caltrans prepares and implements the above report.

D. RWQCB AUTHORITIES

1. Following adoption of this permit, RWQCBs shall implement the Provisions of this permit. Implementation of this permit may include, but is not limited to, reviewing SWPPPs, reviewing Maintenance Facility Pollution Prevention Plans (FPPPs), reviewing monitoring reports, conducting compliance inspections, conducting monitoring, reviewing the Annual Reports and taking enforcement actions.

2. RWQCBs may require submittal of, require changes to, specify a format for, and enforce Provisions of SWPPPs and FPPPs. RWQCBs may also designate projects which do not meet the acreage requirements based upon water quality concerns and require SWPPPs. RWQCBs may require that Caltrans submit all SWPPPs automatically up to 30 days in advance of the onset of construction.

3. RWQCBs may require retention of records for more than three years.

4. RWQCBs may require additional monitoring and reporting program requirements and may provide guidance on monitoring plan implementation.

5. RWQCBs may require Caltrans to conduct additional site inspections, submit reports and certifications, to perform water quality sampling and analysis of discharges from construction sites, roadways and maintenance facilities.

6. RWQCB staff may inspect Caltrans facilities and construction sites.

7. The RWQCB Executive Officer may require Caltrans to monitor and submit a report on nonstorm water discharges that have been determined to be a source of pollutants in the region.

8. RWQCB may issue Caltrans other individual storm water NPDES permits, particularly for large construction projects or other discharges beyond the scope of this permit.

E. GENERAL REQUIREMENTS

In order to meet the federal requirements contained in the CWA and the corresponding regulations contained in the 40 CFR 122.26, Caltrans shall:

1. Maintain and implement an effective SWMP. The SWMP shall identify and describe the BMPs used to control or reduce pollutants to waters of the United States to MEP for the Municipal Storm Water Management activities (all activities except construction). For the Construction Management Program, the SWMP shall identify and describe BMPs used to control or reduce pollutants to waters of the United States that meet BAT/BCT. BMP development is a fluid and dynamic process, and the menu of BMPs contained in the SWMP may require changes over time as experience is gained and/or the state of the art progresses. The SWMP shall be reviewed annually and modified as necessary to maintain an effective program. The SWMP shall reflect the principles that storm water management is to be a year-round proactive program to eliminate or control pollutants at their source or to reduce them from the discharge by either structural or nonstructural means when elimination at the source is not possible. The ***REVISED SWMP*** shall be submitted to the SWRCB's Executive Director by April 1 as part of the Annual Report (40 CFR 122.26 (d)(vi)) each year. In accordance with NPDES Permit regulations, significant changes to the program will be taken to the SWRCB for approval. Caltrans shall change all other appropriate manuals to reflect modifications to the SWMP.

2. In addition to the revised SWMP, Caltrans shall submit ***REGIONAL WORKPLANS*** (workplans) each year for each region by April 1 as part of the Annual Report each year. The workplans will be forwarded to the appropriate RWQCB's Executive Officer for approval. The workplan shall cover all activities to be undertaken by the Districts in the region and shall address the water bodies in the region, the impact of the Caltrans discharge on the water body and the BMPs and monitoring program to be implemented in the region, and changes that are to be made to the previous year's program. The workplan shall also include identification of high risk areas, such as locations where spills from Caltrans owned rights-of-way, activities or facilities can discharge directly to municipal or domestic water supply reservoirs or ground water percolation facilities, and consideration of appropriate spill containment and spill

prevention control measures for these new areas. Because the BMP programs and monitoring program are described in other documents, this workplan shall describe how the various programs will be implemented in the Region.

3. The SWMP shall define terms in a manner that is consistent with the definitions in 40 CFR 122.2. This includes, but is not limited to, the definitions for pollutant, waters of the United States, and point source. Where there is a conflict between the SWMP and the permit language, the permit language shall govern.

4. The SWMP shall include or describe procedures for implementing the following:

CHAPTER 1.	PROGRAM OVERVIEW (Provision F)
CHAPTER 2.	PROGRAM MANAGEMENT (Provision G)
CHAPTER 3.	CONSTRUCTION PROGRAM MANAGEMENT (Provision H)
CHAPTER 4.	MAINTENANCE PROGRAM MANAGEMENT (Provision I)
CHAPTER 5.	TRAINING AND PUBLIC EDUCATION (Provision J)
CHAPTER 6.	PROGRAM EVALUATION/REPORTING (Provision K)
CHAPTER 7.	LOCATION SPECIFIC REQUIREMENTS (Provision L)

F. PROGRAM OVERVIEW

Caltrans shall implement the program specified in the SWMP. Caltrans shall also implement any additional requirements contained in this Provision F.

1. Caltrans must reevaluate and revise the BMP program in the SWMP to reflect the definition of pollutant in the federal regulations. The selection of BMPs must reflect the need to meet MEP, or where appropriate, BAT/BCT and water quality standards. It is appropriate to address pollutants known to be in a waste stream, even if there is not yet any documented evidence of adverse effect. Decisions regarding storm water management should be made in response to site-specific circumstances, depending on the location and nature of the activity in question and the local receiving water conditions. In geographic areas in which the requirements in effect prior to adoption of this permit are more stringent than the requirements of this permit, Caltrans will specify in the SWMP and regional workplans, a program which is at least as stringent as the prior requirements for that area. In no event shall the BMP program in any part of the State be less stringent than it was under the prior requirements.

2. The revised SWMP shall be submitted within 90 days of the adoption of the permit. Until such time as Caltrans has an approved SWMP, Caltrans will continue to meet the requirements that were in effect under the permits adopted by RWQCBs.

3. Caltrans shall include an analysis of the feasibility of structural controls in the BMP selection process. At a minimum, a consideration of structural controls for water quality improvement shall be included in the design of any new construction or major reconstruction or repair projects.

   The SWMP shall be updated each year as part of the Annual Report and shall contain the following elements:

a. A listing of appropriate control measures, including design, operation, and maintenance specifications, referenced by facility type, location, and other suitable factors. (Suitable factors may include prevention and control of erosion and sedimentation, source control of potential pollutants, control of pathogens, control and treatment of runoff, spill containment, and protection of wetlands and water quality resources);

b. An effective operation and maintenance program for BMPs;

c. Consideration of pollution prevention and pollutant removal factors, including spill containment and corresponding operation and maintenance requirements in the design of facility drainage structures and other features;

d. Development and implementation of policies, programs, procedures, and standards to improve pollutant removal and water quality benefits of landscape design after construction is completed;

e. A description of how these BMPs will be developed, constructed and maintained by the Environmental Engineering, Project Development, Construction, and Maintenance Branches and other affected functional offices and branches;

f. A ***BMP SELECTION REPORT*** which presents the revisions to the BMP programs (including both structural and nonstructural BMP candidates) to be implemented in the coming year along with the process used for evaluating the revised BMPs. The process shall include a mechanism for public input and review during the BMP selection process; and

g. A mechanism for evaluating new treatment and control technologies and for considering these technologies as part of the BMP programs. A ***NEW TECHNOLOGY REPORT*** is required as part of the Annual Report each year.

4. Storm Water Drainage System Retrofitting: In urban areas subject to a MS4 permit, Caltrans shall seek opportunities to retrofit the Storm Water Drainage System for water quality improvement whenever a section of the rights-of-way undergoes significant construction or reconstruction. Permanent control measures shall be implemented, both to control erosion and to control runoff of pollutants resulting from normal use of Caltrans facilities such as highways.

   a. Controls that shall be considered: Techniques that capture and or reduce the amount of pollutants, especially sediment from entering the storm drain system or receiving water. Cost effectiveness is a factor in the consideration of controls.

   b. Treatment controls that have proven to be cost prohibitive to date and therefore need not be considered for most situations include reverse osmosis, ion exchange, and granular activated carbon.

G. PROGRAM MANAGEMENT

Caltrans shall implement the program specified in their SWMP. Caltrans shall also implement any additional requirements contained in this Provision G.

1. Coordination with MS4 Permittees

   a. Caltrans is expected to comply with lawful requirements of municipalities, counties, drainage districts, and other local and or regional agencies regarding discharges of storm water to separate storm sewer systems or other watercourses under the jurisdiction of the local and or regional agencies. These include, but are not limited to applicable requirements in MS4 storm water programs developed to comply with NPDES Permits issued by the RWQCBs to local agencies.

   b. Caltrans shall submit a ***MUNICIPAL COORDINATION PLAN*** to the SWRCB Executive Director within 90 days of the adoption of the Permit for approval. The plan shall describe the approach that Caltrans will take in establishing communication, coordination, cooperation, and collaboration of Caltrans storm water management activities and other pertinent activities with MS4 storm water management programs including establishing agreements with municipalities, flood control departments, or districts as necessary or appropriate. Caltrans shall report on the progress of this interagency cooperation in each Annual Report.

2. Legal Authority

   a. Caltrans shall establish and maintain adequate legal authority through ordinance, statute, permit, contract or other means to control discharges to and from Caltrans properties, facilities and activities pursuant to 40 CFR 122.26(d)(2)(i)(A-F).

   b. Caltrans has provided a statement certified by its chief legal counsel that Caltrans has adequate legal authority to implement and enforce each of the key regulatory requirements contained in 40 CFR 122.26(d)(2)(i)(A-F). Caltrans shall submit annually, as part of the Annual Report, an ***ANALYSIS OF THE ADEQUACY OF LEGAL AUTHORITY*** based on Caltrans experiences during the previous year and explain and justify whatever conclusions are reached in the annual certification of legal authority.

3. Fiscal Resources

   a. Caltrans shall maintain adequate fiscal resources to maintain compliance with this NPDES Permit. This includes but is not limited to:

      (1) implementing and maintaining all BMPs identified in the SWMP,

      (2) maintaining an effective storm water monitoring program, and

(3) retaining adequate trained personnel to manage the storm water program.

b. Caltrans shall submit a ***FISCAL ANALYSIS*** of the storm water program expenditures within 90 days of the adoption of this permit and shall include one for the 3rd year and 5th year of the Permit period in the Annual Report submitted April 1. At a minimum, the fiscal analysis shall show the allocation of funds to the Districts for compliance with this permit; the funding of the program elements; and a comparison of actual past year expenditures with the current year's expenditures and next year's proposed expenditures. The 3rd year report shall show how Caltrans funding met the goals set out for the program in the first two years. The 5th year report shall contain the budget analysis for the next permit period.

4. Policies: Caltrans shall identify policies needed to resolve conflicts between implementation of the storm water program and current standard practices and policies.

5. Inspection Program: Caltrans shall have an inspection program to insure actions are implemented and facilities are constructed, operated, and maintained in accordance with this NPDES Permit and the SWMP. The program shall include training for inspection personnel, documentation of field activities, a reporting system that can be used to track effectiveness of control measures, enforcement procedures (or referral for enforcement) for noncompliance, and responsibilities and responsible personnel of all affected functional offices and branches.

H. CONSTRUCTION PROGRAM MANAGEMENT

Caltrans shall implement the program specified in the SWMP. Caltrans shall also implement any additional requirements contained in this Provision H.

1. Caltrans shall have a program to control all construction in the rights-of-way. This includes both construction by Caltrans, construction done under contract for Caltrans, and construction done by local government agencies or other third parties on Caltrans or nonCaltrans projects. The program must include:

   a. review of construction site plans;

   b. requirement of structural and nonstructural BMPs;

   c. site inspections and enforcement; and

   d. education of construction site operators.

   The program must be implemented year round on all construction projects in all parts of the State. The SWMP must be revised to address these requirements and have a program and a schedule for inspections.

2. The Construction Management Program shall be in compliance with requirements of the NPDES General Permit for Construction Activities (Construction General Permit) not including NOI filing. The current Construction General Permit is SWRCB Board Order 92-08--DWQ.

   Terms that are defined in the Construction General Permit will have the same definition for the construction portion of this NPDES Permit.

3. The Lahontan RWQCB has adopted an NPDES Storm Water Permit for construction projects that involve more than five acres of soil disturbance and nonNPDES WDRs for construction projects for projects less than five acres within the Lake Tahoe Hydrologic Unit. The current nonNPDES Lahontan Construction Permit is Board Order 6-93-63. The WDRs for small projects are contained in Lahontan RWQCB Board Order 6-91-31. Projects in the Lake Tahoe Hydrologic Unit must be in compliance with the Provisions of the Lahontan RWQCB Order that is applicable to the project. The Lahontan RWQCB has also developed erosion control guidelines for high mountain areas throughout the region. Caltrans shall follow these guidelines in the appropriate parts of the region.

4. Caltrans shall plan, site, and develop roads and highways in a manner that protects water quality, beneficial uses of water and minimizes erosion and sedimentation .

5. Caltrans shall site, design, and maintain bridge structures so that sensitive and valuable aquatic ecosystems and areas providing water quality benefits are protected from adverse effects.

6. Caltrans shall limit the application, generation, and migration of toxic substances from construction sites.

7. Caltrans shall implement adequate erosion and sediment control BMPs during the interim period between completion of construction and final landscaping activities.

8. The following items apply to construction activities:

   a. A report of ***NOTIFICATION OF CONSTRUCTION*** for all construction projects shall be submitted to the appropriate RWQCB at least 30 days prior to the start of construction. The tentative start date, tentative duration, location of construction, description of project, an estimate of the number of affected acres, resident engineer in charge of the project, and telephone number of the resident engineer shall be reported. If a resident engineer has not been assigned at the time of notification, information about the construction field office should be provided and the resident engineer information provided when the assignment is made.

   b. A site specific SWPPP shall be developed and implemented for each construction project as required by the State Construction General Permit (or the appropriate Lahontan RWQCB Permit). The RWQCBs can designate projects under five acres which pose a threat to water quality as being subject to the conditions of

this permit and can require the development and implementation of an SWPPP from these projects. For projects that may have a significant potential water quality impact, Caltrans is encouraged to involve the RWQCB staff in the planning stages. The SWPPP shall contain a BMP program that meets the performance standards of BAT/BCT. The resident engineer shall approve the SWPPP prior to construction and ensure that the SWPPP is effectively implemented. The SWPPP shall contain all of the elements required by the Construction General Permit. Caltrans is responsible for having an effective SWPPP at all times and for implementing the SWPPP at an appropriate level through the entire year. RWQCB staff has the authority to require the submittal of an ***SWPPP*** at any time, including up to 30 days prior to commencement of significant soil disturbance activities; to require changes to the SWPPP; and to enforce the provisions of the SWPPP.

The SWPPP shall contain a BMP program for any mobile operations that are used in the construction project. This includes operations such as asphalt recycling, concrete mixing, crushing, and storage of materials that are established by the contractor within the construction site or on other property specifically arranged for and provided by Caltrans for execution of the project.

The SWPPP shall apply to all areas that are directly related to the construction activity, including but not limited to staging areas, storage yards, material borrow areas and storage areas, access roads, etc., whether or not they reside within the Caltrans rights-of-way.

c. Monitoring and inspection of construction sites shall be done in accordance with the Provisions of the Construction General Permit. Noncompliance shall be reported in accordance with the plan to be submitted under Program Evaluation and Reporting Provision K.2.a.

d. A ***NOTICE OF COMPLETION*** shall be submitted to the RWQCB upon completion of the construction and stabilization of the site. A project will be considered complete when the criteria for final stabilization in the Construction General Permit are met.

9. Caltrans has applied for and received variances from the California Department of Toxic Substances Control (DTSC) for the reuse of some soils that contain lead. Notification that projects involve soils that are subject to this variance shall be provided to the appropriate RWQCB(s) in writing 30 days prior to advertisement for bids to allow a determination by the RWQCB(s) of the need for development of WDRs.

I. MAINTENANCE PROGRAM MANAGEMENT

Caltrans shall implement the program specified in the SWMP. Caltrans shall also implement any additional requirements contained in this Provision I.

1. Highway Maintenance Activities

   a. Caltrans shall develop and implement runoff management programs and systems for existing roads, highways, and bridges to reduce runoff pollutant concentrations and volumes entering surface waters.

      (1) Identify priority and watershed pollutant reduction opportunities (e.g., improvements to existing urban runoff control structures).

      (2) Establish schedules for implementing appropriate controls.

      (3) Identify road segments with slopes that are prone to erosion and discharge of sediment and stabilize these slopes to the extent possible.

   b. Vegetation Control: Caltrans shall revise the Vegetative Control Program to reflect the following elements:

      (1) Enhancement of the use of appropriate native and adapted vegetation throughout all Caltrans rights-of way for the purpose of preventing erosion and removing pollutants in storm water and nonstorm water runoff.

      (2) Application of herbicides in a manner that minimizes or eliminates the discharge of herbicides to receiving waters. Factors to be considered include timing in relation to expected precipitation events, proximity to water bodies, and the effects of using combinations of chemicals.

      (3) Caltrans shall apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water.

      (4) In places where Caltrans has already developed vegetation control management plans, Caltrans shall continue to implement these plans and integrate them into their overall statewide plan. In instances where elements of these plans are to be changed or dropped, Caltrans shall discuss the changes in the workplan portion of the Annual Report.

   c. Storm Water Drainage System Facilities Maintenance

      (1) Caltrans shall remove all waste from those inlets that pose a significant threat to water quality on an annual basis prior to the winter season each year. All waste removed from drain inlets shall be managed in accordance with all applicable laws and regulations, including CCR Title 27, Division 2, Subdivision 1.

      (2) Drain inlets which contain significant materials must be considered for an IC/ID investigation and considered for an enhanced BMP program focused on reducing the sources of the material found in the inlet.

2. Highway Surveillance Activities

a. Accidental Spills

(1) Caltrans will follow Office of Emergency Services (OES) procedures for reporting highway spills.

(2) A report of ***DISCHARGE OR THREAT OF DISCHARGE NOTIFICATION*** will be made under the following conditions: Caltrans will notify the owner/operator of the MS4 or the principal permittee as soon as practicable, but no later than 24 hours after onset of or threat of discharge of any discharge or threat of discharge which can cause adverse conditions to the storm sewer system or the receiving water that is not covered by OES procedures from a highway to a storm sewer system subject to an MS4 permit.

(3) A report of ***DISCHARGE OR THREAT OF DISCHARGE NOTIFICATION*** will be made immediately to the RWQCB of any discharge which can cause adverse conditions to the storm sewer system or the receiving water, with a follow up in writing within 24 hours. Adverse conditions include but are not limited to serious violations or serious threatened violations of WDRs, significant spills of petroleum products or toxic chemicals, or serious damage to control facilities that could affect compliance. Caltrans shall perform follow-up monitoring of major spills and/or perform confirmation sampling to ensure that threats to waters of the United States have been eliminated as determined by the local RWQCB. (This Provision applies to highway operation, not construction projects. Provisions for reporting discharges are contained in the Construction General Permit).

b. IC/ID Detection Program: Caltrans shall implement the IC/ID Detection Element described in the SWMP in conjunction with the legal authority with the following changes:

(1) Detection of IC/IDs: Caltrans shall develop procedures for receiving and investigating public complaints including establishing telephone numbers which the public can use to report IC/IDs and shall post these numbers in places where illegal dumping is found to be a problem.

(2) Investigation of each IC/ID: Caltrans shall develop procedures to conduct investigations of every IC/ID to identify the source. These procedures may include further field screening (observations and field analyses), collection and laboratory analysis of samples (upstream and downstream), smoke or dye tests, video taping with a remote control camera, or other appropriate means.

(3) Elimination of IC/IDs: Caltrans shall eliminate all identified IC/IDs as expeditiously as possible. In addition to reporting IC/IDs to the municipal

authorities and to the RWQCBs, Caltrans shall use its own legal authority to eliminate IC/IDs.

(4) Caltrans shall develop a procedure to track all reports of IC/IDs and the action taken on them. A ***REPORT ON THE IC/ID PROGRAM*** will be required each year as part of the Annual Report.

(5) Caltrans shall report on the program developed under this Provision as part of the April 2000 Annual Report. (***DEVELOPMENT OF IC/ID PROGRAM***).

3. Program for Highway Maintenance Facilities

a. Caltrans shall prepare Maintenance FPPPs for all maintenance facilities. Because these facilities are considered municipal activities rather than industrial activities, these FPPPs must have BMP programs that reduce pollutants to MEP.

b. Generic FPPP elements can be used for activities that are performed at more than one maintenance facility; however, each site must be evaluated separately and provided with appropriate site specific BMPs.

c. RWQCB staff has the authority to require the submittal of a FPPP at any time, to require changes to a FPPP, and to require the implementation of the Provisions of a FPPP.

J. TRAINING AND PUBLIC EDUCATION

Caltrans shall implement the program specified in the SWMP. Caltrans shall also implement any additional requirements contained in this Provision J.

In areas where Caltrans is already participating in an areawide Public Education Program, Caltrans will continue participation. The Public Education Program shall address the three main audiences that impact Caltrans storm water discharges. The three audiences are: Caltrans Employees; Caltrans Construction Contractors, and the General Public. The program shall contain the following elements for each of these groups:

1. Caltrans Employees

a. Caltrans shall implement the program specified in the SWMP.

b. Caltrans shall provide frequent educational reminders to employees to reinforce the training.

2. Caltrans Construction Contractors

a. Caltrans shall implement the program specified in the SWMP.

b. Caltrans shall provide outreach to contractors to raise their awareness of the problems and causes of storm water pollution and to reinforce their training.

3. General Public

a. ***PLAN FOR DEVELOPMENT AND IMPLEMENTATION OF A PUBLIC EDUCATION PROGRAM***: Caltrans shall submit a plan for approval by the SWRCB Executive Director within 180 days of adoption of this NPDES permit for development and implementation of a Public Education Program that includes education of the general public and commercial and industrial entities whose actions may impair storm water quality discharged from Caltrans properties, facilities and activities. In areas where a Caltrans is already part of a Public Education Program with other MS4 permittees, Caltrans must continue with their participation in the program. (***PLAN FOR DEVELOPMENT AND IMPLEMENTATION OF A PUBLIC EDUCATION PROGRAM***)

b. The plan shall include the following elements:

(1) Research--A plan for conducting research on public behavior that affects the quality of Caltrans runoff. The information gathered will form the foundation for all the public education conducted.

(2) Public Education Strategy--Develop a three-year public education strategy. The strategy should be based on the research conducted and must include goals and objectives to be achieved regarding changing behaviors.

(3) Mass Media Advertising--Develop and conduct an advertising campaign as a focal point of the public education strategy. The campaign should focus on the behaviors of concern and should be designed to motivate the public to change those behaviors. The public education campaigns may be done as a cooperative effort with other MS4 permittees.

c. Upon approval of the submitted plan, Caltrans shall implement the plan to develop a Public Education Program. The ***PUBIC EDUCATION PROGRAM PROGRESS REPORT*** on the progress made on the public education program development will be made as part of the Annual Report each year. A proposed ***PUBLIC EDUCATION PROGRAM*** will be submitted with the Annual Report in 2001. The ***PUBLIC EDUCATION PROGRAM*** shall be submitted with the Annual Report in 2002. Caltrans will begin implementation of the plan in April 2002.

K. PROGRAM EVALUATION AND REPORTING

Caltrans shall implement the program specified in the SWMP. Caltrans shall also implement any additional requirements contained in this Provision K.

1. Characterization of Discharges: Caltrans shall develop a plan to identify and describe existing major discharges and points of discharge, as defined in 40 CFR 122.26(iv)(d)(1 and 2), to surface water bodies in areas subject to the MS4 permit requirements and to identify and describe other discharge points as funding allows. Caltrans shall also provide information concerning major existing structural controls (such as the location of detention basins, infiltration basins, etc.). Characterization should be done in phases with the highest priority given to discharge points that are part of BMP studies and in areas where these discharges fit into ongoing watershed characterization studies. For discharges that contain pollutants, Caltrans shall investigate the source of the pollutants and, where appropriate, eliminate the IC/ID or implement BMP programs. The plan shall also identify procedures for notifying the RWQCB and affected municipal storm water management agencies of these discharges and future planned discharges and procedures for monitoring and record management. Discharges which Caltrans cannot control, such as discharges from other parties over which Caltrans has no authority, shall be referred to the appropriate regulatory agency for appropriate action. The ***PLAN FOR CHARACTERIZATION STUDIES***, describing how the studies shall be carried out, shall be submitted with the 1999 Annual Report. Characterization studies shall be completed by April 1, 2003.

2. Receiving Water Monitoring: Caltrans has submitted a three-year monitoring strategy that outlines the research monitoring that it intends to undertake in the next three years. The ***MONITORING STRATEGY REPORT UPDATE*** will be updated annually based on the results of previous years' monitoring and in response to the needs of the program and the funding available. The updated Monitoring Strategy Report will be submitted as part of each Annual Report.

    a. Caltrans shall submit to the SWRCB by April 1, 2000 and each April 1 thereafter a ***MONITORING AND REPORTING PROGRAM*** acceptable to the Executive Director that shall identify and justify sampling locations, frequencies, and methods, suite of pollutants to be analyzed, analytical methods, and quality assurance procedures. Alternative monitoring methods (special projects, literature review, visual observations, use of indicator parameters, etc.) may be proposed with justification. Current MS4 Permits for Caltrans have monitoring requirements. Results of the monitoring efforts undertaken under RWQCB MS4 Permits may be submitted to fulfill these monitoring requirements.

    The RWQCB Executive Officers are authorized to require additional monitoring and reporting by Caltrans when additional information is needed to assess existing or potential adverse impacts by storm water discharges, to evaluate effectiveness of storm water pollution prevention or control measures, or to demonstrate compliance with permit requirements.

3. Compliance Monitoring and Evaluation

    a. Caltrans shall prepare a plan to be submitted as part of the Annual Report due April 1, 2000 explaining how the RWQCBs will be notified about noncompliance. The plan shall include the identification in each Office and Region, the parties to notify and receive the notification. The notification shall

identify the type(s) of noncompliance, describe the actions necessary to achieve compliance, and include a time schedule, subject to the modifications by the RWQCB indicating when compliance will be achieved. Noncompliance notifications must be submitted verbally within 5 working days, with written followup within 30 days of identification of noncompliance. (***REPORTING OF NONCOMPLIANCE***)

b. Construction site monitoring and inspections shall be carried out as required by the Construction General Permit or the applicable Lahontan RWQCB Permit.

c. Maintenance Facility Compliance Monitoring

(1) Caltrans is required to conduct periodic inspections. The purpose of the inspections is to identify areas contributing to a discharge of storm water associated with the maintenance facility activities and to evaluate whether control practices to reduce pollutant loadings identified in the FPPP are adequate and properly implemented or whether additional control practices are needed. A record of the inspections must include the date of the inspection, the individual(s) who performed the inspection, and the observations.

(2) Any noncompliance shall be reported to the RWQCB in accordance with the plan to be submitted under Program Evaluation and Reporting Provision K.3.a.

(3) The RWQCB may require Caltrans to conduct additional site inspections, to submit reports and certifications, or to perform sampling and analysis.

(4) Records of all inspections, compliance certifications, and noncompliance reporting must be retained for a period of at least three years. With the exception of noncompliance reporting, Caltrans is not required to submit these records unless otherwise requested.

(5) Monitoring at all maintenance facilities is not required.

d. Overall Management Program Effectiveness:

Caltrans shall perform a self-audit of the storm water program each year to determine (1) if the program is being implemented as required by this NPDES Permit, the SWMP, and the guidance documents prepared by Caltrans; and (2) if the program specified by the SWMP and the guidance documents is adequate. The results of this ***SELF-AUDIT*** shall be submitted by April 1, 2000 and as a part of the Annual Report thereafter to the SWRCB Executive Director. Caltrans may use any method to evaluate program effectiveness and shall identify the direct and indirect measurements that will be used to track the long-term

effectiveness. An outline of the proposed audit is to be submitted by February 1 of each year so that the SWRCB and RWQCBs can evaluate the measures to be used.

4. Reporting

Caltrans shall submit 13 copies of an ***ANNUAL REPORT*** to the SWRCB Executive Director by April 1 each year starting on April 1, 2000. The Annual Report shall contain the data and a summary and analysis of the data collected in the previous year. The report due on April 1, 2000 will cover data collected during the winter of 1998-1999. Reports that are required from Caltrans include the items listed in Table 2.

//

//

//

//

//

//

//

//

//

//

//

TABLE 2
COMPILATION OF REPORTING REQUIREMENTS

Provision	Requirement	Date Required
B.9	Comprehensive Nonstorm Water Report	Every Annual Report
E.1, F.1	Revised SWMP, including Revisions to the BMP Programs with Justification and Public Input	Every Annual Report
E.2	Regional Workplans	Every Annual Report
F.2.f	BMP Selection Report	Every Annual Report
F.2.g	New Technology Report	Every Annual Report
G.1.b	Municipal Coordination Plan	April 1, 2000
G.1.b	Municipal Coordination Program Report	Every Annual Report
G.2.b	Analysis of the Adequacy of Legal Authority	Every Annual Report
G.3.b	Fiscal Analysis	90 days from adoption
G.3.b	Fiscal Analysis	3rd and 5th year Annual Report
H.8.a	Notification of Construction	At least 30 days prior to construction
H.8.b	SWPPP	Request by RWQCB
H.8.d	Notice of Completion	Upon final stabilization
I.2.a.(2)	Discharge or Threat of Discharge Notification to MS4 Permittee	Upon discharge or threat of discharge
I.2.a.(3)	Discharge or Threat of Discharge Notification to RWQCB	Upon discharge or threat of discharge
I.2.b.(4)	Report on the IC/ID Program	Every Annual Report
I.2.b.(5)	Development of IC/ID Program	April 1, 2000
I.3.c	FPPP	Request by RWQCB
J.3.a	Plan for Development and Implementation of a Public Education Program	April 1, 2000
J.3.c	Public Education Program Progress Report	Every Annual Report
J.3.c	Public Education Program	April 1, 2003
K.1	Plan for Characterization Studies	April 1, 2000
K.2	Monitoring Strategy Report Update	Every Annual Report
K.2.a	Monitoring and Reporting Program	Every Annual Report
K.3.a	Reporting of Noncompliance	April 1, 2000
K.3.d	Self Audit	Every Annual Report
L.10.a	De-icer Monitoring Proposal	Every Annual Report
L.10.b	De-icer Report	June 1, 2000
M.7	Report of Waste Discharge	180 days prior to expiration of permit

These reporting requirements are contained in the text of the NPDES Permit. If there is a discrepancy between the text of the NPDES Permit and this table, the text of the NPDES Permit contains the requirement.

L. LOCATION SPECIFIC REQUIREMENTS

Caltrans shall implement the program specified in the SWMP. Caltrans shall also implement any additional requirements contained in this Provision L.

Lahontan Region: The Water Quality Control Plan for the Lahontan Region (Basin Plan) has additional requirements which have been historically applied to Caltrans permits and which apply to this NPDES Permit in the Lahontan Region. These requirements include:

1. Numerical effluent limitations for storm water discharges within the Lake Tahoe Hydrologic Unit, as specified in Table 5.6-1 on page 5.6-4 of the Basin Plan.

2. Caltrans shall comply with all Waste Discharge Prohibitions specified in sections 4.1 and 5.2 of the Basin Plan.

3. The following nonstorm water discharges which are permitted under Nonstorm Water Provision B.2. of this NPDES permit are prohibited within the Lahontan Region:

    a. Water line-flushing discharges.

    b. Ground or surface water pumping discharges associated with construction activities that would violate numerical effluent limitations within the Lake Tahoe Hydrologic Unit or receiving water objectives throughout the Lahontan Region, as specified on pages 3-3 through 3-56 of the Basin Plan.

    c. Potable water resource discharges.

    d. Uncontaminated pumped ground water discharges that would violate numerical effluent limitations within the Lake Tahoe Hydrologic Unit or receiving water objectives throughout the Lahontan Region, as specified on pages 3-3 through 3-56 of the Basin Plan.

    e. Air conditioning condensate discharges (not applicable to vehicles).

4. Storm water/urban runoff collection, treatment, and/or infiltration disposal facilities shall be designed, installed, and maintained for the discharge of storm water runoff from all impervious surfaces generated by the 20-year, one-hour design storm (1) within the Lake Tahoe Hydrologic Unit (one inch of rain), (2) within the Truckee River Hydrologic Unit (3/4-inch of rain), (3) within the East Fork Carson River and West Fork Carson River Hydrologic Units (one inch of rain), and (4) within the Mammoth Creek Hydrologic Unit above the 7,000-foot elevation (one inch of rain). All Caltrans facilities within the Lake Tahoe Hydrologic Unit must be retrofitted to comply with this requirement by the Year 2008. If site conditions do not allow for adequate on site disposal, all site runoff must be treated to meet applicable Effluent Limits and/or Receiving Water Limitations specified in the Basin Plan. Runoff in excess of the design storm and generated by the facility or within the project site shall only be discharged to a storm drain or stabilized drainage adequate to convey the 100-year 24-hour flow. The RWQCB Executive Officer may approve alternative mitigation measures.

    All Caltrans facilities within the Lake Tahoe Hydrologic Unit must be retrofitted to comply with this provision by the Year 2008. Caltrans shall continue to participate in the Capital Improvement Program (CIP), as described in volume IV of the CWA Section 208 Water Quality Management Plan (208 Plan). The purpose of the CIP is to identify projects, develop an implementation program, and develop a funding mechanism for storm water runoff and erosion control projects in the Lake Tahoe Hydrologic Unit.

5. All construction/maintenance projects shall comply with Erosion Control Guidelines for the Lake Tahoe Hydrologic Unit, Erosion Control Guidelines for the Truckee River Hydrologic Unit, and Erosion Control Guidelines for the North Lahontan Region where applicable.

6. Caltrans shall inspect active project sites and maintenance facilities prior to, during, and after storms to ensure that BMPs are functioning adequately and preventing the discharge of pollutants to surface waters or storm water conveyance systems that discharge to surface waters.

7. Unless granted a variance by the RWQCB Executive Officer, there shall be neither removal of vegetation nor disturbance of existing ground surface conditions between October 15 of any year and May 1 of the following year, except when there is an emergency situation that threatens the public health or welfare. This prohibition period applies to the Lake Tahoe, Truckee River, East Fork Carson River, and West Fork Carson River Hydrologic Units and above the 5,000-foot elevation in the portions of Mono and Inyo Counties within the Lahontan Region.

8. Project Review Requirements

   a. Caltrans shall participate in early project design consultation for all projects within the Lake Tahoe, Truckee River, and Mammoth Creek Hydrologic Units. This requirement also applies to projects involving more than five acres of soil disturbance or that require a CWA section 404 permit throughout the Lahontan Region. Caltrans shall solicit RWQCB staff review when project development/design is at the 50 percent design level. Consultation with RWQCB staff shall continue throughout the remainder of the design development and environmental review process.

   b. Caltrans shall submit an SWPPP or a Water Pollution Control Plan for RWQCB staff review and approval no later than 30 days prior to beginning construction activities. RWQCB staff's proposed modifications shall be included within the plans prior to beginning construction activities.

9. Snow and Ice Control

   Where abrasives and/or de-icing agents are used on highways within the Lahontan Region, the following shall be recorded:

   a. Location of the source of abrasives materials.

   b. Types and chemistry of de-icing agents.

      (1) Deicing salt shall be analyzed for: total phosphorus, total nitrogen, iron, and percent NaCl.

(2) Alternative deicers shall be analyzed for: total nitrogen, and total phosphorus.

c. Type and chemistry of abrasives with the gradation and percent organic matter. Gradation and percent organic matter shall be determined from composite samples. The composite samples shall be taken from one stockpile that represents all deliveries from the originating source. Composite samples shall be taken from every new delivery from a new originating source.

(1) Abrasives shall be analyzed for: volatile solids, iron, total nitrogen, total phosphorus, and total reactive phosphorus.

d. Volume of abrasives and deicing agents used on individual highway's segments.

10. Reporting/Notification Issues

a. Caltrans shall submit a monitoring program proposal that evaluates the effectiveness of BMPs used to recover abrasives and deicing materials and that evaluates the impacts of abrasives and deicing materials on surface waters within the Lake Tahoe Hydrologic Unit. The proposal shall include monitoring locations and sampling and analysis methodologies. The proposal shall be submitted within 180 days of adoption of this NPDES Permit for review and approval by the Lahontan RWQCB Executive Officer. **(*DEICER MONITORING PROPOSAL*)**

b. A report shall be submitted, as part of the Annual Report each year describing the results of the abrasives and deicing materials analysis and the annual results of the above-referenced monitoring program involving BMP effectiveness and surface water impacts. The report shall also include a summary of Caltrans CIP activities, including progress on implementing the CIP, and project effectiveness. Project effectiveness has historically been documented with photographs including preproject photographs, photographs taken during the spring following project completion, and photographs taken two years following project completion. If photographs or project site inspections indicate that the project is not fully meeting project objectives, Caltrans shall include within the report a corrective action plan and a schedule that will meet the project objectives. (***DEICER REPORT***)

11. Caltrans shall immediately notify the RWQCB by telephone, not later than 24 hours, whenever an adverse condition occurs as a result of a discharge with written confirmation following within two weeks. An adverse condition includes, but is not limited to, a serious violation or a serious threatened violation of conditions specified in this NPDES Permit, significant discharges of spills of petroleum products or toxic chemicals, or serious damage to control facilities that could affect compliance.

M. OTHER PROVISIONS

1. Caltrans shall ensure that all personnel whose decisions or activities could affect storm water quality are familiar with the contents of this NPDES Permit.

2. Caltrans shall comply with all conditions and limitations of this NPDES Permit upon adoption of this NPDES Permit. Any NPDES Permit noncompliance constitutes a violation of the CWA and the CWC and is grounds for enforcement action pursuant to the CWA and CWC, NPDES Permit termination, or denial of a renewal application.

3. This NPDES Permit does not authorize violation of any federal, State, or local law or regulation.

4. Caltrans shall properly operate and maintain at all times any facilities and systems of treatment and control (and related appurtenances) which are installed or used by Caltrans to achieve compliance with the conditions of this NPDES Permit and with the requirements of SWPPPs. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures.

5. This NPDES Permit does not convey any property rights of any sort or any exclusive privileges, authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, State, or local laws or regulations.

6. Caltrans shall comply with the Standard Provisions for NPDES Permit found at 40 CFR 122.41 and 40 CFR 122.42(c).

7. This NPDES Permit expires five years from date of adoption, 2004, and Caltrans shall file a complete Report of Waste Discharge in accordance with Title 23, CCR, at least 180 days in advance of such date as an application for issuance of a new Board Order. (***REPORT OF WASTE DISCHARGE***)

8. This Board Order shall serve as an NPDES Permit pursuant to section 402 of the Federal CWA, as amended, and shall become effective at the end of ten (10) days from the date of the Board Meeting which this NPDES Permit was adopted by the SWRCB, provided that the Regional Administrator, USEPA, has no objections.

9. This NPDES Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by Caltrans for an NPDES Permit modification, revocation and reissuance, or termination or a notification of planned changes or anticipated noncompliance does not stay any NPDES Permit condition. Causes for modification include the promulgation of new regulations or adoption of new regulations by the SWRCB or the RWQCBs, including revisions to the RWQCB Basin Plans.

10. Signatory Requirements

a. All permit applications, reports, or information submitted to the RWQCB, SWRCB, and/or USEPA shall be signed by either a principal Executive Officer, Executive Director, or ranking elected official. [40 CFR 122.22(a)]

b. All reports required by this NPDES Permit and other information requested by the RWQCB, SWRCB, or US EPA shall be signed by a person described in Other Provisions 10.a. of this Provision or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in Other Provisions 10.a. of this Provision;

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

(3) The written authorization is submitted to the RWQCB. [40 CFR 122.22(b)]

c. Changes to authorization: If an authorization under Other Provisions 10.b. of this Provision is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Other Provisions 10.b. of this Provision must be submitted to the RWQCB prior to or together with any reports, information, or applications to be signed by an authorized representative. [40 CFR 122.22(c)].

d. Certification: Any person signing a document under Other Provisions 10.a. or b. of this Provision shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is true, accurate, and complete to the best of my knowledge and belief. I

am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment of knowing violations. [40 CFR 122.22(d)]

e. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this NPDES Permit, including monitoring reports or reports of compliance or noncompliance, upon conviction, shall be punished by a fine of not more than $10,000 per violation, imprisonment for not more than two years per violation, or by both.

CERTIFICATION

The undersigned, Administrative Assistant to the SWRCB, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on July 15, 1999.

AYE: James M. Stubchaer
Mary Jane Forster
John W. Brown
Arthur G. Baggett, Jr.

NO: None

ABSENT: None

ABSTAIN: None

_____
Maureen Marché
Administrative Assistant to the Board

State of California

Business, Transportation and Housing Agency

Memorandum

To : WALDO LOPEZ (MS 340)
Project Engineer
Design

Date: December 10, 2009

File: 11-SD-805
PM 5.0/9.5
EA 081610

From : DEPARTMENT OF TRANSPORTATION - DISTRICT 11
PAVEMENT ENGINEERING AND PLANT SERVICES

Subject: **STRUCTURAL SECTION AND CULVERT RECOMMENDATIONS**

In accordance with your request dated October 14, 2009, we have designed structural sections for the proposed HOV/transit lanes in the freeway median and the proposed median inside shoulder. The design is based on the Highway Design Manual using an R-Value of 15 (from previous memorandum dated August 22, 2007) and Traffic Indices provided by the Traffic Forecasting Branch.

PROPOSED MEDIAN HOV/ TRANSIT LANES (TI = 11.5, RV = 15)

PCC OPTION:

0.80 ft. JPCP
0.25 ft. HMA-A
0.55 ft. AB Cl 2

This design is based on laterally supported JPCP. For details, see Section 623.1 (4) and Table 623.1E of HDM dated 7/1/2008.

HMA-A OPTION:

Alternative 1	Alternative 2
0.60 ft. HMA-A	0.60 ft. HMA-A
1.25 ft. AB - Cl 2	1.90 ft. AB - Cl 2
0.70 ft. AS – Cl 4	

PROPOSED MEDIAN INSIDE SHOULDER (TI = 8.0, RV = 15)

PCC OPTION:

0.70 ft. JPCP
0.25 ft. HMA-A
0.45 ft. AB Cl 2

This design is based on laterally supported JPCP. For details, see Section 623.1 (4) and Table 623.1E of HDM dated 7/1/2008.

HMA-A OPTION:

Alternative 1	Alternative 2
0.40 ft. HMA-A	0.40 ft. HMA-A
0.85 ft. AB - Cl 2	1.25 ft. AB - Cl 2
0.45 ft. AS – Cl 4	

CULVERT RECOMMENDATIONS

The recommendations are based on previous materials reports. These reports show the project soils to be moderate to highly corrosive to metal.

Recommendations for New Culverts

1. The following Plastic Pipe Culverts meeting the minimum and maximum fill height requirements: Corrugated High Density Polyethylene (HDPE) -Type S and Type C, Ribbed HDPE, Ribbed Polyvinyl Chloride (PVC), and Corrugated PVC.

2. Reinforced Concrete Pipe (RCP) using the standard design.

3. The following Steel Pipe Culverts meeting the minimum and maximum fill height requirements: Corrugated Steel Pipe with bituminous coating and paved invert, Steel Spiral Rib Pipes with Polymerized Asphalt Invert, and Spiral Rib Pipes with Polymeric Sheet Coating.

DESIGN NOTES

1. The recommended aggregate grading for HMA (Type A) is ¾" maximum, coarse.
2. The recommended grade of asphalt binder should be PG 64-10.

If you have questions or comments about this subject, please telephone R. Avila at 858-467-4069 or FAX at 858-467-4063.

Ruben Avila
Transportation Engineer, CT/Civil

David Evans
District Pavement Engineer

REGISTERED PROFESSIONAL ENGINEER
DAVID S. EVANS
No. C48245
Exp. 6-30-10
CIVIL
STATE OF CALIFORNIA

cc: APadilla (MS 63)
P File

State of California

Business, Transportation and Housing Agency

Memorandum

To : WALDO LOPEZ (MS 340)
Project Development

Date: February 23, 2011

File: 11-SD-805
PM 5.5/9.4
EA 2T1811

From : **DEPARTMENT OF TRANSPORTATION - DISTRICT 11**
PAVEMENT ENGINEERING SECTION

Subject: **STRUCTURAL SECTIONS RECOMMENDATIONS - addendum**

The following structural section alternatives are provided for this project per your request dated February 23, 2011.

The structural sections are based on the design criteria of 20-year Traffic Index (TI) of 13.5 for the outside main lane. A basement soil R-value of 15 is used based on the parent EA 11-081610 Structural Section Memo, dated June 14, 2010.

The 3' foot encroachment onto the existing AC shoulder would place the wheel path of the truck lane directly on the Traveled Way/Shoulder edge of pavement. This edge of pavement will have substantial dynamic forces on it. Shifting lanes onto a portion of the AC shoulder always has long-term maintenance costs associated with them. The existing shoulder is not designed for traffic/truck wheel path loading. The shoulder will have to be reconstructed and designed for the outside lane traffic loadings.

Outside Main Lane widening
(TI = 13.5, R-value = 15)

Alternate 1	Alternate 2
0.70' HMA-A	0.70' HMA-A
2.35' AB – Class 2	1.50' AB – Class 2
	0.90' AS – Class 4

Design Notes:

1) The grade of the asphalt binder for this project shall be PG 64-16.

2) The aggregate gradation for the HMA-A shall be ¾" maximum.

If you have questions with regards to this memorandum, please contact me at 858-467-4056 or FAX at 858-467-4063.

David Evans
District Pavement Engineer
District 11 Materials Lab

REGISTERED PROFESSIONAL ENGINEER
DAVID S. EVANS
No. C48245
Exp. 6-30-12
CIVIL
STATE OF CALIFORNIA

cc: A Padilla (DME)
M Peinado (MS 330)
805.2T1811.ss2.doc

State of California

Business, Transportation and Housing Agency

Memorandum

To : WALDO LOPEZ (MS 340)
Project Development

Date: July 8, 2011

File: 11-SD-805
PM 5.5/9.4
EA 2T1811

From : **DEPARTMENT OF TRANSPORTATION - DISTRICT 11**
PAVEMENT ENGINEERING SECTION

Subject: **STRUCTURAL SECTIONS RECOMMENDATIONS - addendum #2**

The grade of the HMA-A asphalt binder for this project shall be PG 64-10.

If you have questions with regards to this memorandum, please contact me at 858-467-4056 or FAX at 858-467-4063.

David Evans
District Pavement Engineer
District 11 Materials Lab

REGISTERED PROFESSIONAL ENGINEER
DAVID S. EVANS
No. C48245
Exp. 6-30-12
CIVIL
STATE OF CALIFORNIA

cc: A Padilla (DME)
M Peinado (MS 330)
805.2T1811.ss3.doc

State of California | Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. DOUG DUNRUD
Structure Design
Office of Bridge Design-South 1
Bridge Design Branch 14
MS #9

Date: July 13, 2011

File: 11-SD-805-PM 9.19
11-2T1811
Proj. ID: 1100020050
Euclid Ave U.C. (Widen)
Br. #57-0640 R/L

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 2 MS #5
Design Branch B

Subject: Foundation Report for Euclid Ave. U.C. (Widen)

This report presents the foundation recommendations for the proposed Center Widening for Euclid Avenue. U.C. (Br. No. 57-0640 R/L) and supersedes all previously generated Preliminary Foundation Reports for this structure. The Euclid Ave UC bridge widening is being designed by the Office of Bridge Design Branch 14 which has provided the Office of Geotechnical Design, South-2 the design information used in this report to provide foundation recommendations.

Project Description

The Euclid Avenue U.C. bridge is located on I-805 in National City, and is one of several bridges along I-805 that are proposed to be widened or replaced to accommodate construction of High Occupancy Vehicle (HOV) lanes down the center of the freeway.

"As-built" information indicates that a subsurface investigation was performed in 1968 for the existing bridge. The existing Euclid Ave. U.C. bridge consists of a three-span, cast-in-place, box-girder structure that was constructed in 1974. The existing bridge is supported on spread footings at Abutments 1 and 4 and on driven piles at Bents 2 and 3 locations. Engineered fill material was placed at Abutments 1 and 4 locations during construction of the bridge.

The proposed Euclid Ave. U.C. (Widen) will consist of a three-span, cast-in-place, reinforced concrete and pre-stressed, box girder type structure measuring 211.4 feet long and maximum width of 30 feet.

The following foundation recommendations are based on subsurface information gathered during a foundation investigation conducted in April/May 2010. With regards to the current foundation recommendations given in this report, all elevations referenced within this report and shown on the Log of Test Borings (LOTB) sheets are based on the 1988 North American Vertical Datum (NAVD 88). "As-built" elevations have been converted from NGVD 1929 datum to NAVD 1988 datum using a conversion factor of +2.1 ft.

Geology

The bridge site is located in the Peninsular Ranges geomorphic province, in an area of ancient sedimentary marine terraces cut by creeks, which generally flow east to west. The "Geologic Map of the San Diego 30'x60' Quadrangle, California (2008, Kennedy and Tan)" indicates that the site is located on the contact between material described as Quaternary Old Paralic deposits and Quaternary Young Alluvial Flood-Plain deposits.

The April/May 2010 foundation investigation consisted of 3 mud rotary borings (Borings R-10-001 through R-10-003). Boring R-10-001 was drilled in the freeway median, north of the Abutment 4 location. Borings R-10-002 and R-10-003 were drilled in Euclid Avenue, near Bents 2 and 3, respectively. The 2010 foundation investigation revealed the site is generally underlain by alternating layers of medium dense to dense silty and clayey sands. The abutment embankment fill material consists of loose to medium dense silty and clayey sands. For more specific details regarding the soils descriptions from the 2010 foundation investigation, refer to the LOTB sheets for the proposed bridge widening.

Ground Water

At the proposed bridge site, a water monitoring well was installed in Boring R-10-001 on April 14, 2010. Ground water was measured at Elev. +4.3 feet on May 4, 2010. All other soil borings were backfilled immediately after drilling and no attempt to measure ground water was made in those borings. Ground water levels indicated in this report reflect the measured ground water level in the borehole on the specified date. Ground water surface elevations are subject to seasonal fluctuations and will be encountered at higher or lower elevations depending on seasonal conditions.

Scour Potential

There is no scour potential at the site, since the structures do not span any watercourse.

Corrosion

Corrosion test results for soil samples collected from borings R-10-001 and R-10-002, are shown below in Table 1. Sample R-10-001 (Elev. 40.8 to -4.2 ft) was considered corrosive by current Caltrans standards. Sample R-10-002 (Elev. 37.1 to -14.9 ft) was classified as non-corrosive, although it yielded a Resistivity less than 1000 ohm-cm. It is prudent to consider the site corrosive to foundation elements. Therefore, reinforced concrete (including piles) requires corrosion mitigation in accordance with *Bridge Design Specifications, Article 8.22.*

Table 1: Corrosion Test Summary

Location	pH	Minimum Resistivity (Ohm-Cm)	Sulfate Content (ppm)	Chloride Content (ppm)
Boring R-10-001 (Elev. 73.8 to 40.8 ft)	7.08	1097	---	---
Boring R-10-001 (Elev. 40.8 to -4.2 ft)	6.72	531	44	820
Boring R-10-002 (Elev. 37.1 to -14.9 ft)	7.10	988	82	203

Note: Caltrans currently defines a corrosive environment as an area where the soil has either a chloride concentration of 500 ppm or greater, a sulfate concentration of 2000 ppm or greater, or has a pH of 5.5 or less. With the exception of MSE walls, soil and water are not tested for chlorides and sulfates if the minimum resistivity is greater than 1,000 ohm-cm.

Fault and Seismic Data

The structure site is potentially subject to strong ground motions from nearby earthquake sources during the design life of the new structure. The Office of Geotechnical Design-South 2 had provided Final Seismic Design Recommendations for the site in a memorandum dated May 30, 2011. The site is located about 3.8 miles northeast from the Newport-Inglewood-Rose Canyon Fault (Fault ID 423, M_{max}=7.5, strike-slip, dip=90°). The peak horizontal bedrock acceleration (PBA) at the site is estimated at 0.4g. The Euclid Ave UC is not within the Earthquake Fault Hazard Zone in California. Therefore, the project site would not be susceptible to a fault rupture hazard.

Liquefaction Potential

Due to the medium dense nature of the underlying clayey sands and silty sands, and the deep ground water elevation, the potential for soil liquefaction due to strong ground shaking is considered low at the proposed bridge site.

"As-Built" Foundation Information

The 1974 construction records indicate that the Euclid Ave UC Bridge (Br# 57-0640 R/L) is supported on spread footings at Abutments 1 and 4 support locations. The original Foundation Report recommended an allowable soil bearing capacity of 2 tons per square feet (TSF) at Abutments 1 and 4. At Bents 2 and 3 locations, the structure is supported on Class70, Alt. "X" piles, as described in Table 2, below.

Table 2: "As-built" Class 70, Alt. "X" Pile Data (1974)

Location		Specified Pile Tip Elevation (ft)	Average "As-built" Pile Tip Elevation (ft)	Maximum "As-built" Pile Tip Elevation (ft)	Minimum "As-built" Pile Tip Elevation (ft)
Bent 2L	Left Ftg.	-10.0	-10.3	NA	NA
	Center Ftg.		-10.3	NA	NA
	Right Ftg.		-10.9	NA	NA
Bent 3L	Left Ftg.	-16.0	-16.3	NA	NA
	Center Ftg.		-16.3	-16.8	-15.8
	Right Ftg.		-16.3	NA	NA
Bent 2R	Left Ftg.	-6.0	-5.2	-6.8	+2.3
	Center Ftg.		-5.3	-6.3	-1.8
	Right Ftg.		-4.3	-6.3	+3.5
Bent 3R	Left Ftg.	-6.0	-6.3	NA	NA
	Center Ftg.		-6.8	NA	NA
	Right Ftg.		-6.3	NA	NA

NA – Not Available

Foundation Recommendations

The following recommendations are for the proposed Euclid Ave. U.C. (Widen) as shown on the General Plan, dated April 19, 2011. At Abutments 1 and 4 locations, 24-in diameter Cast-In-Drilled-Hole (CIDH) Piles are recommended for support. At Bents 2 and 3 locations, driven 14x89 steel "H" Piles are recommended for support. Tables 3 and 4, below, show the foundation design data provided by the Office of Bridge Design Branch 14.

Table 3: Foundation Design Data Provided by Structure Designer

Support Location	Pile Type	Finished Grade Elevation (ft)	Pile Cutoff Elevation (ft)	Pile Cap Size (ft)		Permissible Settlement Under Service Load (in)	Number of Piles
				B	L		
Abutment 1	24" CIDH	64.0	59.85	5.0	24.0	0.5	5
Bent 2	HP 14x89 "H"-Piles	38.0	31.75	16.0	16.0	1	20
Bent 3	HP 14x89 "H"-Piles	41.5	35.75	16.0	16.0	1	20
Abutment 4	24" CIDH	66.0	61.45	5.0	24.0	0.5	5

Table 4: Foundation Design Loads Provided by Structure Designer

Support Location	Service 1 Limit State (Kips)			Strength Limit State (Controlling Group, Kips)				Extreme Event Limit State (Controlling Group, Kips)			
	Total Loads		Permanent Loads	Compression		Tension		Compression		Tension	
	Per Support	Max Per Pile	Per Support	Per Support	Max Per Pile	Per Support	Max Per Pile	Per Support	Max Per Pile	Per Support	Max Per Pile
Abutment 1	581	116	258	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bent 2	1426	N/A	917	1837	188	0	4	1127	309	0	196
Bent 3	1426	N/A	917	1837	188	0	4	1127	309	0	196
Abutment 4	581	116	258	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

The specified pile tip elevations for Abutments 1 and 4 CIDH piles are shown in Table 5, below.

Table 5: Abutments 1 and 4 Foundation Design Recommendations

Support Location	Pile Type	Pile Cutoff Elevation (ft)	LRFD Service-I Limit State Load per Support (kips)		LRFD Service-I Limit State Load per Pile (Compression) (kips)	Required Nominal Resistance (kips)	Design Tip Elevation (ft)	Specified Tip Elevation (ft)
			Total	Permanent				
Abutment 1	24 in CIDH	59.85	590	260	120	240	26.0(a)	26.0
Abutment 4	24 in CIDH	61.45	590	260	120	240	26.0(a)	26.0

Note: Design tip elevations are controlled by (a) Compression.

The specified pile tip elevations for Bents 2 and 3 "H"-piles are shown in Table 6, below.

Table 6: Bents 2 and 3 Foundation Design Recommendations

Support Location	Pile Type	Pile Cutoff Elevation (ft)	Service-I Limit State Load Per Support (kips)	Total Permissible Support Settlement (in)	Required Nominal Resistance (kips)				Design Tip Elevation (ft)	Specified Tip Elevation (ft)
					Strength Limit		Extreme Event			
					Comp. (φ=0.7)	Tension (φ=0.7)	Comp. (φ=1)	Tension (φ=1)		
Bent 2	HP 14x89 "H"-Piles	31.75	1426	1	270	10	310	200	-15.0(a) -6.0(b)	-15.0
Bent 3	HP 14x89 "H"-Piles	35.75	1426	1	270	10	310	200	-20.0(a) -14.5(b)	-20.0

Note: Design tip elevations are controlled by a) Compression, b) Tension.

The Pile Data Table for Abutments 1 and 4, as well as Bents 2 and 3, is presented in Table 7, below. The ultimate geotechnical pile capacity for the "H" piles and CIDH piles will meet or exceed the required nominal resistance in compression.

Table 7 – Pile Data Table

Support Location	Pile Type	Required Nominal Resistance		Design Tip Elevation	Specified Tip Elevation
		Compression	Tension		
Abutment 1	24-in CIDH-Piles	240 kips	0	26.0(a)	26.0
Bent 2	HP 14x89 "H"-Piles	310 kips	200 kips	-15.0(a) -6.0 (b)	-15.0
Bent 3	HP 14x89 "H"-Piles	310 kips	200 kips	-20.0(a) -14.5 (b)	-20.0
Abutment 4	24-in CIDH-Piles	240 kips	0	26.0(a)	26.0

Notes: Design tip elevations are controlled by a) Compression, (b) Tension

General Notes:

1) All support locations are to be plotted in plan view on the Log of Test Borings as stated in "Memo to Designers" 4-2. The plotting of support locations should be made prior to requesting a final foundation review.

2) When applicable, the structure engineer shall show on the plans, in the pile data table, the design pile tip elevation required to meet the lateral load demands. If the design pile tip elevation required to meet lateral load demands exceeds the specified pile tip elevations given within this report, the Office of Geotechnical Design-South 2, Branch B shall be contacted for further recommendations.

Construction Considerations:

Driven Piles

1) At Bents 2 and 3 locations, the calculated geotechnical capacity of the "H" piles is based on both skin friction and end-bearing.

2) Pile acceptance is to be based on Standard Specifications 49-1.08 "Bearing Value and Penetration".

CIDH Piles

1) Due to the non-cohesive nature of the soils, it is anticipated that concrete placement for the CIDH piles will be done by slurry displacement methods to reduce the potential for caving. At Abutments 1 and 4 locations, the calculated geotechnical capacity of the CIDH piles is based on skin friction only and no end-bearing was considered. The skin friction zones used to calculate geotechnical capacity of the CIDH piles are summarized below in Table 8.

Table 8 - CIDH Pile Skin Friction Zone Elevations

Location	Skin Friction Zone Start Elevation	Skin Friction Zone End Elevation
Abutment 1	59.0 ft	28.0 ft
Abutment 4	59.0 ft	28.0 ft

2) If the CIDH piles are to be constructed using slurry displacement method, the slurry shall consist of mineral or synthetic slurry only. Water shall not be allowed to be used as slurry.

3) If the contractor chooses to use slurry to aid in the construction of CIDH piles, care should be exercised while advancing the drilled hole for the piles. Due to the non-cohesive nature of granular soils, rapid insertion and removal of the drilling tools during the drilling process can cause excessive scouring and caving of the walls of the drilled shaft.

The recommendations contained in this report are based on specific project information regarding structure type, support locations, and design loads that have been provided by the Office of Bridge Design Branch 14. If any conceptual changes are made during final project design, the Office of Geotechnical Design-South 2, Design Branch B, should review those changes to determine if these foundation recommendations are still applicable. Any questions regarding the above recommendations should be directed to the attention of Fernando De Haro, (916) 227-4566 or Mark DeSalvatore, (916) 227-5391, at the Office of Geotechnical Design-South 2, Branch B.

Prepared by: Date: 7/14/11

Fernando De Haro, R.C.E., 62581
Transportation Engineer
Office of Geotechnical Design-South 2
Design Branch B

REGISTERED PROFESSIONAL ENGINEER
FERNANDO M. DeHARO
C55201
EXPIRES
09-30-11
CIVIL
STATE OF CALIFORNIA

Supervised by: Date: 7/14/11

Mark DeSalvatore, R.C.E., 039499
Senior Materials & Research Engineer
Office of Geotechnical Design-South 2
Design Branch B

REGISTERED PROFESSIONAL ENGINEER
MARK DeSALVATORE
No. CE039499
Exp. 12/31/11
CIVIL
STATE OF CALIFORNIA

Prepared by: Date: 7/13/11

Erich Neupert

Erich Neupert, P.G., 8137
Engineering Geologist
Office of Geotechnical Design-South 2
Design Branch B

PROFESSIONAL GEOLOGIST
ERICH NEUPERT
No. 8137
Exp. 2/29/12
STATE OF CALIFORNIA

cc: R.E. Pending File
John Stayton - Specs & Estimates
Roger Carlin – District 11 (Project Manager)
Art Padilla – District 11 (Materials Engineer)
Abbas Abghari – OGDS-2
Mark Willian – GS Corporate

State of California **Business, Transportation and Housing Agency**

M e m o r a n d u m

Flex your power!
Be energy efficient!

To: MR. DOUG DUNRUD
Structure Design
Office of Bridge Design-South 1
Bridge Design Branch 14
MS #9

Date: September 13, 2011

File: 11-SD-805-PM 9.19
11-2T1811
Proj. ID: 1100020050
Euclid Ave U.C. (Widen)
Br. #57-0640 R/L

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 2 MS #5
Design Branch B

Subject: Revised Foundation Report for Euclid Ave. U.C. (Widen)

This Revised Foundation Report supercedes and supplements the original Foundation Report, dated July 13, 2011, for the Euclid Avenue Undercrossing (Widen) (Br. # 57-0640 R/L) which was recently sent to your office. This Revised Foundation Report is being provided due to the change in number of piles and design loads at Abutment 4. The number of piles at Abutment 4 has been reduced from 5 to 4 piles to avoid a District utility that is passing under the footing. Tables 1 and 2 show the foundation design data provided the Office of Bridge Design Branch 14. Information that has been changed from the original Foundation Report is shown in bold.

Table 1: Foundation Design Data Provided by Structure Designer

Support Location	Pile Type	Finished Grade Elevation (ft)	Pile Cutoff Elevation (ft)	Pile Cap Size (ft)		Permissible Settlement Under Service Load (in)	Number of Piles
				B	L		
Abutment 1	24" CIDH	64.0	59.85	5.0	24.0	0.5	5
Bent 2	HP 14x89 "H"-Piles	38.0	31.75	16.0	16.0	1	20
Bent 3	HP 14x89 "H"-Piles	41.5	35.75	16.0	16.0	1	20
Abutment 4	24" CIDH	66.0	61.45	5.0	24.0	0.5	**4**

Table 2: Foundation Design Loads Provided by Structure Designer

Support Location	Service 1 Limit State (Kips)			Strength Limit State (Controlling Group, Kips)				Extreme Event Limit State (Controlling Group, Kips)			
	Total Loads		Permanent Loads	Compression		Tension		Compression		Tension	
	Per Support	Max Per Pile	Per Support	Per Support	Max Per Pile	Per Support	Max Per Pile	Per Support	Max Per Pile	Per Support	Max Per Pile
Abutment 1	581	116	258	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bent 2	1426	N/A	917	1837	188	0	4	1127	309	0	196
Bent 3	1426	N/A	917	1837	188	0	4	1127	309	0	196
Abutment 4	581	**146**	258	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Foundation Recommendations

Tables 3 and 4, presented below, reiterate the pile data for the Abutments 1 and 4 and Bents 2 and 3 support locations. The only changes from the original Foundation Report, dated July 13, 2011, are the LRFD Service-I Limit Sate Load per Pile and the Required Nominal Resistance Loads, the Design Tip Elevation and the Specified Pile Tip Elevation at the Abutment 4 location.

Abutments 1 and 4 Footing Locations

At Abutments 1 and 4 support locations 24-inch diameter CIDH piles are recommended for support. Abutment pile tip elevations are listed below in Table 3.

Table 3 – Abutments 1 and 4 Foundation Design Recommendations

Support Location	Pile Type	Pile Cutoff Elevation (ft)	LRFD Service-I Limit State Load per Support (kips)		LRFD Service-I Limit State Load per Pile (Compression) (kips)	Required Nominal Resistance (kips)	Design Tip Elevation (ft)	Specified Tip Elevation (ft)
			Total	Permanent				
Abutment 1	24 in CIDH	59.85	590	260	120	240	26.0(a)	26.0
Abutment 4	24 in CIDH	61.45	590	260	**150**	**300**	**23.0**(a)	**23.0**

Note: Design tip elevations are controlled by (a) Compression.

Bent 2 and 3 Locations

At Bent 2 and 3 locations, driven HP 14x89 driven steel "H" piles may be used for support. The ultimate geotechnical pile capacity for the "H" piles will meet or exceed the required nominal resistance in compression. The specified pile tip elevations for bent supports are listed in Table 4, below.

Table 4 – Bents 2 and 3 Foundation Design Recommendations

Support Location	Pile Type	Pile Cutoff Elevation (ft)	Service-I Limit State Load Per Support (kips)	Total Permissible Support Settlement (in)	Required Nominal Resistance (kips)				Design Tip Elevation (ft)	Specified Tip Elevation (ft)
					Strength Limit		Extreme Event			
					Comp. (φ=0.7)	Tension (φ=0.7)	Comp. (φ=1)	Tension (φ=1)		
Bent 2	HP 14x89 "H"-Piles	31.75	1426	1	270	10	310	200	-15.0(a) -6.0(b)	-15.0
Bent 3	HP 14x89 "H"-Piles	35.75	1426	1	270	10	310	200	-20.0(a) -14.5(b)	-20.0

Notes: Design tip elevations are controlled by a) Compression, b) Tension.

Table 5 – Pile Data Table

Support Location	Pile Type	Required Nominal Resistance		Design Tip Elevation	Specified Tip Elevation
		Compression	Tension		
Abutment 1	24-in CIDH-Piles	240 kips	0	26.0(a)	26.0
Bent 2	HP 14x89 "H"-Piles	310 kips	200 kips	-15.0(a) -6.0 (b)	-15.0
Bent 3	HP 14x89 "H"-Piles	310 kips	200 kips	-20.0(a) -14.5 (b)	-20.0
Abutment 4	24-in CIDH-Piles	**300** kips	0	**23.0** (a)	**23.0**

Notes: Design tip elevations are controlled by a) Compression, b) Tension.

Construction Considerations:

CIDH Piles

1) Due to the non-cohesive nature of the soils, it is anticipated that concrete placement for the CIDH piles will be done by slurry displacement methods to reduce the potential for caving. The calculated geotechnical capacity of all CIDH piles is based on skin friction only and no end-bearing was considered. The skin friction zones used to calculate geotechnical capacity of the CIDH piles are summarized below in Table 6.

Table 6 - CIDH Pile Skin Friction Zone Elevations

Location	Skin Friction Zone Start Elevation	Skin Friction Zone End Elevation
Abutment 1	59.0 ft	28.0 ft
Abutment 4	59.0 ft	**25.0** ft

All other recommendations, general notes and construction considerations in the original Foundation Report, dated July 13 20011, that have not been superseded by this report, are still applicable. Any questions regarding the above recommendations should be directed to the attention of Fernando De Haro, (916) 227-4566 or Mark DeSalvatore, (916) 227-5391, at the Office of Geotechnical Design-South 2, Branch B.

Prepared by: Date: 9-14-11

REGISTERED PROFESSIONAL ENGINEER
FERNANDO DE HARO
C 65281
EXPIRES
9-30-11
CIVIL
STATE OF CALIFORNIA

Fernando De Haro, R.C.E., 62581
Transportation Engieer
Office of Geotechnical Design-South 2
Design Branch B

Supervised by: Date: 9/14/11

Mark DeSalvatore, R.C.E., 039499
Senior Materials & Research Engineer
Office of Geotechnical Design-South 2
Design Branch B

REGISTERED PROFESSIONAL ENGINEER
MARK DeSALVATORE
No. CE039499
Exp. 12/31/11
CIVIL
STATE OF CALIFORNIA

cc: R.E. Pending File
John Stayton - Specs & Estimates
Roger Carlin – District 11 (Project Manager)
Art Padilla – District 11 (Materials Engineer)
Abbas Abghari – OGDS-2
Mark Willian – GS Corporate

State of California | Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. DOUG DUNRUD
Structure Design
Office of Bridge Design-South 1
Bridge Design Branch 14
MS #9

Attention: Lihua Han

Date: June 21, 2011

File: 11-SD-805-PM 7.76
11-2T1811
Proj. ID: 1100020050
Bonita Road UC (Widen)
Br. #57-0637 R/L

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 2 MS #5
Design Branch B

Subject: Foundation Report for Bonita Road UC

This report presents the foundation recommendations for the proposed center widening for the Bonita Road UC (Br. No. 57-0637 R/L), and supercedes all previously generated Preliminary Foundation Reports for this structure. The Office of Geotechnical Design-South 2, Design Branch B completed a foundation investigation pursuant to a request by Structure Design, Office of Bridge Design – South 1 for a foundation investigation and recommendations for the proposed widening.

Project Description

The Bonita Road Undercrossing is located on I-805 in National City, and is one of several bridges along I-805 which are proposed to be widened or replaced to accommodate construction of High Occupancy Vehicle (HOV) lanes down the center of the freeway. "As-built" information indicates that a subsurface investigation was performed in 1968, for the existing bridges. The existing Bonita Road UC left and right bridges consist of three-span, cast-in-place, pre-stressed concrete, box-girder structures, with end-diaphragm abutments that were constructed in 1975.

The existing right and left bridges are supported on driven Class 70C concrete piles at Abutments 1 and 4, as well as Bents 2 and 3 support locations.

The proposed Bonita Road UC widening will consist of a three-span, cast-in-place, reinforced concrete and pre-stressed, box girder type structure on end-diaphragm abutments.

An extensive subsurface investigation was conducted from January 2010 through August 2010 for the widening or replacement of several bridges on I-805 in the Chula Vista/National City area. Due to several of the borings being logged prior to the implementation of the 2010 edition of the Caltrans' Soil and Rock Logging Manual, an exception was approved allowing all borings to be logged according to the 2007 edition of Caltrans' Soil and Rock Logging Manual. The following foundation recommendations for the Bonita Road UC are based on information

gathered during subsurface investigations performed in April and August 2010, as well as "As-built" Log of Test Borings (LOTB's) from a 1968 subsurface investigation. With regards to the current foundation recommendations given in this report, all elevations referenced within this report and shown on the Log of Test Borings sheets are based on the 1988 North American Vertical Datum (NAVD 88). "As-built" elevations have been converted from NGVD 1929 datum to NAVD 1988 datum using a conversion factor of +2.0 ft.

Geology

The bridge site is located in the Peninsular Ranges geomorphic province, in an area of ancient sedimentary marine terraces cut by creeks, which generally flow east to west. The geologic map "Geology of National City, Imperial Beach and Otay Mesa Quadrangles, Southern San Diego Metropolitan Area, California (1977, Kennedy and Tan)" indicates that the site is located on the contact between material described as Quaternary alluvium/slopewash associated with the Sweetwater River drainage, and the Quaternary Baypoint Formation and unnamed, nearshore, undifferentiated marine sandstone.

The foundation investigations completed at the bridge site in April and August 2010 consisted of 4 mud rotary borings (Borings R-10-001 through R-10-004) drilled between the right and left bridges, near Abutments 1 and 4 and Bents 2 and 3 support locations.

Boring R-10-001 was drilled near the Abutment 1 location, in the freeway median. In that boring about 5 feet of fill material was encountered immediately below the roadway level. Below the fill material, sedimentary formational material which consisted of sandstone and siltstone, was encountered to the maximum depth of that boring (128 ft (elev. –57.6 ft)). The sandstone and siltstone are typically fine grained, slightly weathered, very soft, and poorly indurated.

Boring R-10-004 was drilled between the left and right bridges, near the Bent 2 location. In that boring about 2.0 feet of fill material was encountered immediately below the roadway level. Below the fill material, sedimentary formational material which consisted of sandstone was encountered to the maximum depth of that boring (61.5 ft (elev. –16.7 ft)). The sandstone is typically fine grained, slightly weathered, very soft, and poorly indurated.

Boring R-10-003 was drilled between the left and right bridges, near the Bent 3 location. In that boring about 25 ft of alluvial material, consisting of layers of medium dense to dense silty sand with gravel, silty sand, lean clay with sand, and poorly-graded sand with gravel, was encountered to about elevation 19.5 ft. Below the alluvial material, sedimentary formational material, which consisted of sandstone, was encountered to the maximum depth of that boring (66.5 ft (elev. –22.0 ft)). The sandstone is typically fine grained, slightly weathered, very soft, and poorly indurated, with a fine to coarse subrounded gravel layer between elev. –3.5 to –5.5 ft.

Boring R-10-002 was drilled near the Abutment 4 location, in the freeway median. In that boring about 80 ft of alluvial material, consisting of layers of very loose to very dense silty sand with gravel, silty sand, and poorly-graded sand with gravel and cobbles, was encountered to

about elevation –12.4 ft. The cobbles ranged from 4 to 6 inches in diameter. Below the alluvial material, sedimentary formational material, which consisted of sandstone, was encountered to the maximum depth of that boring (151.5 ft (elev. –83.9 ft)). The sandstone is typically fine grained, slightly weathered, very soft to soft, and poorly indurated, with some zones of weak to moderate cementation.

For site-specific soils and sedimentary formation descriptions from the 2010 foundation investigation, refer to the LOTB sheets for the proposed widening.

Ground Water

During the 2010 subsurface investigation ground water was measured on May 12th in Borings R-10-01 and R-10-002, at elevation 34.0 ft. and 33.8 ft, respectively. Ground water levels indicated in this report reflect the measured ground water level in the borehole on the specified date. Ground water surface elevations are subject to seasonal fluctuations and will be encountered at higher or lower elevations depending on seasonal conditions.

Scour Potential

The bridge does not span any watercourse; therefore, scour is not considered an issue at the site.

Corrosion

Corrosion test results for soil samples collected from boring R-10-002 are shown below in Table 1. Based on current Caltrans' standards, the site is considered to be non-corrosive.

Table 1 – Corrosion Test Summary

Location	pH	Minimum Resistivity (Ohm-Cm)	Sulfate Content (ppm)	Chloride Content (ppm)
Boring R-10-002 (Elev. 67.6 ft to –32.4 ft)	8.14	1320	N/A	N/A

Note: Caltrans currently defines a corrosive environment as an area where the soil has either a chloride concentration of 500 ppm or greater, a sulfate concentration of 2000 ppm or greater, or has a pH of 5.5 or less. With the exception of MSE walls, soil and water are not tested for chlorides and sulfates if the minimum resistivity is greater than 1,000 ohm-cm.

Fault and Seismic Data

The structure site is potentially subject to strong ground motions from nearby earthquake sources during the design life of the new structure. The Office of Geotechnical Design-South 2 has provided Final Seismic Design Recommendations for the site in a memorandum dated May 30, 2011. The controlling fault for the site is the Newport-Inglewood-Rose Canyon Fault (Fault ID 423, M_{max}=7.5, strike-slip, dip=90°) located about 4.7 miles southwest of the site. The peak horizontal bedrock acceleration (PBA) at the site is estimated at 0.35g.

A memorandum, dated January 19, 2010, by the Office of Geotechnical Support, discusses fault rupture hazards for several bridges on the I-805 south corridor. The memorandum states that the La Nacion fault zone is within 200 feet, and must be considered to pass beneath Bonita Road

UC, without further work being done. The La Nacion fault zone is not considered active by Caltrans' criteria, however other references have suggested some fault traces may have been active more recently, and capable of secondary fault rupture or creep, but not likely primary fault movement. The memorandum concludes that expected displacement, if the fault is active, would be small, and would be approximately 4 inches or less.

Liquefaction Potential

Final Seismic Design Recommendations, dated May 30, 2011, state that after a review and analyses of the soil conditions underlying the site, the potential for soil liquefaction under strong ground shaking is considered low.

Foundation Recommendations

The following recommendations are for the proposed center widening for the Bonita Road UC (Br. No. 57-0637 R/L), as shown on the General Plan dated April 14, 2011. At Abutments 1 and 4 support locations, HP 10x57 driven steel "H" piles, designed for a maximum nominal resistance of 280 kips, may be used for support. At Bents 2 and 3 support locations, HP 14x89 driven steel "H" piles, designed for a maximum nominal resistance of 400 kips, may be used for support.

Tables 2 and 3, below, show the foundation design information provided by the structure designer.

Table 2: General Foundation Information Provided by Structure Designer

Support Location	Design Method	Pile Type	Finished Grade Elevation	Pile Cut-off Elevation	Pile Cap Size (ft)		Permissible Settlement Under Service Load	Number of Piles per Support
					B	L		
Abutment 1	WSD	HP 10x57 "H"-Piles	72.0 ft	59.1 ft	5.0 ft	40.0 ft	0.5 in	5
Bent 2	LRFD	HP 14x89 "H"-Piles	44.0 ft	37.6 ft	21.0 ft	21.0 ft	1 in	36
Bent 3	LRFD	HP 14x89 "H"-Piles	44.0 ft	37.6 ft	21.0 ft	21.0 ft	1 in	36
Abutment 4	WSD	HP 10x57 "H"-Piles	70.0 ft	56.4 ft	5.0 ft	40.0 ft	0.5 in	5

Table 3: Foundation Design Loads Provided by Structure Designer

Support Location	Service 1 Limit State			Strength Limit State (Controlling Group)				Extreme Event Limit State (Controlling Group)			
	Total Loads		Permanent Loads	Compression		Tension		Compression		Tension	
	Per Support	Max Per Pile	Per Support	Per Support	Max Per Pile	Per Support	Max Per Pile	Per Support	Max Per Pile	Per Support	Max Per Pile
Abutment 1	558 kips	112 kips	313 kips	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bent 2	1573 kips	150 kips	1328 kips	2910 kips	170 kips	N/A	65 kips	1618 kips	282 kips	N/A	192 kips
Bent 3	1548 kips	150 kips	1303 kips	2910 kips	170 kips	N/A	65 kips	1618 kips	282 kips	N/A	192 kips
Abutment 4	546 kips	110 kips	301 kips	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

The specified pile tip elevations for Abutments 1 and 4 are shown below in Table 4.

Table 4: Foundation Design Recommendations for Abutments 1 and 4

Support Location	Pile Type	Cut-Off Elevation	LRFD Service-I Limit State Load per Support		LRFD Service-I Limit State Total Load per Pile (Compression)-	Required Nominal Resistance	Design Tip Elevation	Specified Tip Elevation
			Total	Permanent				
Abutment 1	HP 10x57 "H"-Piles	59.1 ft	560 kips	320 kips	120 kips	240 kips	35.0 ft (a)	35.0 ft
Abutment 4	HP 10x57 "H"-Piles	56.4 ft	550 kips	310 kips	110 kips	220 kips	6.0 ft (a)	6.0 ft

Note: 1) Design tip elevation is controlled by: (a) Compression

The specified pile tip elevation for Bents 2 and 3, are shown below in Table 5.

Table 5: Foundation Design Recommendations for Bents 2 and 3

Support Location	Pile Type	Cut-Off Elevation	Service-I Limit State Load per Support	Total Permissible Support Settlement	Required Nominal Resistance				Design Tip Elevation	Specified Tip Elevation
					Strength Limit		Extreme Event			
					Comp. (φ=0.7)	Tension (φ=0.7)	Comp. (φ=1)	Tension (φ=1)		
Bent 2	HP 14x89 "H"-Piles	37.6 ft	1580 kips	1 in	250 kips	100 kips	290 kips	200 kips	1.0 ft (b-II) 10.0 ft (a-II)	1.0 ft
Bent 3	HP 14x89 "H"-Piles	37.6 ft	1550 kips	1 in	250 kips	100 kips	290 kips	200 kips	-5.0 ft (b-II) 4.0 ft (a-II)	-5.0 ft

Note: Design tip elevations are controlled by (a-II) Compression (Extreme Event), (b-II) Tension (Extreme Event)

The Pile Data Table for Abutments 1 and 4, as well as Bents 2 and 3, is presented in Table 6, below. The ultimate geotechnical pile capacity of the "H" piles will meet or exceed the required nominal resistance in compression.

Table 6: Pile Data Table

Support Location	Pile Type	Required Nominal Resistance		Design Tip Elevation	Specified Tip Elevation
		Compression	Tension		
Abutment 1	HP 10x57 "H"-Piles	240 kips	0	35.0 ft (a)	35.0 ft
Bent 2	HP 14x89 "H"-Piles	290 kips	200 kips	1.0 ft (b) 10.0 ft (a)	1.0 ft
Bent 3	HP 14x89 "H"-Piles	290 kips	200 kips	-5.0 ft (b) 4.0 ft (a)	-5.0 ft
Abutment 4	HP 10x57 "H"-Piles	220 kips	0	6.0 ft (a)	6.0 ft

Notes: 1) Design tip elevation is controlled by: (a) Compression (b) Tension

General Notes:

1) All support locations are to be plotted in plan view on the Log of Test Borings as stated in "Memo to Designers" 4-2. The plotting of support locations should be made prior to requesting a final foundation review.

2) At Abutments 1 and 4 support locations, "H" piles are to be driven with lugs installed. Lug details are to be shown on the contract plans. Refer to the Bridge Construction Records and Procedures Manual, Bridge Construction Memo 130-5.0 for lug details.

Construction Considerations:

Driven Piles

1) The calculated geotechnical capacity of the "H" piles is based predominantly on end-bearing at Abutments 1 and 4 locations, and on skin friction at Bents 2 and 3 locations.

2) At Abutments 1 and 4 support locations, driven "H" piles shall have lugs installed to aid in achieving the required nominal resistance in compression when the pile is driven to the specified pile tip elevation. Lugs shall be installed as specified in the Bridge Construction Records and Procedures Manual, Bridge Construction Memo 130-5.0.

3) Pile acceptance is to be based on Standard Specifications 49-1.08 "Bearing Value and Penetration". At Abutments 1 and 4 support locations, any pile that achieves 1½ times the required nominal resistance in compression, as shown on the contract plans, within 5 feet of the specified pile tip elevation, may be considered satisfactory and cut off with written approval from the engineer. 1½ times the nominal resistance in compression will be 360 kips at Abutment 1 location and 330 kips at Abutment 4 location.

4) At Abutment 4 location, pre-drilling through the existing fill material will be required prior to driving each "H" pile. All pre-drilling through the existing fill shall be done in accordance with Standard Specification Section 49-1.06 "Pre-drilled Holes" to the corresponding bottom of pre-drilled hole elevation shown in Table 7, below.

Table 7: Pre-drill Hole Elevations

Support Location	Bottom of Pre-drill Hole Elevations
Abutment 4	38.0 ft.

The recommendations contained in this report are based on specific project information regarding structure type, support locations, and design loads that have been provided by Structure Design, Office of Bridge Design – South 1. If any conceptual changes are made during final project design, the Office of Geotechnical Design-South 2, Design Branch B, should review those changes to determine if these foundation recommendations are still applicable. Any questions regarding the above recommendations should be directed to the attention of Erich Neupert, (916) 227-4565, or Mark DeSalvatore, (916) 227-5391, at the Office of Geotechnical Design-South 2, Branch B.

Prepared by: Date: 6/23/11

Erich Neupert

Erich Neupert, P.G., 8137
Engineering Geologist
Office of Geotechnical Design-South 2
Design Branch B

PROFESSIONAL GEOLOGIST
ERICH NEUPERT
No. 8137
Exp. 2/29/12
STATE OF CALIFORNIA

Supervised by: Date: 6/23/11

Mark DeSalvatore, R.C.E., 039499
Senior Materials & Research Engineer
Office of Geotechnical Design-South 2
Design Branch B

REGISTERED PROFESSIONAL ENGINEER
MARK DeSALVATORE
No. CE039499
Exp. 12/31/11
CIVIL
STATE OF CALIFORNIA

cc: R.E. Pending File
John Stayton - Specs & Estimates
Roger Carlin – District 11 (Project Manager)
Art Padilla – District 11 (Materials Engineer)
Abbas Abghari – OGDS-2
Mark Willian – GS Corporate

State of California

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. DOUG DUNRUD
Structure Design
Office of Bridge Design-South 1
Bridge Design Branch 14
MS #9

Attention: John M. Peterson, Paul A. Peterson

Date: July 7, 2011

File: 11-SD-805-PM 8.85
11-2T1811
Proj. ID: 1100020050
805/54 Separation (Widen)
Br. #57-0746 R/L

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 2 MS #5
Design Branch B

Subject: Foundation Report for 805/54 Separation

This report presents the foundation recommendations for the proposed center widening for the 805/54 Separation (Br. No. 57-0746 R/L), and supercedes all previously generated Preliminary Foundation Reports for this structure. The Office of Geotechnical Design-South 2, Design Branch B completed a foundation investigation pursuant to a request by Structure Design, Office of Bridge Design – South 1 for a foundation investigation and recommendations for the proposed widening.

Project Description

The 805/54 Separation is located on I-805 in National City, and is one of several bridges along I-805 which are proposed to be widened or replaced to accommodate construction of High Occupancy Vehicle (HOV) lanes down the center of the freeway. "As-built" information indicates that a subsurface investigation was performed in 1968, for the existing bridges. The existing 805/54 Separation left and right bridges consist of two-span, cast-in-place, pre-stressed concrete, box-girder structures, with end-diaphragm abutments that were constructed in 1974.

The existing left bridge is supported on driven Class 70 concrete piles at the Abutment 1 and Bent 2 support locations. Abutment 3 is supported on 70 ton design load driven 10BP57 "H" piles. The existing right bridge is supported on 70 ton design load driven 10BP57 "H" piles at Abutment 1 location, and driven Class 70 concrete piles at Bent 2 location. Abutment 3 is supported on driven Class 70 concrete piles at all pile locations except one, where the contractor substituted a 70 ton design load driven 10BP57 "H" pile to determine if the pile would obtain bearing at or near the specified tip elevation.

The proposed 805/54 Separation widening will consist of a two-span, cast-in-place, reinforced concrete and pre-stressed, box girder type structure on end-diaphragm abutments.

From January 2010 through August 2010 an extensive subsurface investigation was conducted for the widening or replacement of several bridges on I-805 in the Chula Vista/National City

area. Due to several of the borings being logged prior to the implementation of the 2010 edition of the Caltrans' Soil and Rock Logging Manual, an exception was approved allowing all borings to be logged according to the 2007 edition of Caltrans' Soil and Rock Logging Manual. The following foundation recommendations for the 805/54 Separation are based primarily on information from "As-built" Log of Test Borings (LOTB's) from the 1968 subsurface investigation as well as information gathered from a boring drilled near the Abutment 1 location in April 2010. With regards to the current foundation recommendations given in this report, all elevations referenced within this report and shown on the Log of Test Borings sheets are based on the 1988 North American Vertical Datum (NAVD 88). "As-built" elevations have been converted from NGVD 1929 datum to NAVD 1988 datum using a conversion factor of +2.0 ft.

Geology

The foundation investigation completed at the bridge site in April 2010 consisted of 1 mud rotary borings (Boring R-10-001) drilled near the Abutment 1 location.

The bridge site is located in the Peninsular Ranges geomorphic province, in an area of ancient sedimentary marine terraces cut by creeks, which generally flow east to west. The geologic map "Geology of National City, Imperial Beach and Otay Mesa Quadrangles, Southern San Diego Metropolitan Area, California (1977, Kennedy and Tan)" indicates that the site is located on the contact between material described as Quaternary alluvium/slopewash associated with the Sweetwater River drainage, and the Quaternary Baypoint Formation and unnamed, nearshore, undifferentiated marine sandstone.

"As-built" log of test borings from a 1968 subsurface investigation, show that soil borings were drilled near the right sides of the right bridge Abutments 1 and 3 locations, and the left sides of the left bridge Abutment 1 and 3 locations. Additionally, one mud-rotary boring was drilled at the Bent 2 location, between the left and right bridges, and two dynamic cone penetration soundings were made near the Abutments 1 and 3 locations, between the left and right bridges.

"As-built" information shows that approximately 30 feet of fill material was placed at both Abutment 1 and 3 locations of the right and left bridges. "As-built" LOTB's show the site is underlain by alluvial material ranging from loose to very dense fine to coarse sand with gravel, sandy silt, silty sand, and gravel with sand and trace cobbles, as well as very stiff to hard clayey silt and silty clay.

During the 2010 foundation investigation at the site, Boring R-10-001 was drilled near the Abutment 1 location, in the freeway median. That boring also revealed that alluvial material underlies the site. The alluvium consists of layers of loose to very dense, poorly and well graded sand with gravel and cobbles, silty sand, silt, and very stiff lean clay. The cobbles encountered ranged from about 4 to 6 inches in diameter.

For site-specific soils descriptions from the 2010 foundation investigation, refer to the LOTB sheets for the proposed widening.

Ground Water

"As-built" LOTB's from the 1968 subsurface investigation indicate that ground water was encountered in several borings at that time, and ranged from elevation 17.4 ft to elevation 22.1 ft. During the 2010 subsurface investigation ground water was measured in Boring R-10-01 at elevation 9.6 ft. on May 4th. Ground water levels indicated in this report reflect the measured ground water level in the borehole on the specified date. Ground water surface elevations are subject to seasonal fluctuations and will be encountered at higher or lower elevations depending on seasonal conditions.

Scour Potential

The bridge does not span any watercourse; therefore, scour is not considered an issue at the site.

Corrosion

Corrosion test results for soil samples collected from boring R-10-001 are shown below in Table 1. Based on current Caltrans' standards, the site is considered to be non-corrosive.

Table 1 – Corrosion Test Summary

Location	pH	Minimum Resistivity (Ohm-Cm)	Sulfate Content (ppm)	Chloride Content (ppm)
Boring R-10-001 (Elev. 65.0 ft to –23.0 ft)	8.56	1323	N/A	N/A

Note: Caltrans currently defines a corrosive environment as an area where the soil has either a chloride concentration of 500 ppm or greater, a sulfate concentration of 2000 ppm or greater, or has a pH of 5.5 or less. With the exception of MSE walls, soil and water are not tested for chlorides and sulfates if the minimum resistivity is greater than 1,000 ohm-cm.

Fault and Seismic Data

The structure site is potentially subject to strong ground motions from nearby earthquake sources during the design life of the new structure. The Office of Geotechnical Design-South 2 has provided Final Seismic Design Recommendations for the site in a separate memorandum, dated May 30, 2011. The controlling fault for the site is the Newport-Inglewood-Rose Canyon Fault (Fault ID 423, M_{max}=7.5, strike-slip, dip=90°) located about 4.0 miles southwest of the bridge site. The peak horizontal bedrock acceleration (PBA) at the site is estimated at 0.4g. The potential for surface rupture hazard is considered low.

Liquefaction Potential

Final Seismic Design Recommendations, dated May 30, 2011, state that after a review and analyses of the soil conditions underlying the site, the potential for soil liquefaction under strong ground shaking is considered low.

Foundation Recommendations

The following recommendations are for the proposed center widening for the 805/54 Separation (Br. No. 57-0746 R/L), as shown on the General Plan dated May 11, 2011. At Abutments 1 and 3, as well as Bent 2 support locations, HP 14x89 driven steel "H" piles may be used for support. Tables 2 and 3, below, show the foundation design information provided by the structure designer.

Table 2: General Foundation Information Provided by Structure Designer

Support Location	Design Method	Pile Type	Finished Grade Elevation	Pile Cut-off Elevation	Pile Cap Size (ft)		Permissible Settlement Under Service Load	Number of Piles per Support
					B	L		
Abutment 1	WSD	HP 14x89 "H"-Piles	56.5 ft	53.1 ft	4 ft	28.7 ft	1 in	6
Bent 2	LRFD	HP 14x89 "H"-Piles	38.0 ft	31.8 ft	16 ft	16 ft	1 in	24
Abutment 3	WSD	HP 14x89 "H"-Piles	58.5 ft	54.3 ft	4 ft	29.9 ft	1 in	6

Table 3: Foundation Design Loads Provided by Structure Designer

Support Location	Service-I Limit State			Strength Limit State (Controlling Group)				Extreme Event Limit State (Controlling Group)			
	Total Loads		Permanent Loads	Compression		Tension		Compression		Tension	
	Per Support	Max Per Pile	Per Support	Per Support	Max Per Pile	Per Support	Max Per Pile	Per Support	Max Per Pile	Per Support	Max Per Pile
Abutment 1	920 kips	180 kips	709 kips	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bent 2	2374 kips	N/A	1910 kips	3766 kips	227 kips	N/A	N/A	2115 kips	376 kips	2115 kips	200 kips
Abutment 3	1046 kips	200 kips	825 kips	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

The specified pile tip elevations for Abutments 1 and 3 are shown below in Table 4.

Table 4: Foundation Design Recommendations for Abutments 1 and 3

Location	Pile Type	Cut-Off Elevation	LRFD Service-I Limit State Load per Support		LRFD Service-I Limit State Total Load per Pile (Compression)	Required Nominal Resistance	Design Tip Elevation	Specified Tip Elevation
			Total	Permanent				
Abutment 1	HP 14x89 "H"-Piles	53.1 ft	920 kips	710 kips	180 kips	360 kips	-3.0 ft (a)	-3.0 ft
Abutment 3	HP 14x89 "H"-Piles	54.3 ft	1050 kips	830 kips	200 kips	400 kips	-12.0 ft (a)	-12.0 ft

Note: 1) Design tip elevation is controlled by: (a) Compression

The specified pile tip elevation for Bent 2 "H" piles are shown below in Table 5.

Table 5: Foundation Design Recommendations for Bent

Support Location	Pile Type	Cut-Off Elevation	Service-I Limit State Load per Support	Total Permissible Support Settlement	Required Nominal Resistance				Design Tip Elevation	Specified Tip Elevation
					Strength Limit		Extreme Event			
					Comp. (φ=0.7)	Tension (φ=0.7)	Comp. (φ=1)	Tension (φ=1)		
Bent 2	HP 14x89 "H"-Piles	31.8 ft	2380 kips	1 in	330 kips	N/A	380 kips	200 kips	-15.0 ft (a-II) -8.0 ft (b-II)	-15.0 ft

Note: Design tip elevations are controlled by (a-II) Compression (Extreme Event), (b-II) Tension (Extreme Event)

The Pile Data Table for Abutments 1 and 3, as well as Bent 2, is presented in Table 6, below. The ultimate geotechnical pile capacity for the "H" piles will meet or exceed the required nominal resistance in compression.

Table 6: Pile Data Table

Location	Pile Type	Required Nominal Resistance		Design Tip Elevation	Specified Tip Elevation
		Compression	Tension		
Abutment 1	HP 14x89 "H"-Piles	360 kips	0	-3.0 ft (a)	-3.0 ft
Bent 2	HP 14x89 "H"-Piles	380 kips	200 kips	-15.0 ft (a) -8.0 ft (b)	-15.0 ft
Abutment 3	HP 14x89 "H"-Piles	400 kips	0	-12.0 ft (a)	-12.0 ft

Notes: 1) Design tip elevation is controlled by: (a) Compression (b) Tension

General Notes:

1) All support locations are to be plotted in plan view on the Log of Test Borings as stated in "Memo to Designers" 4-2. The plotting of support locations should be made prior to requesting a final foundation review.

2) At Abutments 1 and 3 locations, "H" piles are to be driven with lugs installed. Lug details are to be shown on the contract plans. Refer to the Bridge Construction Records and Procedures Manual, Bridge Construction Memo 130-5.0 for lug details.

Construction Considerations:

Driven Piles

1) The calculated geotechnical capacity of the "H" piles is based predominantly on end-bearing at Abutments 1 and 3 locations, and on skin friction and end-bearing at Bent 2 location.

2) At Abutments 1 and 3 support locations, driven "H" piles shall have lugs installed to aid in achieving the required nominal resistance in compression when the pile is driven to the

specified pile tip elevation. Lugs shall be installed as specified in the Bridge Construction Records and Procedures Manual, Bridge Construction Memo 130-5.0.

3) Pile acceptance is to be based on Standard Specifications 49-1.08 "Bearing Value and Penetration". At Abutments 1 and 3 support locations, any pile that achieves 1½ times the required nominal resistance in compression, as shown on the contract plans, within 5 feet of the specified pile tip elevation, may be considered satisfactory and cut off with written approval from the engineer. 1½ times the nominal resistance in compression will be 540 kips at the Abutment 1 location and 600 kips at the Abutment 3 location.

4) At Abutments 1 and 3 locations, all piles are to be driven in pre-drilled holes through the existing fill material. All pre-drilling shall be done in accordance with Standard Specification Section 49-1.06 "Pre-drilled Holes" to the corresponding bottom of pre-drilled hole elevation shown in Table 7, below.

Table 7: Pre-drill Hole Elevations

Location	Bottom of Pre-drill Hole Elevations
Abutment 1	35.0 ft.
Abutment 3	35.0 ft.

The recommendations contained in this report are based on specific project information regarding structure type, support locations, and design loads that have been provided by Structure Design, Office of Bridge Design – South 1. If any conceptual changes are made during final project design, the Office of Geotechnical Design-South 2, Design Branch B, should review those changes to determine if these foundation recommendations are still applicable. Any questions regarding the above recommendations should be directed to the attention of Erich Neupert, (916) 227-4565, or Mark DeSalvatore, (916) 227-5391, at the Office of Geotechnical Design-South 2, Branch B.

Prepared by: Date: 7/7/11

Erich Neupert

Erich Neupert, P.G., 8137
Engineering Geologist
Office of Geotechnical Design-South 2
Design Branch B

PROFESSIONAL GEOLOGIST
ERICH NEUPERT
No. 8137
Exp. 2/29/12
STATE OF CALIFORNIA

Supervised by: Date: 7/7/11

Mark DeSalvatore, R.C.E., 039499
Senior Materials & Research Engineer
Office of Geotechnical Design-South 2
Design Branch B

REGISTERED PROFESSIONAL ENGINEER
MARK DeSALVATORE
No. CE039499
Exp. 12/31/11
CIVIL
STATE OF CALIFORNIA

cc: R.E. Pending File
John Stayton - Specs & Estimates
Roger Carlin – District 11 (Project Manager)
Art Padilla – District 11 Materials Engineer
Abbas Abghari – OGDS-2
Mark Willian – GS Corporate

State of California | Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. DOUG DUNRUD
Structure Design
Office of Bridge Design-South 1
Bridge Design Branch 14
MS #9

Attention: John M. Peterson, Paul A. Peterson

Date: February 15, 2011

File: 11-SD-805-PM 5.6
11-2T1811
Proj. ID: 1100020050
Naples St. UC (Widen)
Br. #57-0634 R/L

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 2 MS #5
Design Branch B

Subject: Foundation Report for Naples St. UC

This report presents the foundation recommendations for the proposed center widening for Naples St. Undercrossing (UC) (Br. No. 57-0634 R/L), and supercedes all previously generated Preliminary Foundation Reports for this structure. The Office of Geotechnical Design-South 2, Design Branch B completed a foundation investigation pursuant to a request by Structure Design, Office of Bridge Design – South 1 for a foundation investigation and recommendations for the proposed widening.

Project Description

The Naples St U.C. is located on I-805 in Chula Vista, and is one of several bridges along I-805 which are proposed to be widened or replaced to accommodate construction of High Occupancy Vehicle (HOV) lanes down the center of the freeway. "As-built" information indicates the existing Naples St UC left and right bridges consist of single-span, cast-in-place, pre-stressed concrete, box-girder structures, with end-diaphragm abutments, that were constructed in 1971. The existing bridges are supported on 16-inch Cast-In-Drilled-Hole (CIDH) piles at Abutments 1 and 2, with a design loading of 45 tons.

"As-built" information indicates that a subsurface investigation was performed in August 1966, for the existing bridges. The "As-built" Foundation Report, dated October 4, 1966, states that the site is located on the northern edge of a small east-west trending canyon which had been partially filled in for building purposes, and that the fill material in the canyon varied in thickness from 18 to 25 feet.

The proposed Naples St. UC widening (Br. #57-0634) will consist of a single-span, cast-in-place, reinforced concrete and pre-stressed, box girder type structure on end-diaphragm abutments.

An extensive subsurface investigation was conducted from January 2010 through August 2010 for the widening or replacement of several bridges on I-805 in the Chula Vista/National City

area. Due to several of the borings being logged prior to the implementation of the 2010 edition of the Caltrans' Soil and Rock Logging Manual, an exception was approved allowing all borings to be logged according to the 2007 edition of Caltrans' Soil and Rock Logging Manual. The following foundation recommendations for the Naples St. UC are based on subsurface information gathered from borings drilled at the bridge site in March 2010. With regards to the current foundation recommendations given in this report, all elevations referenced within this report and shown on the Log of Test Borings (LOTB) sheets are based on the 1988 North American Vertical Datum (NAVD 88).

Geology

The foundation investigation completed at the bridge site in March 2010 consisted of 2 mud rotary borings (Borings R-10-001 and R-10-002) and one Primary Wave/Shear Wave (P-S) Log in Boring R-10-001.

The bridge site is located in the Peninsular Ranges geomorphic province, in an area of ancient sedimentary marine terraces cut by creeks, which generally flow east to west. The geologic map "Geology of National City, Imperial Beach and Otay Mesa Quadrangles, Southern San Diego Metropolitan Area, California (1977, Kennedy and Tan)" indicates that the site is underlain by the Tertiary San Diego Formation (sandstone part), which is described as a poorly indurated, fine to medium grained sandstone with locally cemented zones.

The 2010 foundation investigation revealed the bridge site is underlain by fill material at Abutments 1 and 2 locations. In boring R-10-001, drilled in the freeway median just south of the existing Abutment 1 location, the fill material is approximately 27 ft. thick, extending down to about elevation 295.0 feet. The fill consists of a medium dense to very dense silty-sand, with some fine and coarse gravels, and a few cobbles. Below the freeway fill material is an older fill, which was used to fill in a portion of a small canyon which originally ran beneath the site, and on which several houses were built in the past. The older fill layer is approximately 15 feet thick, extending down to about elevation 280.0 ft, and consists of a medium dense to very dense silty-sand, with some gravels. Underlying the fill material is sedimentary formational material consisting of sandstone. The sandstone is typically fine grained, slightly weathered, very soft, poorly indurated, with scattered moderately hard to very hard beds.

In boring R-10-002, drilled in the freeway median just north of the existing Abutment 2 location, the fill material is approximately 17 ft. thick, extending down to about elevation 304.0 feet. The fill consists of a medium dense to dense silty-sand, with some fine and coarse gravels. Below the freeway fill material is an older fill, which was used to fill in a portion of a small canyon which originally ran beneath the site, and on which several houses were built in the past. The older fill layer is approximately 21 feet thick, extending down to about elevation 283.0 ft, and consists of a dense to very dense silty-sand, with some gravels. Underlying the fill material is sedimentary formational material consisting of sandstone. The sandstone is typically fine grained, slightly weathered, very soft, poorly indurated, with scattered very hard beds.

For site-specific soils and sedimentary formation descriptions from the 2010 foundation investigation, refer to the LOTB sheets for the proposed widening.

Ground Water

At the proposed bridge site, ground water was attempted to be measured in Boring R-10-002 on May 12, 2010. No ground water was encountered in that boring. Boring R-10-001 was backfilled immediately after drilling and no attempt to measure ground water was made in that boring. Ground water levels indicated in this report reflect the measured ground water level in the borehole on the specified date. Ground water surface elevations are subject to seasonal fluctuations and will be encountered at higher or lower elevations depending on seasonal conditions.

Scour Potential

There is no scour potential at the site, since the structures do not span any watercourse.

Corrosion

Corrosion test results for soil samples collected from boring R-10-001 are shown below in Table 1. Based on current Caltrans' standards, the site is considered to be non-corrosive.

Table 1 – Corrosion Test Summary

Location	pH	Minimum Resistivity (Ohm-Cm)	Sulfate Content (ppm)	Chloride Content (ppm)
Boring R-10-001 (Elev. 321.7 – 288.5 ft)	7.88	1279	N/A	N/A
Boring R-10-001 (Elev. 288.5 – 250.0 ft)	7.52	547	780	300

Note: Caltrans currently defines a corrosive environment as an area where the soil has either a chloride concentration of 500 ppm or greater, a sulfate concentration of 2000 ppm or greater, or has a pH of 5.5 or less. With the exception of MSE walls, soil and water are not tested for chlorides and sulfates if the minimum resistivity is greater than 1,000 ohm-cm.

Fault and Seismic Data

The structure site is potentially subject to strong ground motions from nearby earthquake sources during the design life of the new structure. The Office of Geotechnical Design-South 2 is in the process of providing Final Seismic Design Recommendations for the site, which will be forwarded when completed. The site is located about 5.7 miles northeast of the Newport-Inglewood-Rose Canyon Fault (Fault ID 423, M_{max}=7.5, strike-slip, dip=90°). The peak horizontal bedrock acceleration (PBA) at the site is estimated at 0.3g. The potential for surface rupture hazard is considered low.

Liquefaction Potential

Due to the dense nature of the underlying sedimentary formational material, and deep ground water elevation, the potential for soil liquefaction due to strong ground shaking is considered low at the proposed bridge site.

Foundation Recommendations

The following recommendations are for the proposed center widening for the Naples St. UC (Br. No. 57-0634 R/L), as shown on the General Plan dated January 26, 2011. At Abutments 1 and 2 support locations, driven "modified" Class 200 Alternative (Alt) "W" piles are recommended for support. The Alt "W" piles are to be driven closed-ended with either a flat plate, prefabricated flat plate, or prefabricated conical point welded to the base of the pile. Tables 2 and 3, below, show the foundation design information provided by the structure designer.

Table 2: General Foundation Information Provided by Structure Designer

Support Location	Pile Type	Finished Grade Elevation	Pile Cut-off Elevation	Pile Cap Size (ft)		Permissible Settlement Under Service Load	Number of Piles per Support
				B	L		
Abutment 1	Class 200 Alt. "W"	312.7 ft	308.6 ft	4 ft	28 ft	0.5 in	6
Abutment 2	Class 200 Alt. "W"	312.3 ft	308.1 ft	4 ft	28 ft	0.5 in	6

Table 3: Foundation Design Loads Provided by Structure Designer

Support Location	Service 1 Limit State			Strength Limit State (Controlling Group)				Extreme Event Limit State (Controlling Group)			
	Total Loads		Permanent Loads	Compression		Tension		Compression		Tension	
	Per Support	Max Per Pile	Per Support	Per Support	Max Per Pile	Per Support	Max Per Pile	Per Support	Max Per Pile	Per Support	Max Per Pile
Abutment 1	1092 kips	182 kips	793 kips	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Abutment 2	1092 kips	182 kips	793 kips	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

The specified pile tip elevations for Abutments 1 and 2 are shown below in Table 4.

Table 4: Foundation Design Recommendations for Abutments 1 and 2

Location	Pile Type	Cut-Off Elevation	LRFD Service-I Limit State Load per Support		LRFD Service-I Limit State Total Load per Pile (Compression)**	Nominal Resistance	Design Tip Elevation	Specified Tip Elevation	Nominal Driving Resistance
			Total	Permanent					
Abutment 1	Class 200 Alt. "W"	308.6 ft	1100 kips	800 kips	190 kips	380 kips	275.0 ft (a)	275.0 ft	380 kips
Abutment 2	Class 200 Alt. "W"	308.1 ft	1100 kips	800 kips	190 kips	380 kips	275.0 ft (a)	275.0 ft	380 kips

Note: 1) Design tip elevation is controlled by: (a) Compression
**Maximum factored load per pile as provided by designer

The Pile Data Table for Abutments 1 and 2 is presented in Table 5, below. The ultimate geotechnical pile capacity for the Alt. "W" piles will meet or exceed the required nominal resistance in compression.

Table 5: Pile Data Table

Location	Pile Type	Nominal Resistance		Design Tip Elevation	Specified Tip Elevation	Nominal Driving Resistance
		Compression	Tension			
Abutment 1	Class 200 Alt. "W"	380 kips	0	275.0 ft (a)	275.0 ft	380 kips
Abutment 2	Class 200 Alt. "W"	380 kips	0	275.0 ft (a)	275.0 ft	380 kips

Notes: 1) Design tip elevation is controlled by: (a) Compression

General Notes:

1) All support locations are to be plotted in plan view on the Log of Test Borings as stated in "Memo to Designers" 4-2. The plotting of support locations should be made prior to requesting a final foundation review.

Construction Considerations:

Driven Piles

1) The calculated geotechnical capacity of the "modified" Alternative "W" pipe piles is based predominantly on end-bearing.

2) Pile acceptance is to be based on Standard Specifications 49-1.08 "Bearing Value and Penetration". Any pile that achieves 1½ times the required nominal resistance in compression, as shown on the contract plans, within 5 feet of the specified pile tip elevation, may be considered satisfactory and cut off with written approval from the engineer. 1½ times the nominal resistance in compression at Abutments 1 and 2 locations will be 570 kips.

3) At Abutments 1 and 2 locations, to place the piles tips within sedimentary formational material, drilling to assist driving will be required prior to driving each Alt. "W" pile. All drilling to assist driving shall be done in accordance with Standard Specification Section 49-1.05 "Driving Equipment". The drilling to assist driving elevations are shown in Table 6, below.

Table 6: Drilling to Assist Driving Elevations

Location	Drilling to Assist Driving Elevations
Abutment 1	282.0 ft.
Abutment 2	282.0 ft.

The recommendations contained in this report are based on specific project information regarding structure type, support locations, and design loads that have been provided by Structure Design, Office of Bridge Design – South 1. If any conceptual changes are made during final project design, the Office of Geotechnical Design-South 2, Design Branch B, should review those changes to determine if these foundation recommendations are still applicable. Any questions regarding the above recommendations should be directed to the attention of Erich Neupert, (916) 227-4565, or Mark DeSalvatore, (916) 227-5391, at the Office of Geotechnical Design-South 2, Branch B.

Prepared by: Date: 2/15/11

Erich Neupert

Erich Neupert, P.G., 8137
Engineering Geologist
Office of Geotechnical Design-South 2
Design Branch B

PROFESSIONAL GEOLOGIST
ERICH NEUPERT
No. 8137
Exp. 2/29/12
STATE OF CALIFORNIA

Supervised by: Date: 2/15/11

Mark DeSalvatore, R.C.E., 039499
Senior Materials & Research Engineer
Office of Geotechnical Design-South 2
Design Branch B

REGISTERED PROFESSIONAL ENGINEER
MARK DeSALVATORE
No. CE039499
Exp. 12/31/11
CIVIL
STATE OF CALIFORNIA

cc: R.E. Pending File
Kelly Holden - Specs & Estimates
Roger Carlin – District 11 (Project Manager)
Art Padilla – District 11 (Materials Engineer)
Abbas Abghari – OGDS-2
Mark Willian – GS Corporate

State of California

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. DOUG DUNRUD
Structure Design
Office of Bridge Design-South 1
Bridge Design Branch 14
MS #9

Attention: John M. Peterson, Paul A. Peterson

Date: June 29, 2011

File: 11-SD-805-PM 9.0
11-2T1811
Proj. ID: 1100020050
Sweetwater Rd.UC (Widen)
Br. #57-0639 R/L

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 2 MS #5
Design Branch B

Subject: Foundation Report for Sweetwater Road UC

This report presents the foundation recommendations for the proposed center widening for Sweetwater Road Undercrossing (UC) (Br. No. 57-0639 R/L), and supercedes all previously generated Preliminary Foundation Reports for this structure. The Office of Geotechnical Design-South 2, Design Branch B completed a foundation investigation pursuant to a request by Structure Design, Office of Bridge Design – South 1 for a foundation investigation and recommendations for the proposed widening.

Project Description

The Sweetwater Rd. U.C. is located on I-805 in National City, and is one of several bridges along I-805 which are proposed to be widened or replaced to accommodate construction of High Occupancy Vehicle (HOV) lanes down the center of the freeway. "As-built" information indicates that a subsurface investigation was performed in 1968, for the existing bridges. The existing Sweetwater Rd. UC left and right bridges consist of three-span, cast-in-place, pre-stressed concrete, box-girder structures, with end-diaphragm abutments that were constructed in 1974. The existing bridges are supported on driven Class 45 concrete piles at Abutments 1 and 4, and driven Class 70 concrete piles at Bents 2 and 3.

The proposed Sweetwater Road UC widening will consist of a three-span, cast-in-place, reinforced concrete and pre-stressed, box girder type structure on end-diaphragm abutments.

From January 2010 through August 2010 an extensive subsurface investigation was conducted for the widening or replacement of several bridges on I-805 in the Chula Vista/National City area. Due to several of the borings being logged prior to the implementation of the 2010 edition of the Caltrans' Soil and Rock Logging Manual, an exception was approved allowing all borings to be logged according to the 2007 edition of Caltrans' Soil and Rock Logging Manual. The following foundation recommendations for the Sweetwater Road UC are based on subsurface information gathered from borings drilled at the bridge site in May 2010, as well as information from "As-built" Log of Test Borings (LOTB's) from 1968. With regards to the

current foundation recommendations given in this report, all elevations referenced within this report and shown on the Log of Test Borings sheets are based on the 1988 North American Vertical Datum (NAVD 88). "As-built" elevations have been converted from NGVD 1929 datum to NAVD 1988 datum using a conversion factor of +2.0 ft.

Geology

The foundation investigation completed at the bridge site in May 2010 consisted of 2 mud rotary borings (Borings R-10-001 and R-10-002).

The bridge site is located in the Peninsular Ranges geomorphic province, in an area of ancient sedimentary marine terraces cut by creeks, which generally flow east to west. The geologic map "Geology of National City, Imperial Beach and Otay Mesa Quadrangles, Southern San Diego Metropolitan Area, California (1977, Kennedy and Tan)" indicates that the site is located on the contact between material described as Quaternary alluvium/slopewash associated with the Sweetwater River drainage, and the Quaternary Baypoint Formation and unnamed, nearshore, undifferentiated marine sandstone.

"As-built" log of test borings from a 1968 subsurface investigation, show that soil borings were drilled near the right side of the right bridge Abutment 1 location, the right side of the right bridge Abutment 4 location, and right side of the left bridge Abutment 4 location. Additionally, two dynamic cone penetration soundings were made near the center of the right bridge, and near the left side of the left bridge Abutment 1 location. Other borings were also drilled in the vicinity for adjacent ramp structures.

"As-built" information shows that fill material was placed at both Abutments 1 and 4 locations of the right and left bridges. At Abutment 1 location of the right bridge, the fill is about 24 ft. thick, and at Abutment 1 location of the left bridge, the fill ranges from about 25 ft to 42 ft thick. At Abutment 4 location of the right bridge the fill ranges from about 29 ft to 36 ft thick, and at Abutment 4 location of the left bridge, the fill is about 30 ft thick. "As-built" LOTB's show the site is underlain by alluvial material generally described as very stiff, dense and very dense, fine to coarse sand with gravel, sandy silt, silty sand, sandy silty clay, clayey silt, and gravel with sand and trace cobbles.

During the 2010 foundation investigation at the site, Borings R-10-001 and R-10-002 were drilled between the existing left and right bridges, adjacent to Bents 2 and 3, respectively. Both borings revealed that alluvial material underlies the site. The alluvium consists of layers of medium dense to very dense, poorly and well graded sand with gravel and cobbles, silty sand, silt and poorly graded gravel with sand and cobbles. The cobbles encountered ranged from about 3 to 8 inches in diameter.

For site-specific soil descriptions from the 2010 foundation investigation, refer to the LOTB sheets for the proposed widening.

Ground Water

"As-built" LOTB's from the April 1968 subsurface investigation indicate that ground water was encountered in several borings at that time, and ranged from elevation 14.2 ft to elevation 18.2 ft. During the 2010 subsurface investigation ground water was not attempted to be measured in Borings R-10-01 and R-10-002 due to those borings being located in live traffic lanes. Both borings was backfilled immediately after drilling. Ground water surface elevations are subject to seasonal fluctuations and will be encountered at higher or lower elevations depending on seasonal conditions.

Scour Potential

The bridge does not span any watercourse; therefore, scour is not considered an issue at the site.

Corrosion

Corrosion test results for soil samples collected from boring R-10-002 are shown below in Table 1. Based on current Caltrans' standards, the site is considered to be non-corrosive.

Table 1 – Corrosion Test Summary

Location	pH	Minimum Resistivity (Ohm-Cm)	Sulfate Content (ppm)	Chloride Content (ppm)
Boring R-10-002 (Elev. 37.8 ft to 17.8 ft)	5.54	4171	N/A	N/A
Boring R-10-002 (Elev. 7.8 ft to –2.2 ft)	5.58	944	80	123
Boring R-10-002 (Elev. –2.2 ft to –22.2 ft)	5.78	678	95	160

Note: Caltrans currently defines a corrosive environment as an area where the soil has either a chloride concentration of 500 ppm or greater, a sulfate concentration of 2000 ppm or greater, or has a pH of 5.5 or less. With the exception of MSE walls, soil and water are not tested for chlorides and sulfates if the minimum resistivity is greater than 1,000 ohm-cm.

Fault and Seismic Data

The structure site is potentially subject to strong ground motions from nearby earthquake sources during the design life of the new structure. The Office of Geotechnical Design-South 2 has provided Final Seismic Design Recommendations for the site in a memorandum, dated May 30 2011. The controlling fault for the site is the Newport-Inglewood-Rose Canyon Fault (Fault ID 423, M_{max}=7.5, strike-slip, dip=90°) located about 3.9 miles southwest of the bridge site. The peak horizontal bedrock acceleration (PBA) at the site is estimated at 0.4g. The potential for surface rupture hazard is considered low. The report also states that seismic settlement due to strong ground motion is estimated at about 3 inches.

Liquefaction Potential

Final Seismic Design Recommendations, dated May 30, 2011, state that due to the presence of loose alluvial material and ground water beneath the site, that the potential for soil liquefaction under strong ground shaking is moderate. During the 2010 subsurface investigation, it was

found that in Boring R-10-002, drilled near the Bent 3 support location, potentially liquefiable material was present between about elev. +6.0 ft and elev. –10.2 ft. Therefore, at the Bent 3 location, a calculated potential down drag force of 70 kips was calculated and added to the required nominal resistance in compression for the extreme event limit.

Foundation Recommendations

The following recommendations are for the proposed center widening for the Sweetwater Road UC (Br. No. 57-0639 R/L), as shown on the General Plan dated May 11, 2011. At Abutments 1 and 4 support locations, HP 10x57 driven steel "H" piles may be used for support. At Bents 2 and 3 support locations, HP 14x89 driven steel "H" piles may be used for support. Tables 2 and 3, below, show the foundation design information provided by the structure designer.

Table 2: General Foundation Information Provided by Structure Designer

Support Location	Design Method	Pile Type	Finished Grade Elevation	Pile Cut-off Elevation	Pile Cap Size (ft)		Permissible Settlement Under Service Load	Number of Piles per Support
					B	L		
Abutment 1	WSD	HP 10x57 "H"-Piles	64.0 ft	56.3 ft	4 ft	39.9 ft	1 in	6
Bent 2	LRFD	HP 14x89 "H"-Piles	40.0 ft	32.5 ft	21 ft	21 ft	1 in	36
Bent 3	LRFD	HP 14x89 "H"-Piles	38.0 ft	28.0 ft	21 ft	21 ft	1 in	36
Abutment 4	WSD	HP 10x57 "H"-Piles	64.0 ft	56.8 ft	4 ft	39.9 ft	1 in	6

Table 3: Foundation Design Loads Provided by Structure Designer

Support Location	Service 1 Limit State			Strength Limit State (Controlling Group)				Extreme Event Limit State (Controlling Group)			
	Total Loads		Permanent Loads	Compression		Tension		Compression		Tension	
	Per Support	Max Per Pile	Per Support	Per Support	Max Per Pile	Per Support	Max Per Pile	Per Support	Max Per Pile	Per Support	Max Per Pile
Abutment 1	564 kips	120 kips	415 kips	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bent 2	2140 kips	N/A	1701 kips	3614 kips	178 kips	N/A	8 kips	2100 kips	304 kips	N/A	188 kips
Bent 3	2141 kips	N/A	1709 kips	3837 kips	194 kips	N/A	8 kips	2268 kips	304 kips	N/A	178 kips
Abutment 4	564 kips	120 kips	415 kips	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

The specified pile tip elevations for Abutments 1 and 4 are shown below in Table 4.

Table 4: Foundation Design Recommendations for Abutments 1 and 4

Location	Pile Type	Cut-Off Elevation	LRFD Service-I Limit State Load per Support		LRFD Service-I Limit State Total Load per Pile (Compression)	Required Nominal Resistance	Design Tip Elevation	Specified Tip Elevation
			Total	Permanent				
Abutment 1	HP 10x57 "H"-Piles	56.3 ft	564 kips	420 kips	120 kips	240 kips	-4.0 ft (a)	-4.0 ft
Abutment 4	HP 10x57 "H"-Piles	56.8 ft	564 kips	420 kips	120 kips	240 kips	-3.0 ft (a)	-3.0 ft

Note: 1) Design tip elevation is controlled by: (a) Compression

The specified pile tip elevations for Bents 2 and 3 "H" piles are shown below in Table 5. At the Bent 3 location, the calculated potential down drag force of 70 kips was added to the Extreme Event Limit required nominal resistance in compression, to determine the specified pile tip elevation.

Table 5: Foundation Design Recommendations for Bents 2 and 3

Support Location	Pile Type	Cut-Off Elevation	Service-I Limit State Load per Support	Total Permissible Support Settlement	Required Nominal Resistance				Design Tip Elevation	Specified Tip Elevation
					Strength Limit		Extreme Event			
					Comp. (φ=0.7)	Tension (φ=0.7)	Comp. (φ=1)	Tension (φ=1)		
Bent 2	HP 14x89 "H"-Piles	32.5 ft	2140 kips	1 in	260 kips	20 kips	310 kips	190 kips	-3.0 ft (a-II) -5.0 ft (b-II)	-5.0 ft
Bent 3	HP 14x89 "H"-Piles	28.0 ft	2150 kips	1 in	280 kips	20 kips	380 kips	180 kips	-40.0 ft (a-II) -35.0 ft (b-II)	-40.0 ft

Note: Design tip elevations are controlled by (a-II) Compression (Extreme Event), (b-II) Tension (Extreme Event)

The Pile Data Table for Abutments 1 and 4, as well as Bents 2 and 3, is presented in Table 6, below. The ultimate geotechnical pile capacity for the "H" piles will meet or exceed the required nominal resistance in compression.

Table 6: Pile Data Table

Location	Pile Type	Required Nominal Resistance		Design Tip Elevation	Specified Tip Elevation	Nominal Driving Resistance
		Compression	Tension			
Abutment 1	HP 10x57 "H"-Piles	240 kips	0	-4.0 ft (a)	-4.0 ft	N/A
Bent 2	HP 14x89 "H"-Piles	310 kips	190 kips	-3.0 ft (a) -5.0 ft (b)	-5.0 ft	N/A
Bent 3	HP 14x89 "H"-Piles	380 kips	180 kips	-40.0 ft (a) -35.0 ft (b)	-40.0 ft	670 kips
Abutment 4	HP 10x57 "H"-Piles	240 kips	0	-3.0 ft (a)	-3.0 ft	N/A

Notes: 1) Design tip elevation is controlled by: (a) Compression (b) Tension

General Notes:

1) All support locations are to be plotted in plan view on the Log of Test Borings as stated in "Memo to Designers" 4-2. The plotting of support locations should be made prior to requesting a final foundation review.

2) At Abutments 1 and 4 support locations, "H" piles are to be driven with lugs installed. Lug details are to be shown on the contract plans. Refer to the Bridge Construction Records and Procedures Manual, Bridge Construction Memo 130-5.0 for lug details.

Construction Considerations:

Driven Piles

1) The calculated geotechnical capacity of the "H" piles is based predominantly on end-bearing at Abutments 1 and 4 locations, and skin friction and end-bearing at Bents 2 and 3 locations.

2) At Abutments 1 and 4 support location, driven "H" piles shall have lugs installed to aid in achieving the required nominal resistance in compression, when the pile is driven to the specified pile tip elevation. Lugs shall be installed as specified in the Bridge Construction Records and Procedures Manual, Bridge Construction Memo 130-5.0.

3) Pile acceptance is to be based on Standard Specifications 49-1.08 "Bearing Value and Penetration". At Abutments 1 and 4 support locations, any pile that achieves 1½ times the required nominal resistance in compression, as shown on the contract plans, within 5 feet of the specified pile tip elevation, may be considered satisfactory and cut off with written approval from the engineer. 1½ times the nominal resistance in compression will be 360 kips at Abutments 1 and 4 locations.

4) At Abutments 1 and 4 locations, pre-drilling through the existing fill material will be required prior to driving each "H" pile. All pre-drilling through the existing fill shall be done in accordance with Standard Specification Section 49-1.06 "Pre-drilled Holes" to the corresponding bottom of pre-drilled hole elevation shown in Table 7, below.

Table 7: Pre-drill Hole Elevations

Location	Bottom of Pre-drill Hole Elevations
Abutment 1	40.0 ft.
Abutment 4	40.0ft.

5) Due to the Abutment 4 support location being located very near the contact between the Baypoint Formation sandstone units, and the alluvial deposits of the Sweetwater River drainage, possible variations in the hardness of the material beneath the support location should be expected. Therefore, at the Abutment 4 support location, possible hard and erratic driving of the "H" piles should be anticipated, and the contractor should anticipate potential splicing and/or cutting-off "H" piles in the field.

The recommendations contained in this report are based on specific project information regarding structure type, support locations, and design loads that have been provided by Structure Design, Office of Bridge Design – South 1. If any conceptual changes are made during final project design, the Office of Geotechnical Design-South 2, Design Branch B, should review those changes to determine if these foundation recommendations are still applicable. Any questions regarding the above recommendations should be directed to the attention of Erich Neupert, (916) 227-4565, or Mark DeSalvatore, (916) 227-5391, at the Office of Geotechnical Design-South 2, Branch B.

Prepared by: Date: 6/29/11

Erich Neupert

Erich Neupert, P.G., 8137
Engineering Geologist
Office of Geotechnical Design-South 2
Design Branch B

PROFESSIONAL GEOLOGIST
ERICH NEUPERT
No. 8137
Exp. 2/29/12
STATE OF CALIFORNIA

Supervised by: Date: 6/29/11

Mark DeSalvatore, R.C.E., 039499
Senior Materials & Research Engineer
Office of Geotechnical Design-South 2
Design Branch B

REGISTERED PROFESSIONAL ENGINEER
MARK DeSALVATORE
No. CE039499
Exp. 12/31/11
CIVIL
STATE OF CALIFORNIA

Prepared by: Date: 6/29/11

D. Te-Ming Liao, R.C.E. #59838
Transportation Engineer-Civil
Office of Geotechnical Design-South 2
Design Branch B

REGISTERED PROFESSIONAL ENGINEER
DAVID T-M LIAO
No. C 59838
Exp. 12/31/11
CIVIL
STATE OF CALIFORNIA

cc: R.E. Pending File
John Stayton - Specs & Estimates
Roger Carlin – District 11 (Project Manager)
Art Padilla – District 11 (Materials Engineer)
Abbas Abghari – OGDS-2
Mark Willian – GS Corporate

State of California

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. DOUG DUNRUD
Structure Design
Office of Bridge Design-South 1
Bridge Design Branch 14
MS #9

Attention: Tony Skreslet

Date: June 29, 2011

File: 11-SD-805-PM 6.0
11-2T1811
Proj. ID: 1100020050
Telegraph Cyn. Rd.UC
(Widen)
Br. #57-0635 R/L

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 2 MS #5
Design Branch B

Subject: Foundation Report for Telegraph Canyon Road UC

This report presents the foundation recommendations for the proposed center widening for Telegraph Canyon Road Undercrossing (UC) (Br. No. 57-0635 R/L), and supercedes all previously generated Preliminary Foundation Reports for this structure. The Office of Geotechnical Design-South 2, Design Branch B completed a foundation investigation pursuant to a request by Structure Design, Office of Bridge Design – South 1 for a foundation investigation and recommendations for the proposed widening.

Project Description

The Telegraph Canyon Rd. U.C. is located on I-805 in Chula Vista, and is one of several bridges along I-805 which are proposed to be widened or replaced to accommodate construction of High Occupancy Vehicle (HOV) lanes down the center of the freeway. "As-built" information indicates that a subsurface investigation was performed in August 1966, for the existing bridges. The existing Telegraph Canyon Rd. UC left and right bridges consist of two-span, cast-in-place, pre-stressed concrete, box-girder structures, with end-diaphragm abutments that were constructed in 1971. The existing bridges are supported on spread footings founded on fill material at Abutments 1 and 3, and cast-in-drilled-hole (CIDH) piles at Bent 2 location.

In 1997 a seismic retrofit was completed for the left and right bridges. The retrofit strategy involved column retrofits at the Bent 2 location, and installation of 60 in. diameter CIDH piles at the Abutments 1 and 3 locations. One 60 inch CIDH pile was installed on the right and left sides of each abutment support to resist lateral seismic loading at those locations. No vertical loading was placed on those piles at that time.

From January 2010 through August 2010 an extensive subsurface investigation was conducted for the widening or replacement of several bridges on I-805 in the Chula Vista/National City area. Due to several of the borings being logged prior to the implementation of the 2010 edition of the Caltrans' Soil and Rock Logging Manual, an exception was approved allowing all borings to be logged according to the 2007 edition of Caltrans' Soil and Rock Logging Manual.

The following foundation recommendations for the Telegraph Canyon Road UC are based on subsurface information gathered from borings drilled at the bridge site in March/April 2010, as well as information from "As-built" Log of Test Borings (LOTB's) from 1966. With regards to the current foundation recommendations given in this report, all elevations referenced within this report and shown on the Log of Test Borings (LOTB) sheets are based on the 1988 North American Vertical Datum (NAVD 88). "As-built" elevations have been converted from NGVD 1929 datum to NAVD 1988 datum using a conversion factor of +2.0 ft.

Geology

The foundation investigation completed at the bridge site in March/April 2010 consisted of 2 mud rotary borings (Borings R-10-001 and R-10-002) and one P/S Log in Boring R-10-001.

The bridge site is located in the Peninsular Ranges geomorphic province, in an area of ancient sedimentary marine terraces cut by creeks, which generally flow east to west. The geologic map "Geology of National City, Imperial Beach and Otay Mesa Quadrangles, Southern San Diego Metropolitan Area, California (1977, Kennedy and Tan)" indicates that the site is underlain by the Tertiary San Diego Formation (sandstone part), which is described as a poorly indurated, fine to medium grained sandstone with locally cemented zones.

The 2010 foundation investigation revealed the site is underlain by fill material at Abutments 1 and 3 locations. In boring R-10-002, drilled in the freeway median just south of the existing Abutment 1 location, the fill material is approximately 39 ft. thick, extending down to about elevation 219.0 ft, and consists of a medium dense silty-sand. Below the freeway fill material is what is considered original ground consisting of a loose, clayey sand with trace fine gravels, extending down to about elevation 215.0 ft, where sedimentary formational material was encountered. The sedimentary formational material consists of a fine grained, slightly weathered, very soft to soft, poorly indurated sandstone.

In boring R-10-001, drilled in the freeway median just north of the existing Abutment 3 location, the fill material is approximately 48 ft. thick, extending down to about elevation 206.0 ft, and consists of a medium dense to dense silty-sand, with some fine gravels. Below the freeway fill material is what is considered original ground consisting of a very stiff, lean clay with sand, with trace fine gravels, extending down to about elevation 184.0 ft, where sedimentary formational material was encountered. The sedimentary formational material consists of a fine grained, slightly weathered, very soft, poorly indurated sandstone, with scattered hard beds.

"As-built" Log of Test Borings from a 1966 subsurface investigation, show that two soil borings were drilled at the Bent 2 location for the left and right bridges. Those borings generally show that the Bent 2 locations are underlain by silty fine to medium sand with some gravels to approximate elevation 188.0 feet. Below that is a material described as a dense to very dense, poorly sorted, fine to medium sand, with some gravels. Based on the high blow counts, this material is considered to be the sedimentary formational material encountered in the borings drilled in the 2010 investigation.

For site-specific soils and sedimentary formation descriptions from the 2010 foundation investigation, refer to the LOTB sheets for the proposed widening.

Ground Water

At the proposed bridge site, ground water was attempted to be measured in Boring R-10-001 on May 4, 2010. No ground water was encountered in that boring. Boring R-10-002 was backfilled immediately after drilling and no attempt to measure ground water was made in that boring. Additionally, no ground water is shown on "as-built" LOTB's from the 1966 subsurface investigation.

Scour Potential

The original creek which flowed through Telegraph Canyon has been diverted to a concrete-lined channel and flows through a large concrete culvert beneath the bridge site. Therefore, scour is not an issue at the site.

Corrosion

Corrosion test results for soil samples collected from boring R-10-001 are shown below in Table 1. Based on current Caltrans' standards, the site is considered to be non-corrosive.

Table 1 – Corrosion Test Summary

Location	pH	Minimum Resistivity (Ohm-Cm)	Sulfate Content (ppm)	Chloride Content (ppm)
Boring R-10-001 (Elev. 253.9 – 192.4 ft)	7.48	990	77	260

Note: Caltrans currently defines a corrosive environment as an area where the soil has either a chloride concentration of 500 ppm or greater, a sulfate concentration of 2000 ppm or greater, or has a pH of 5.5 or less. With the exception of MSE walls, soil and water are not tested for chlorides and sulfates if the minimum resistivity is greater than 1,000 ohm-cm.

Fault and Seismic Data

The structure site is potentially subject to strong ground motions from nearby earthquake sources during the design life of the new structure. The Office of Geotechnical Design-South 2 has provided Final Seismic Design Recommendations in a memorandum dated May 30, 2011. The controlling fault for the site is the Newport-Inglewood-Rose Canyon Fault (Fault ID 423, M_{max}=7.5, strike-slip, dip=90°) located about 5.6 miles southwest of the bridge site. The peak horizontal bedrock acceleration (PBA) at the site is estimated at 0.3g.

A memorandum, dated January 19, 2010, by the Office of Geotechnical Support, discusses fault rupture hazards for several bridges on the I-805 south corridor. The memorandum states that the La Nacion fault zone is within 200 feet, and must be considered to pass beneath Telegraph Canyon Road UC, without further work being done. The La Nacion fault zone is not considered active by Caltrans' criteria, however other references have suggested some fault traces may have been active more recently, and capable of secondary fault rupture or creep, but not likely

primary fault movement. The memorandum concludes that expected displacement, if the fault is active, would be small, and would be approximately 4 inches or less.

Liquefaction Potential

Final Seismic Design Recommendations, dated May 30, 2011, state due to the dense nature of the underlying sedimentary formational material, and deep ground water elevation, the potential for soil liquefaction due to strong ground shaking is considered low at the proposed bridge site.

Foundation Recommendations

The following recommendations are for the proposed center widening for the Telegraph Canyon Road UC (Br. No. 57-0635 R/L), as shown on the General Plan dated May 26, 2011. At Abutments 1 and 3 locations, the abutment footings are proposed to be built integral with the existing 60 in. diameter CIDH piles located on the inside of the left and right bridges. At the Bent 2 location, HP 14x89 driven steel "H" piles may be used for support.

Abutments 1 and 3 Locations

At Abutments 1 and 3 locations, it is proposed to carry the vertical load of the widening by drilling and bonding into the existing 60 in. diameter CIDH piles, located on the inside of the left and right bridges. Utilizing the "as-built" pile cut-off and pile tip elevations of the CIDH piles, an analysis was conducted to determine their ultimate geotechnical capacity in compression. The analysis determined that the 60 in. diameter piles located at Abutment 1, of the left and right bridges, have an ultimate geotechnical capacity (nominal resistance in compression) of 1,300 kips, and the piles located at Abutment 3, of the left and right bridges, have an ultimate geotechnical capacity (nominal resistance in compression) of 1,100 kips. The required nominal resistance in compression per pile, provided by the structure designer, is 1020 kips, at the Abutment 1 location, and 880 kips at the Abutment 3 locations. The calculated ultimate geotechnical capacity (nominal resistance in compression) of the existing 60 in. CIDH piles exceeds the required nominal resistance in compression, therefore, the existing 60 in. CIDH piles will be adequate to support the load from the proposed widening.

Tables 2, below, presents "as-built" information, and information regarding the load from the widening which will be transferred to the existing 60 in. CIDH piles, provided by the structure designer.

Table 2:
Abutments 1 and 3 "As-built" Information, and
Loads to be Transferred to Existing 60 in. CIDH Piles

Support Location	Design Method	Pile Type	Pile Cut-off Elevation (From "As-built" Plans)	Pile Tip Elevation (From "As-built" Plans)	Permissible Settlement Under Service Load	Number of Piles per Support	LRFD Service I Limit State	
							Total Load	Permanent Load
							Max Per 60" CIDH Pile	Per 60" CIDH Pile
Abutment 1	WSD	60" CIDH	243.0 ft	196.0 ft	1.0 in	2	506 kips	340 kips
Abutment 3	WSD	60" CIDH	239.0 ft	192.0 ft.	1.0 in	2	431 kips	276 kips

Table 3, below, presents the controlling design loads, required nominal resistances in compression, as well as the calculated ultimate geotechnical capacities (nominal resistances in compression) of the existing 60 in. CIDH piles.

Table 3: Abutments 1 and 3 Controlling Design Loads,
Nominal Resistances in Compression, and Calculated Ultimate Geotechnical Capacities
for Existing 60 in. CIDH Piles

Support Location	Pile Type	LRFD Service-I Limit State Total Load per Pile (Compression)	Required Nominal Resistance	Ultimate Geotechnical Capacity of 60" CIDH Piles
Abutment 1	60" CIDH	510 kips	1020 kips	1300 kips
Abutment 4	60" CIDH	440 kips	880 kips	1100 kips

Bent 2 Location

At the Bent 2 location, HP 14x89 driven steel "H" piles, may be used for support. Tables 4 and 5, below, show the foundation design information provided by the structure designer.

Table 4: General Foundation Information Provided by Structure Designer

Support Location	Design Method	Pile Type	Finished Grade Elevation	Pile Cut-off Elevation	Pile Cap Size (ft)		Permissible Settlement Under Service Load	Number of Piles per Support
					B	L		
Bent 2	LRFD	HP 14x89 "H"-Piles	212.0 ft	205.0 ft	16.0	16.0	1 in	25

Table 5: Foundation Design Loads Provided by Structure Designer

Support Location	Service 1 Limit State			Strength Limit State (Controlling Group)				Extreme Event Limit State (Controlling Group)			
	Total Loads		Permanent Loads	Compression		Tension		Compression		Tension	
	Per Support	Max Per Pile	Per Support	Per Support	Max Per Pile	Per Support	Max Per Pile	Per Support	Max Per Pile	Per Support	Max Per Pile
Bent 2	2088 kips	N/A	1653 kips	2949 kips	269 kips	1654 kips	46 kips	1580 kips	326 kips	1580 kips	182 kips

The specified pile tip elevations for Bent 2 "H"piles are shown below in Table 6.

Table 6: Foundation Design Recommendations for Bent 2

Support Location	Pile Type	Cut-Off Elevation	Service-I Limit State Load per Support	Total Permissible Support Settlement	Required Nominal Resistance				Design Tip Elevation	Specified Tip Elevation
					Strength Limit		Extreme Event			
					Comp. (φ=0.7)	Tension (φ=0.7)	Comp. (φ=1)	Tension (φ=1)		
Bent 2	HP 14x89 "H"-Piles	205.0 ft	2090 kips	1 in	390 kips	70 kips	330 kips	190 kips	167.0 ft (a-I) 172.0 ft (b-II)	167.0 ft

Note: Design tip elevations are controlled by (a-1) Compression (Strength Limit), (b-II) Tension (Extreme Event)

The Pile Data Table for Bent 2 is presented in Table 7, below. The ultimate geotechnical pile capacity for the "H" piles will meet or exceed the required nominal resistance in compression.

Table 7: Pile Data Table

Support Location	Pile Type	Required Nominal Resistance		Design Tip Elevation	Specified Tip Elevation
		Compression	Tension		
Bent 2	HP 14x89 "H"-Piles	390 kips	190 kips	167.0 ft (a) 172.0 ft (b)	167.0 ft

Notes: 1) Design tip elevation is controlled by: (a) Compression, (b) Tension

General Notes:

1) All support locations are to be plotted in plan view on the Log of Test Borings as stated in "Memo to Designers" 4-2. The plotting of support locations should be made prior to requesting a final foundation review.

Construction Considerations:

Driven Piles

1) The calculated geotechnical capacity of the "H" piles is based predominantly on skin friction.

2) Pile acceptance is to be based on Standard Specifications 49-1.08 "Bearing Value and Penetration". At the Bent 2 location, any pile that achieves 1½ times the required nominal resistance in compression, as shown on the contract plans, within 5 feet of the specified pile tip elevation, may be considered satisfactory and cut off with written approval from the engineer. 1½ times the nominal resistance in compression will be 585 kips at the Bent 2 location.

The recommendations contained in this report are based on specific project information regarding structure type, support locations, and design loads that have been provided by Structure Design, Office of Bridge Design – South 1. If any conceptual changes are made during final project design, the Office of Geotechnical Design-South 2, Design Branch B, should review those changes to determine if these foundation recommendations are still applicable. Any questions regarding the above recommendations should be directed to the attention of Erich Neupert, (916) 227-4565, or Mark DeSalvatore, (916) 227-5391, at the Office of Geotechnical Design-South 2, Branch B.

Prepared by: Date: 6/29/11

Erich Neupert

Erich Neupert, P.G., 8137
Engineering Geologist
Office of Geotechnical Design-South 2
Design Branch B

PROFESSIONAL GEOLOGIST
ERICH NEUPERT
No. 8137
Exp. 2/29/12
STATE OF CALIFORNIA

Supervised by: Date: 6/29/11

Mark DeSalvatore, R.C.E., 039499
Senior Materials & Research Engineer
Office of Geotechnical Design-South 2
Design Branch B

REGISTERED PROFESSIONAL ENGINEER
MARK DeSALVATORE
No. CE039499
Exp. 12/31/11
CIVIL
STATE OF CALIFORNIA

Prepared by: Date: 6/29/11

D. Te-Ming Liao, R.C.E. #59838
Transportation Engineer-Civil
Office of Geotechnical Design-South 2
Design Branch B

REGISTERED PROFESSIONAL ENGINEER
DAVID T-M LIAO
No. C 59838
Exp. 12/31/11
CIVIL
STATE OF CALIFORNIA

cc: R.E. Pending File
John Stayton - Specs & Estimates
Roger Carlin – District 11 (Project Manager)
Art Padilla – District 11 (Materials Engineer)
Abbas Abghari – OGDS-2
Mark Willian – GS Corporate

CALIFORNIA DEPARTMENT OF TRANSPORTATION

FOUNDATION REPORT

Type 1 Retaining Wall, I-805 Median
San Diego County, California

11-SD-805
PM 5.4/9.4
11-081610

April 2010

Prepared By:

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

State of California

Business, Transportation and Housing Agency

Memorandum

To: Waldo R Lopez
Project Engineer

Date: June 14, 2010

File: 11-081610
11-SD-805
PM 5.4/9.4

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 2

Subject: Foundation Report for Retaining Walls 375, 389, and 410 at Interstate-805 HOV South Segment

Pursuant to your request, the Office of Geotechnical Design-South 2 (OGDS2) has prepared this foundation report for three proposed retaining walls at I-805. This report defines the geotechnical conditions as evaluated from field and laboratory test data and used in the development of the geotechnical design. It provides recommendations and specifications for project design and construction.

OGDS2 staff will be available for further assistance. Should you have any questions or comments regarding this report, please contact Ali Lari at (858) 467-6922.

REGISTERED PROFESSIONAL ENGINEER
ALI LARI
No. C65846
Exp. 12-31-05
CIVIL
STATE OF CALIFORNIA

Ali Lari
Transportation Engineer (Civil)
Office of Geotechnical Design - South 2

Attachments

cc: Abbas Abghari
Brian Hinman BH
Roger Carlin
Waldo Lopez (RE Pending File)
Mark Willian
Leon Edmonds
Art Padilla
File

1.0 INTRODUCTION

This report has been prepared by the Office of Geotechnical Design-South 2 (OGDS2) to address the geotechnical design considerations for three proposed Type 1 retaining walls. The retaining walls will be constructed within the I-805 freeway median between the "J" St. OC bridge and the Bonita Road UC bridge (PM 5.4/9.4), in the City of Chula Vista, San Diego County, California. Within the project area the freeway median has a maximum grade difference of about 10 feet between N/B and S/B lanes. According to Typical Cross Sections the walls will be located in cut along the western perimeter of the southbound median. The walls will support a Type 736A concrete barrier. The maximum height of the walls will be 10 feet and the combined length of the walls will be about one mile.

The walls will be located as follows;

-Retaining Wall 375: from Station 375+22 to 388+00.

-Retaining Wall 389: from Station 389+50 to 407+50

-Retaining Wall 410: from Station 411+34 to 433+70.

The geotechnical investigation for the project included: site reconnaissance, research of archived resources, subsurface exploration, laboratory testing, and data analysis. Caltrans Drilling Services and OGDS2 staff performed the field exploration and soil sampling.

The purpose of this report is to document subsurface geotechnical conditions, provide analyses of anticipated site conditions as they pertain to the project described herein, and to recommend design and construction criteria for the project. This report also establishes a geotechnical baseline to be used in assessing the existence and scope of any changed site conditions.

This report is intended for use by, the project design engineer, construction personnel, bidders and contractors.

2.0 SUBSURFACE INVESTIGATION AND LABORATORY TESTING

A total of six exploratory borings A-10-001 through A-10-006 were drilled between 04/27/2010 and 05/04/2010 along the southbound median shoulder of the freeway close to the approximate location of the proposed retaining walls. The approximate boring locations are shown on Attachment 1. The soil borings were advanced into the ground up to a depth of 36.5 feet. Standard Penetration Tests (SPT) were performed at 5-foot intervals in order to obtain soil samples and blow count data (N-Values) for further analysis. Soil samples were visually classified in the field. Laboratory testing of soil samples for corrosion potential was conducted. Descriptions of the subsurface soils encountered as well as stations and offsets of the boring locations are presented in the attached boring records.

3.0 PERTINENT REPORTS AND ARCHIVED REVIEW

The following documents were used in preparation of this report:

1- Preliminary Geotechnical Report, Interstate 805 Managed Lanes, South Project-Unit2, prepared by URS Corporation, dated December 16, 2008.

2- Log Of Test Borings for "H" Street Overcrossing, prepared by Caltrans Bridge Department, dated April 23, 1973.

3- As-built plans and profiles for I-805, Construct 8-lane freeway between Palomar Street and Sweetwater River, Prepared by Caltrans District-11 Design, dated April 23, 1973.

4 SITE GEOLOGY AND SUBSURFACE CONDITIONS

Along the alignment of the retaining walls the freeway profile descends mildly to the north with elevations ranging from a high of 230 feet to a low of 81 feet. The roadway subgrade is native sedimentary soil to the south and valley fill to the north. The approximate transition from cut to fill occurs near Station 399+00. Review of the as-built profile plans of the project area indicates that the depths of the roadway fills required to achieve design grade elevations ranged from 30 to 55 feet. The native sedimentary soil is comprised of dense to very dense poorly graded sand and soft sandstone consistent with the San Diego Formation. The fill soils are comprised of medium dense silty sand to poorly graded sand with scattered gravel and appeared to have been placed as an engineered fill.

5 GROUND WATER

The ground water table is located at a significant depth below the proposed retaining wall foundations and consequently it is not anticipated to impact the project. No perched ground water was encountered during the field investigation.

6 CORROSION EVALUATION

The corrosion potential of the on-site materials were evaluated based on corrosivity tests performed on selected samples obtained from the borings. A total of five minimum resistivity tests and five PH tests were made. The test result presented in Table 1 below:

Table 1: Soil Corrosion Data Table

Location (Bring Number)	SIC No.	Minimum Resistivity (Ohm-Cm)	pH	Chloride Content (ppm)	Sulfate Content (ppm)
A-10-001	C692496	1652	7.89		
A-10-003	C692497	2607	8.23		
A-10-004	C692498	3200	8.34		
A-10-005	C692499	2370	8.38		
A-10-006	C692500	1659	8.27		

Note: Caltrans currently considers a site to be corrosive to foundation elements if one or more of the following conditions exist: Chloride concentration is greater than or equal to 500 ppm, sulfate concentration is greater than or equal to 2000 ppm, or the pH is 5.5 or less.

The test results indicate that the on-site subsurface materials are not corrosive.

Corrosion test summary report is attached.

7 FOUNDATION RECOMMENDATIONS

1- The proposed walls will be supported on either existing engineered fill or the San Diego Formation. The San Diego Formation exhibited higher N-values than existing fill. For the purpose of a conservative analysis, the N-values of the fill were utilized in estimating allowable soil bearing capacity. The fill soils have an average N-value of at least 22 blows per foot indicating an allowable bearing capacity of about 4800 pounds per square foot. The Caltrans Standard Plans show that a 10-foot high wall will impose a maximum toe pressure of 2500 pounds per square foot. It is our conclusion that a standard Type 1 retaining wall of about 10-foot height is suitable for use at this site.

2- Temporary cuts required for the construction of the walls will be about 10 feet high. It is anticipated that the cuts will be made in median dense sand and silty sand. The inclination of temporary cuts shall not be steeper than 1:1.

3- Occasional zones of loose material may be encountered at footing elevation. Remedial grading of foundation subgrade may be required; however, the need for such treatment is anticipated to be minimal. OGDS personnel will be available during project construction to review field conditions and provide recommendations as needed.

8.0 DIFFERING SITE CONDITIONS

The recommendations contained in this report are based on specific project information regarding structure type and location that have been provided by District 11 Design. If any conceptual changes are made during final project design or if site conditions are encountered during construction that are believed to differ from those conveyed in this report, the OGDS2 should review the project to provide appropriate recommendations. Any questions regarding the above recommendations should be directed to the attention of Ali Lari, (858) 467-6922 or Brian Hinman, (585) 467-4051 at OGDS2.

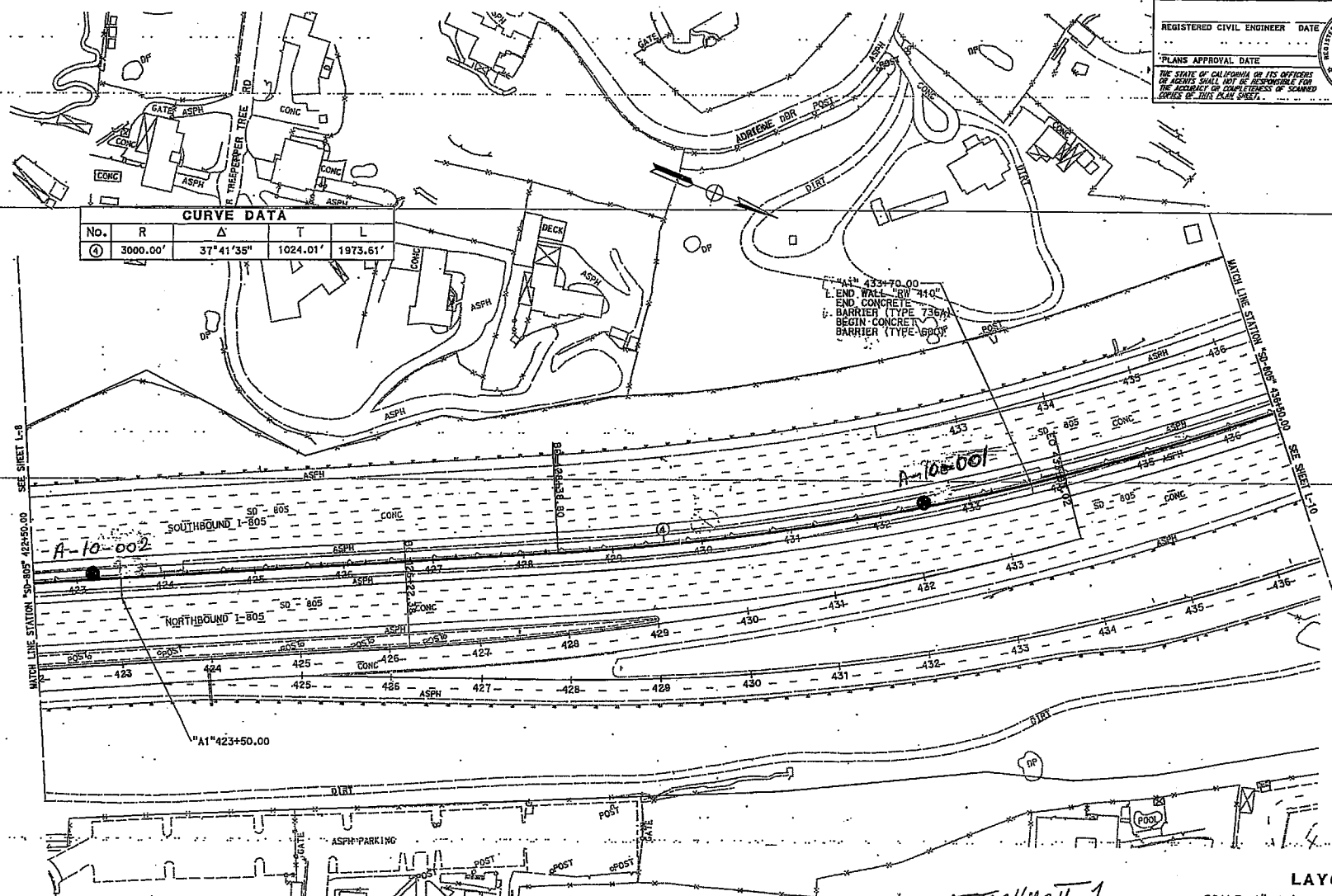
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	805	5.4/9.4		

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 W R LOPEZ No. C58085 Exp. 6-30-10 CIVIL STATE OF CALIFORNIA



ATTACHMENT 1

LAYOUT
SCALE: 1"=50' L-9

STATE OF CALIFORNIA – DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR: R. CARLIN
CALCULATED-DESIGNED BY: WALDO R. LOPEZ
CHECKED BY: WALDO R. LOPEZ
REVISED BY
DATE REVISED

03-24-10
DATE PLOTTED => 24-MAR-2010
TIME PLOTTED => 14:31

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => s129110
DGN FILE => b211181ec009.dgn
CU 11276
EA 2T1811

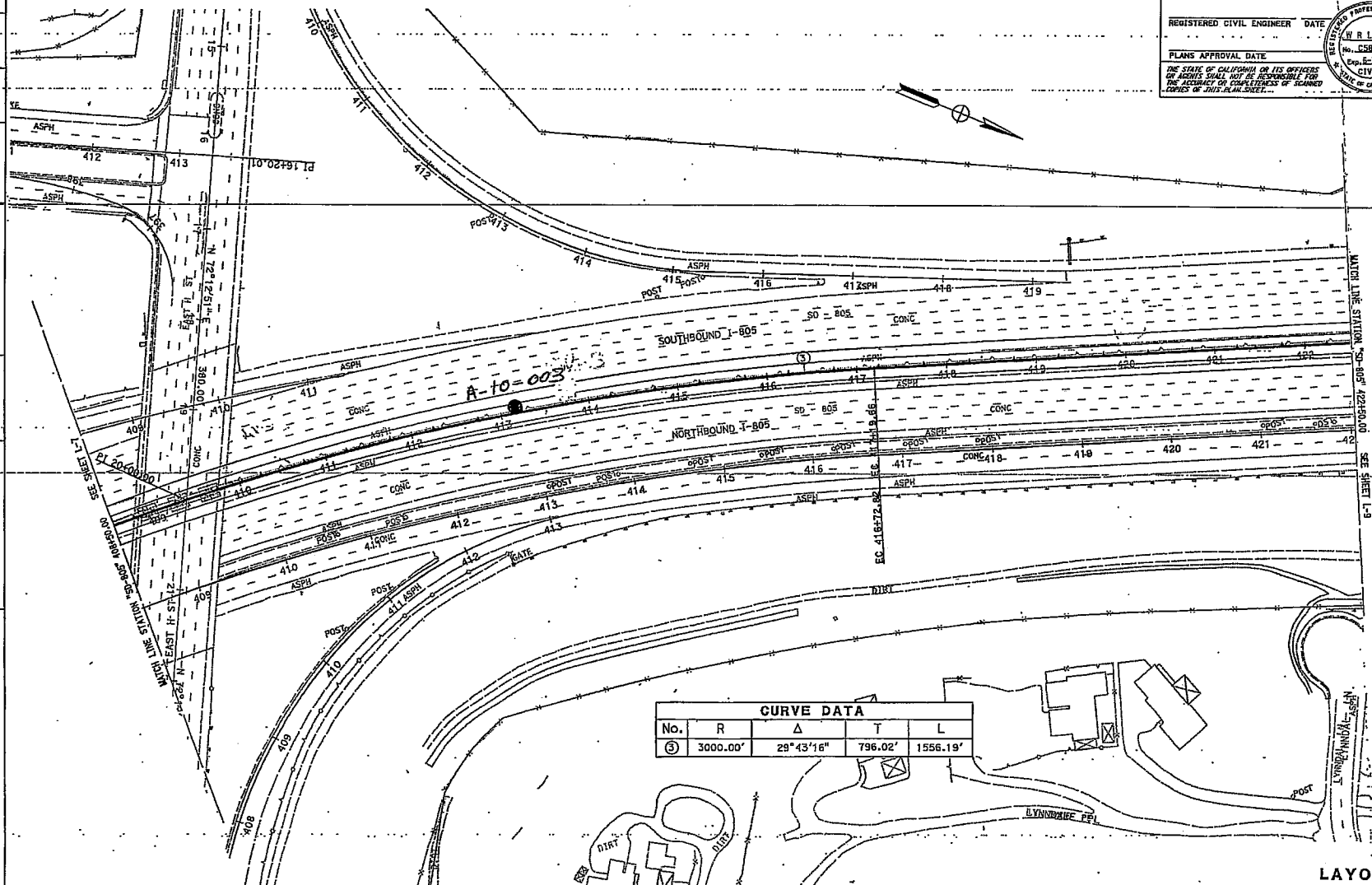
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	805	5.4/9.4		

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 W R LOPEZ No. C58085 Exp. 6-30-10 CIVIL STATE OF CALIFORNIA



CURVE DATA				
No.	R	Δ	T	L
3	3000.00'	29°43'16"	796.02'	1556.19'

ATTACHMENT 1

LAYOUT

SCALE: 1"=50'

L-8

STATE OF CALIFORNIA – DEPARTMENT OF TRANSPORTATION

Caltrans PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR: R. CARLIN

CALCULATED-DESIGNED BY: WALDO R. LOPEZ

CHECKED BY: WALDO R. LOPEZ

REVISED BY

DATE REVISED

LAST REVISION 03-24-10 DATE PLOTTED => 24-MAR-2010 TIME PLOTTED => 14:51

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => s123110 DGN FILE => b2f181ao008.dgn

CU 11276

EA 2T1811

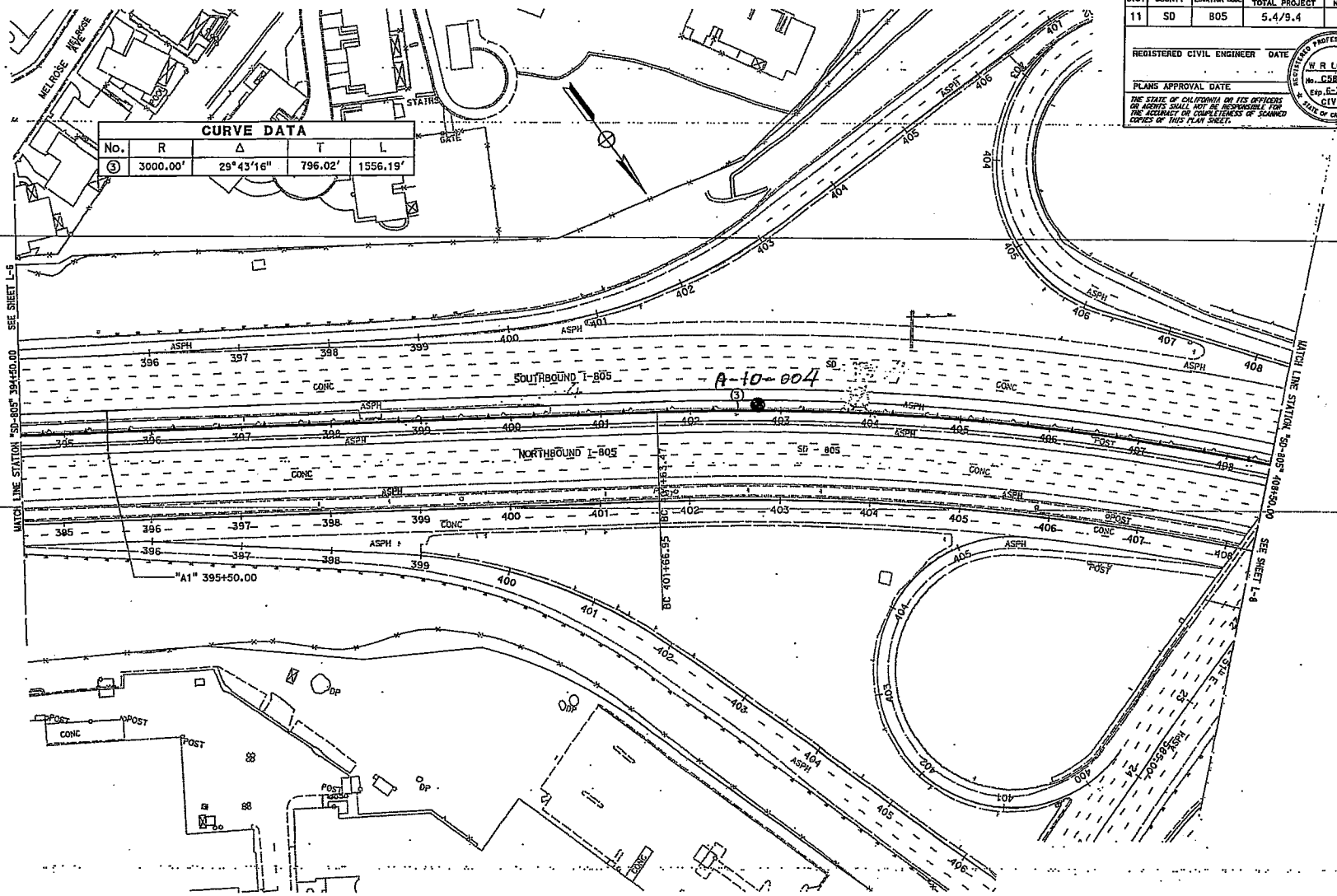
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	805	5.4/9.4		

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 W R LOPEZ No. C58085 Exp. 6-30-10 CIVIL STATE OF CALIFORNIA



CURVE DATA				
No.	R	Δ	T	L
3	3000.00'	29°43'16"	796.02'	1556.19'

ATTACHMENT 1

LAYOUT L-7

SCALE: 1"=50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR: R. CARLIN

CALCULATED-DESIGNED BY: WALDO R. LOPEZ

CHECKED BY: WALDO R. LOPEZ

REVISED BY

DATE REVISED

LAST REVISION 03-24-10

DATE PLOTTED => 24-MAR-2010

TIME PLOTTED => 14:50

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => s129110

DGN FILE => b2t181ea007.dgn

CU 11276

EA 2T1811

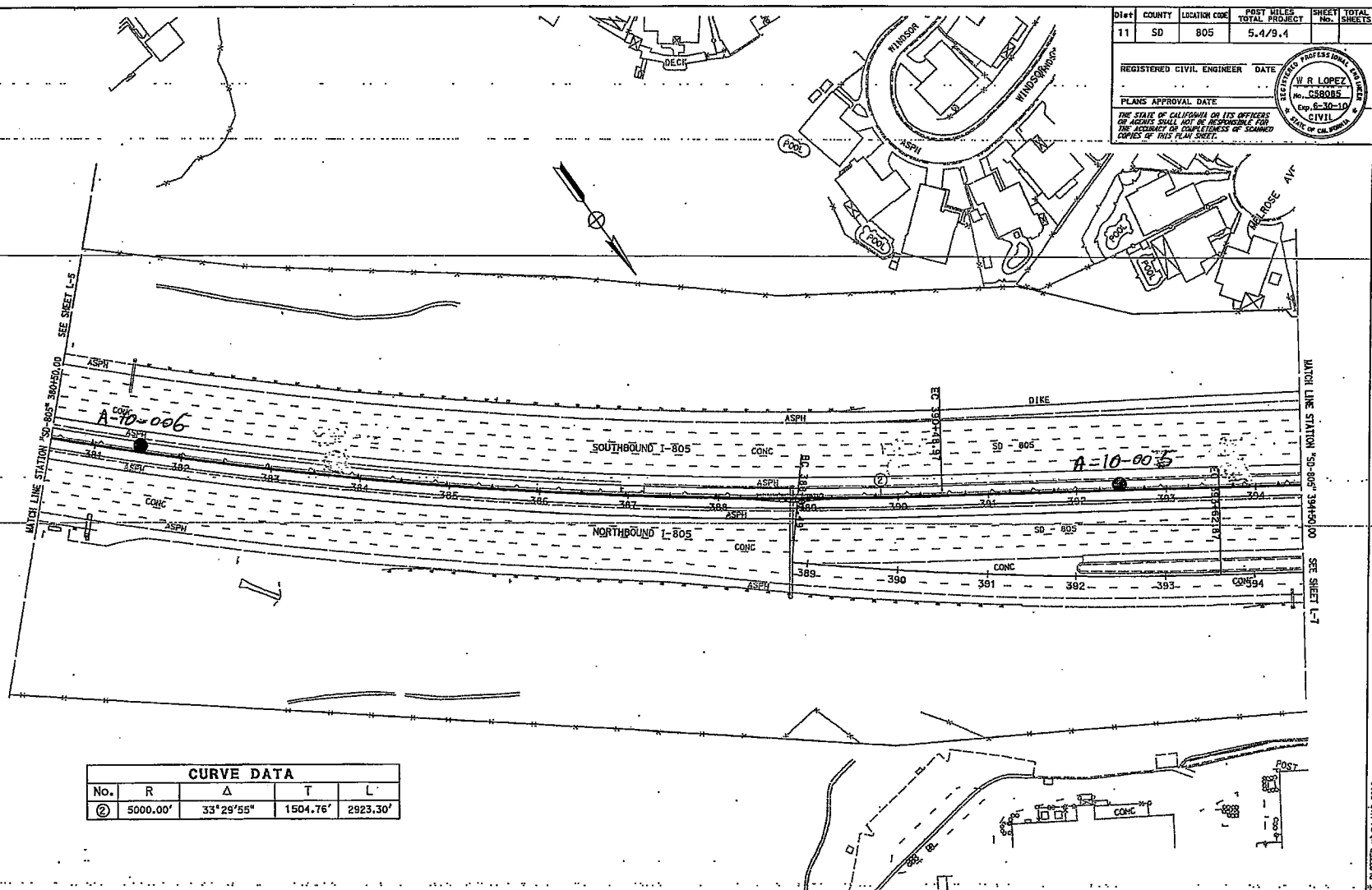
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	805	5.4/9.4		

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 W R LOPEZ No. C58085 Exp. 6-30-10 CIVIL STATE OF CALIFORNIA



CURVE DATA				
No.	R	Δ	T	L
2	5000.00'	33°29'55"	1504.76'	2923.30'

ATTACHMENT 1

LAYOUT L-6

SCALE: 1"=50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR: R. CARLIN

CALCULATED-DESIGNED BY: WALDO R. LOPEZ

CHECKED BY: WALDO R. LOPEZ

REVISED BY

DATE REVISED

LAST REVISION 03-24-10

DATE PLOTTED => 24-MAR-2010

TIME PLOTTED => 14:50

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => s129110

DGN FILE => b2t181ea006.dgn

CU 11276

EA 2T1811

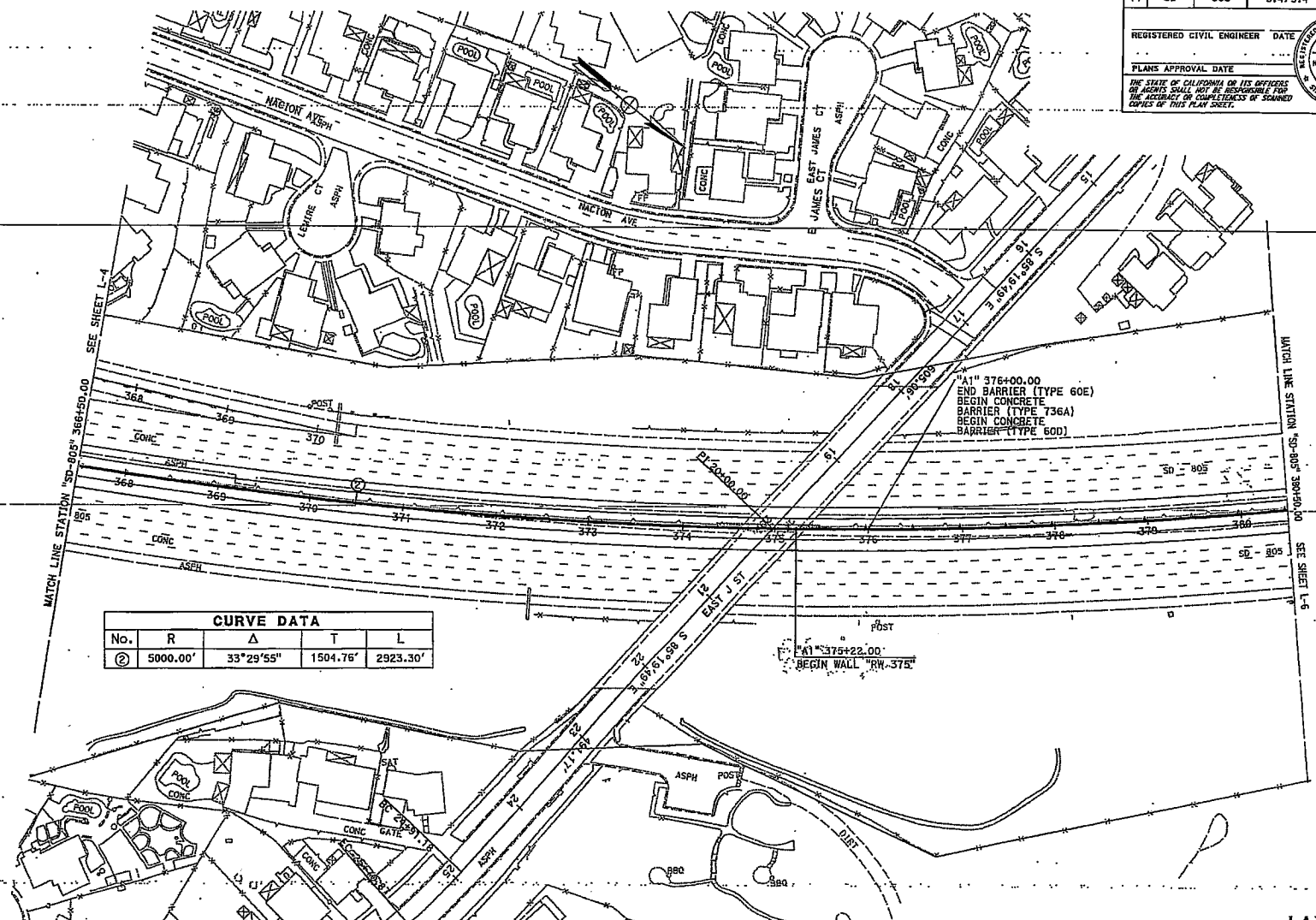
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	805	5.4/9.4		

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 W R LOPEZ No. C58085 Exp. 6-30-10 CIVIL STATE OF CALIFORNIA



CURVE DATA				
No.	R	Δ	T	L
②	5000.00′	33°29′55″	1504.76′	2923.30′

ATTACHMENT 1

SCALE: 1"=50′

LAYOUT L-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR: R. CARLIN

CALCULATED-DESIGNED BY: WALDO R. LOPEZ

CHECKED BY: WALDO R. LOPEZ

REVISED BY

DATE REVISED

LAST REVISION DATE PLOTTED => 24-MAR-2010 TIME PLOTTED => 1415D 03-24-10

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => s128110 DGN FILE => b2t1811ea005.dgn

CU 11276

EA 2T1811

AERIALLY DEPOSITED LEAD SURVEY REPORT INTERSTATE 805 HOV, GENERAL USE, AU LANES BETWEEN PALOMAR STREET OVER CROSSING AND LANDIS STREET OVER CROSSING ALONG I-805

CALTRANS EA 11-081610

Project: 115813

May 27, 2011

Copyright 2011 Kleinfelder
All Rights Reserved

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

Copyright 2011 Kleinfelder

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

AERIALLY DEPOSITED LEAD SURVEY REPORT
INTERSTATE 805 HOV, GENERAL USE, AUX LANES BETWEEN
PALOMAR STREET OVER CROSSING AND
LANDIS STREET OVER CROSSING ALONG I-805
CALTRANS EA 11-081610

Kleinfelder Project No. 115813

Prepared by:

Meghan Hearne
Staff Geologist

Reviewed by:

Lizanne Simmons, P.G. 7431
Principal Geologist

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

PROFESSIONAL GEOLOGIST
ELIZABETH ANNE SIMMONS
No. 7431
Exp. 8-31-11
STATE OF CALIFORNIA

May 27, 2011

Copyright 2011 Kleinfelder

TABLE OF CONTENTS

Section **Page**

1 INTRODUCTION 1
1.1 PROJECT DESCRIPTION 1
1.2 PROJECT OBJECTIVES AND SCOPE OF WORK 1
1.3 REPORT ORGANIZATION 3
2 BACKGROUND 4
2.1 SITE IMPROVEMENTS 4
2.2 WASTE CLASSIFICATION, ADL VARIANCE, AND SOIL REUSE CRITERIA 4
3 SAMPLING ACTIVITIES 7
3.1 PRE-FIELD ACTIVITIES 7
3.2 ADL SAMPLING LOCATIONS AND GPS SURVEY 8
3.3 HAND AUGER DRILLING AND SOIL SAMPLING METHODS 9
3.4 EQUIPMENT BLANKS 9
3.5 ANALYTICAL METHODS 9
3.6 DECONTAMINATION AND BORING ABANDONMENT 10
4 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS 11
4.1 SITE CONDITIONS 11
4.2 SOIL SAMPLE RESULTS 11
4.2.1 Total Lead 11
4.2.2 California WET Soluble Lead 12
4.2.3 DI-WET Soluble Lead 12
4.2.4 TCLP Soluble Lead 12
4.2.5 Hydrogen Ion Concentration 12
4.3 DATA QUALITY ASSESSMENT 13
5 STATISTICAL EVALUATION 15
6 CONCLUSIONS AND RECOMMENDATIONS 18
6.1 VARIANCE CONCLUSIONS 18
6.2 WASTE CHARACTERIZATION CONCLUSIONS 18
6.3 RECOMMENDATIONS 19
7 LIMITATIONS 20
8 REFERENCES 22

PLATES

Plate 1 Site Location Map
Plates 2 – 14 Sample Location Maps
Plate 15 ADL-Impacted Soils Management Flow Chart

TABLES

Table 1 Soil Analytical Results Summary
Table 2A Summary of the 95 Percent Upper Confidence Limits
Table 2B Summary of Mean Values
Table 3 ADL Soil Management Types (In Text, Page 18)

Copyright 2011 Kleinfelder

APPENDICES

Appendix A Sample Location Coordinates (Table A-1)
Appendix B Laboratory Analytical Reports and Chain-of-Custody Documentation
Appendix C Statistical Data Evaluation

Copyright 2011 Kleinfelder

1 INTRODUCTION

1.1 PROJECT DESCRIPTION

This report has been prepared to summarize procedures and results of an Aerially Deposited Lead (ADL) survey conducted along Interstate 805 (I-805) in the Cities of San Diego and Chula Vista, California for the State of California Department of Transportation (Caltrans). Caltrans is proposing to construct High Occupancy Vehicle (HOV)/Bus Rapid Transit (BRT) lanes along I-805 between 0.32 mile south of Palomar Street over crossing (OC) and Landis Street OC (Site/Project). It is anticipated that the Project will result in the reconstruction of existing interchanges and improvement of existing connectors. Major work will require removal, replacement, and widening of bridge overcrossings. The Project limits are in the Cities of San Diego and Chula Vista, San Diego County, California (Plate 1). This work was performed for Caltrans, consistent with Contract No. EA-11-081610, Task Order No. 19 (TO19). This report summarizes soil sampling for ADL conducted during February and March 2011 in the unpaved shoulders and median areas along I-805 from 0.32 mile south of the Palomar Street OC to the Landis Street OC (Site, Plates 2 through 14).

1.2 PROJECT OBJECTIVES AND SCOPE OF WORK

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

The objective of the ADL study was to provide data for evaluation to allow for management of ADL-impacted soils associated with a Caltrans project based on project design information known at this time. Samples were collected to provide information about lead containing soils along the freeway medians and unpaved shoulders (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).

Copyright 2011 Kleinfelder

This report describes the procedures, results, and recommendations from the ADL study performed within the project limits. The scope of work was provided to Kleinfelder by Caltrans in the Task Order description. Consistent with the Task Order, and as described in the *Aerially Deposited Lead Survey Work Plan* (Kleinfelder, 2011a), Kleinfelder performed the tasks listed below:

- Provided project management and coordination.
- Prepared a Site-specific work plan and prepared a Site-specific health and safety plan (SSHSP) (Kleinfelder, 2011b).
- Coordinated traffic control for median closure, as necessary.
- Advanced 240 borings using hand auger methods, to a depth of approximately 3 feet below ground surface (bgs) or until refusal. Three soil samples were collected from each hand auger boring that was advanced to 3 feet bgs. Shallower borings meeting refusal had fewer samples collected.
- Obtained global positioning system (GPS) location readings at each boring location.
- Submitted 684 soil samples (including 36 field duplicate samples) to Calscience Environmental Laboratories, Inc. (Calscience) of Garden Grove, a state-certified laboratory, for analysis of total lead by United States Environmental Protection Agency (U.S. EPA) Method 6010B.
- Analyzed 684 soil samples, including 36 duplicate samples, for Soluble Threshold Limit Concentration (STLC), or leachable lead, using the California waste extraction test (WET) method.
- Analyzed 91 soil samples, including 8 duplicate samples for STLC by the modified WET method using deionized (DI) water as the extractant.
- Analyzed 50 soil samples, including 4 duplicate samples, for leachable lead by the Toxicity Characteristic Leaching Procedure (TCLP).
- Analyzed 174 soil samples, including 6 duplicate samples for hydrogen ion index (pH) by U.S. EPA Method 9045C.
- Collected and analyzed 21 equipment blanks for total lead by U.S. EPA Method 6010B. Equipment blanks were collected each day of soil sampling. One equipment blank was collected for each hand auger used during each day of sampling.

Copyright 2011 Kleinfelder

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

1.3 REPORT ORGANIZATION

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

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

Copyright 2011 Kleinfelder

2 BACKGROUND

2.1 SITE IMPROVEMENTS

Improvements are planned for unpaved shoulders and median areas along I-805 between 0.32 mile south of Palomar Street OC and Landis Street OC. Major elements of the project include (but are not limited to):

- Addition of HOV/BRT lanes
- Reconstruction of existing interchanges;
- Improvement of existing connectors; and
- Removal, replacement, and relocation of bridge overcrossings.

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

2.2 WASTE CLASSIFICATION, ADL VARIANCE, AND SOIL REUSE CRITERIA

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

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

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

Solid wastes with soluble lead concentrations (assessed using California WET procedures) equal to or exceeding 5.0 milligrams per liter (mg/L), the STLC, are

Copyright 2011 Kleinfelder

classified as California hazardous under California law. California hazardous materials must be transported under a hazardous waste manifest and disposed of at an appropriately permitted facility. Wastes with lead concentrations less than both the TTLC and the STLC are not a California hazardous waste, and may be disposed of at a Class II or III facility, provided that site-specific disposal facility requirements are satisfied. Furthermore, according to federal law, as stipulated in the Resource Conservation and Recovery Act (RCRA), wastes that exceed 5.0 mg/L soluble lead, extracted using the federal TCLP, are classified as RCRA hazardous waste. This material must be disposed of as RCRA hazardous waste if transported off Site.

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

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

Copyright 2011 Kleinfelder

roadway. "Lead-contaminated" soil with a pH at or less than 5.0 shall be managed as hazardous waste.

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

The information described above is summarized in a soils management flow chart (Plate 15) to evaluate the applicability of the DTSC variance. The flow chart is an updated version of Figure 1 from the *2007 Caltrans ADL Guidance Document* (Caltrans, 2007). Based on information on the flow chart (Plate 15), 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 1.5 mg/L are considered non-hazardous and can be released to the contractor for use in accordance with project specifications.

Copyright 2011 Kleinfelder

3 SAMPLING ACTIVITIES

3.1 PRE-FIELD ACTIVITIES

An encroachment permit was prepared by a representative of Caltrans and submitted on January 12, 2010. The permit (11-11-NSV-0023) was approved February 17, 2011. Prior to the start of work, Caltrans was notified of the planned work on the unpaved shoulders and median of I-805.

Kleinfelder prepared and submitted a work plan (Kleinfelder, 2011a) and a SSHSP (Kleinfelder, 2011b). The health and safety plan was reviewed daily with field personnel for potential hazards, emergency contact information, and hospital routes.

Prior to ground-disturbance activities, Kleinfelder visited each sample point to mark excavation locations with 3-foot lathes and flagging material. Underground Service Alert (USA) was notified 48 hours in advance of subsurface sampling activities. The following twelve (12) ticket numbers were issued by USA:

- **A10490850** (Shoulders and center median on north and southbound I-805 freeway from southbound Interstate 15 (I-15) south to Federal Boulevard);
- **A10490852** (Shoulders and center median on the north and southbound I-805 freeway from Federal Boulevard south to San Diego Trolley tracks, approximately 0.5 mile south of Federal Boulevard);
- **A10490844** (Shoulders and center median on north and southbound I-805 freeway from Swift Avenue south for approximately 1 mile);
- **A10490859** (Shoulders and center median on north and southbound I-805 freeway from San Diego Trolley tracks south to Slola Avenue);
- **A10490862** (Shoulders and center median on north and southbound I-805 freeway from Slola Avenue south to 8th Street);
- **A10490864** (Shoulders and center median on north and southbound I-805 freeway from 8th Street south to 24th Street);
- **A10490866** (Shoulders and center median on north and southbound I-805 freeway from 24th Street south to eastbound 54 freeway);

Copyright 2011 Kleinfelder

- **A10490870** (Shoulders and center median on north and southbound I-805 freeway from eastbound 54 freeway south to Bonita Road);

- **A10490873** (Shoulders and center median on north and southbound I-805 freeway from Bonita Road south for approximately 1 mile to approximately 0.4 mile south of East H Street);

- **A10490876** (Shoulders and center median on north and southbound I-805 freeway from approximately 0.4 mile south of East H Street south to Telegraph Canyon Road;

- **A10490879** (Shoulders and center median on north and southbound I-805 freeway from Telegraph Canyon Road south to East Naples Street); and,

- **A10490881** (Shoulders and center median on north and southbound I-805 freeway from East Naples Street south to approximately 1000 feet south of East Palomar Street).

3.2 ADL SAMPLING LOCATIONS AND GPS SURVEY

Two-hundred and forty (240) sampling locations were selected and spaced approximately 200 to 800 feet apart, based upon accessibility, and/or in select locations at interchanges, along the unpaved shoulders and medians. When possible, for the safety of the field crew, the borings were located near guardrails. Up to three soil samples were collected from each boring location at depths of approximately 0 to 0.5 foot bgs, 1 to 1.5 feet bgs, and 2.5 to 3 feet bgs, or until refusal. Site conditions (i.e., refusal) dictated sample retrieval; therefore, the number and depth of samples collected at each location was occasionally modified.

Fifty-five (55) of the 240 boring locations met refusal at depths shallower than 3.0 feet bgs. Refusal was primarily due to two lithologic factors: 1) The presence of areas consisting of fill material composed of gravel and cobbles; and 2) Locations in areas composed of Very Old Paralic Deposits (Qvop) and materials of the San Diego Formation (Tsdss). As described by Kennedy and Tan (2008), Qvop generally consists of siltstone, sandstone, or a combination. Materials of the San Diego Formation generally consist of a marine and non-marine pebble and cobble conglomerate to marine sandstone.

Copyright 2011 Kleinfelder

Sample locations were recorded during utility identification using a Trimble global positioning system (GPS) unit, capable of providing accuracy to approximately 3 feet. The sample location names, along with their respective latitude and longitude coordinates (x and y coordinates) are included in Table A-1 (Appendix A). The approximate locations of these borings are shown on Plates 2 through 14.

3.3 HAND AUGER DRILLING AND SOIL SAMPLING METHODS

Hand auger borings were advanced from February 28 to March 17, 2011 at locations shown on Plates 2 through 14. Borings were advanced using a manually operated, pre-cleaned, stainless steel hand auger. Kleinfelder retained the services of CO's Traffic Control to provide closure of the freeway median and shoulder areas. Work was performed in the unpaved shoulder and median areas from 9:00 AM to 4:00 PM, as stipulated in the encroachment permit.

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

3.4 EQUIPMENT BLANKS

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

3.5 ANALYTICAL METHODS

A total of 684 soil samples, including 36 duplicate samples, were analyzed for total lead by U.S. EPA Method 6010B and for soluble lead by the California WET method (STLC). A modified California WET procedure, using DI water extraction, was performed on 91

Copyright 2011 Kleinfelder

soil samples (13.3 percent of total samples), which included the samples with total lead concentrations above 50 mg/kg. Soluble lead was analyzed by TCLP for 50 samples (7.3 percent of total samples), which included the samples with total lead concentrations above 100 mg/kg. Additionally, 174 samples were measured for 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 and rinsed with tap water and DI water, in buckets, prior to each use. Generation of wash water was minimized. Wash water was contained in 5-gallon pails for disposal. At the end of each day, wash water was disposed at the surface in Caltrans right-of-way, in an area that did not cause runoff of fluid or sediment into receptors (i.e., storm drain, creek, or other surface water bodies), consistent with the work plan. Soil cuttings originating from each boring were placed back within the original borehole as described in the work plan.

Copyright 2011 Kleinfelder

4 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

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

4.1 SITE CONDITIONS

Daily field logs, prepared under the supervision of a California registered geologist, include a description of the soil conditions. Fill and native material consisting of Very Old Paralic Deposits (middle to early Pleistocene) and materials of the San Diego Formation were encountered in the borings from ground surface to 3 feet bgs. Fill material generally consisted of a dry to damp, medium dense to dense, silty sand with fine to coarse gravel and cobbles up to approximately 7 to 8 inches in diameter. Native material of the San Diego Formation generally consisted of a damp, moderately to well-cemented sandstone or conglomerate. Refusal was encountered in a total of 55 boreholes, from approximately 0.5 to 3.0 feet throughout the Site. Refusal was due to the presence of cobbles, coarse gravel, and moderately to well-cemented sandstone or conglomerate. Groundwater was not encountered in the borings.

4.2 SOIL SAMPLE RESULTS

4.2.1 Total Lead

Total lead (TOTAL) was detected in 627 of the 684 soil samples analyzed, including 35 of the duplicate samples, and ranged in concentration from 0.502 to 1,180 mg/kg (Table 1 and Plates 2 through 14). Of those 627 samples, 91 samples, including 8 duplicate samples, contained total lead concentrations that equaled or exceeded the 50 mg/kg screening criterion for analyzing the sample using the modified California WET procedure, using DI water extraction, ranging from 50.5 to 1,180 mg/kg. Additionally, 50 samples, including 4 duplicate samples, contained total lead concentrations that equaled or exceeded the 100 mg/kg screening criterion for TCLP analysis, ranging from 102 to 1,180 mg/kg. The maximum total lead concentration was 1,180 mg/kg, reported in the surface sample collected at 805N-013-0.5. As expected, near surface samples generally contained higher concentrations of total lead compared to the deeper samples.

Copyright 2011 Kleinfelder

4.2.2 California WET Soluble Lead

California WET soluble lead (citrate extraction) was reported at concentrations above 5.0 mg/L (the STLC action level) in 60 (including 3 duplicate samples) of the 684 samples analyzed. The maximum WET soluble lead concentration was 66.5 mg/L, reported in the sample collected at 805N-126-1.5; however, this sample did not contain the highest total lead concentration or DI-WET soluble lead concentration.

4.2.3 DI-WET Soluble Lead

DI-WET soluble lead was reported in 35 (including 2 duplicate samples) of the 91 samples tested, which included 8 duplicate samples. Samples analyzed for DI-WET soluble lead were not reported to contain concentrations greater than 150 mg/L, the maximum threshold concentration for DTSC Variance Condition 9.d. The maximum concentration for DI-WET soluble lead was 0.916 mg/L, reported in the sample collected at 805N-126-1.5, which corresponded to a total lead concentration of 966 mg/kg and a standard-WET soluble lead concentration of 66.5 mg/L. This sample contained the second highest total lead concentration and the highest soluble lead concentrations using both WET and DI-WET soluble analyses.

4.2.4 TCLP Soluble Lead

TCLP soluble lead was analyzed on approximately 7.3 percent of the total lead samples (50 soil samples including 4 duplicate samples). TCLP analysis is performed to evaluate if soils do not qualify for reuse due to designation as a RCRA hazardous waste. The maximum concentration for TCLP soluble lead was 2.42 mg/L, reported in the sample collected at 805N-126-1.5, which corresponded with the sample depth with the second highest total lead concentration and highest soluble lead concentration using WET soluble lead concentration. The maximum concentration for TCLP soluble was reported below the RCRA hazardous waste limit of 5.0 mg/L.

4.2.5 Hydrogen Ion Concentration

The hydrogen ion concentration (pH) of the 174 soil samples analyzed, including 6 duplicate samples, ranged from 4.38 to 9.03 (Table 1 and Plates 2 through 6). A total of 59 of the samples collected had reported pH concentrations greater than the criterion of 5.5 listed in the DTSC variance; therefore, soil in these locations is not limited to reuse in covered areas (DTSC, 2009). Six soil samples, collected at 805S-018-3.0, 805N-

Copyright 2011 Kleinfelder

122-1.5, 805N-168-3.0, 805N-194-1.5, 805S-197-1.5, and 805N-224-0.5, had concentrations reported between the criterion of 5.0 and 5.5 listed in the DTSC variance for soils that may be used under paved roadways (Variance Condition 9.e). Concentrations less than the criterion of 5.0 listed in the DTSC variance were reported in two soil samples, collected at 805N-101-3.0 and 805N-196-1.5.

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 I-805 HOV ADL project. The limited data quality assessment was performed using the U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (U.S. EPA, 2004a) as a reference.

A total of 705 samples, including primary, duplicate and equipment blank 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 U.S. EPA Method 9045D;
- TCLP Soluble lead by U.S. EPA Method 6010B/1311;
- WET Method; and
- DI-WET Method.

One hundred percent of the data generated for this project underwent a data quality review by a Kleinfelder project chemist, independent of project activities. A total of 12 Level II data deliverable reports (Work Orders) were evaluated during the data quality assessment, which consisted of evaluating the following parameters:

- Technical holding times and temperature;
- COCs;
- Sample results and analytical methods selected;
- Field and laboratory blanks;

Copyright 2011 Kleinfelder

- Laboratory control sample (LCS) spike results; and
- Matrix spike (MS) and matrix spike duplicate (MSD) results.

Field and laboratory personnel implemented QA/QC procedures consistent with the QA criteria specified in the *Aerially-Deposited Lead Survey Workplan* (Kleinfelder, 2011a) during the soil sampling events. Technical holding times and preservation of samples met the method-specific requirements. Additionally, all samples were analyzed for the correct analytical methods requested on the COC forms. Field QC consisted of collecting daily equipment blanks. Lead was not reported above the laboratory reporting limit in either the laboratory or field blank samples, so no qualifications were applied due to blank contamination. Laboratory QC samples (method blanks, matrix spikes, and laboratory control spikes) were also analyzed consistent with the analytical method requirements. A majority of the laboratory QC sample recoveries were within the laboratory's acceptable QC criteria (i.e., control limits), with a few exceptions discussed below.

During the data quality assessment, the following discrepancies are observed:

- One matrix spike for total lead analysis (U.S EPA Method 6010B), in Work Order #11-03-0286, was reported with low spike recovery, which were outside the laboratory control limits of 75-125%. As a result, the associated samples were qualified as estimated, low bias ("J"/"UJ" qualified).
- One matrix spike duplicate for total lead analysis (U.S EPA Method 6010B), in Wok Order #11-03-0806, was reported with high spike recoveries, which was outside the laboratory control limits of 75-125%. As a result, the associated samples with detections of total lead were qualified as estimated, high bias ("J" qualified).

Based on the data quality assessment findings, there are no data that have been rejected. A total of 1,704 sample results were collected under the Interstate 805 ADL survey, with 55 results qualified as estimated ("J"/"UJ" qualified) as a result of the Level II data quality assessment. The project achieved a completeness goal of 100% for the analytical data. The I-805 ADL data are considered acceptable for the intended use of the project.

Copyright 2011 Kleinfelder

5 STATISTICAL EVALUATION

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

Caltrans has prepared an ADL guidance document to support the implementation of the DTSC variance (Caltrans, 2007). Kleinfelder has modified this table based upon the current DTSC ADL variance (DTSC, 2009), which is included in this report as Plate 15. The guidance document provides a flow chart/decision diagram to address DTSC variance applicability based on the various analyses. The decision points for evaluation of the lead data were as follows: If the 95 percent upper confidence limit (UCL) on mean total lead is less than 1,000 mg/kg, and if the 95 percent UCL on mean soluble lead (DI-WET) is less than 1.5 mg/L, then the soil is considered non-hazardous and can be released to the contractor for reuse on Site in accordance with project specifications.

The U.S. EPA statistical analysis package, ProUCL (version 4.0, April 2007) was used to complete the statistical evaluation (U.S. EPA, 2004b). ProUCL allows the computation of a reliable, stable, and conservative 95 percent UCL of the mean concentration in an environmental data set and offers 3 different methods of computing a 95 percent UCL depending on the distribution of a given data set.

Aggregated data, averaging lead concentrations over variable data sets within the project area to reflect the construction process, was used for the analysis. These data sets are summarized in Table 2A of the report, and statistical evaluations of the data are included in Appendix C. Results below laboratory detection limits for total lead and DI-WET soluble lead were handled in the statistical analysis by taking the value of the laboratory detection limit. The mean of both lead concentrations and pH values for the Site are presented in Table 2B.

Table 2A provides a summary of the 95 percent UCLs calculated for total lead and soluble lead concentrations reported for soil samples from the subject Site. Based on a comparison of the 95 percent UCL value generated by ProUCL, the data set for total lead passes the first criterion established in the Caltrans ADL guidance: “Is the 95 percent UCL for total lead less than 1,000 mg/kg?”

Copyright 2011 Kleinfelder

A statistical analysis of soluble lead calculated using the results of the DI-WET procedure was also performed to address the second criterion from the Caltrans ADL flow chart/decision diagram (Appendix C, Table 2A).

Statistical analyses were performed on the 50 sample results for soluble lead by TCLP (Appendix C). The 95 percent UCL for the TCLP procedure was below the Federal waste limit of 5.0 mg/L for all data sets. 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.

Under the DTSC variance and federal and state hazardous waste classifications, soil can be placed into specific ADL Soil Management Types. Based on the results of the analysis, the represented soil units for the project can be placed into one of three ADL Soil Management Types. Soil classified as “X” is not restricted for on-Site use but requires a lead compliance plan for worker safety. Surplus soil classified as “X” can be disposed of as non-hazardous waste at a Class III facility. Soil classified as “Y1” requires (at a minimum) one foot of clean soil cover if used on Site in addition to health and safety requirements. Surplus soil classified as “Y1” is to be disposed of as California-hazardous (non RCRA) waste at a Class I facility. Soil classified as “Y2” requires (at a minimum) cover with pavement if used on Site in addition to health and safety requirements. Surplus soil classified as “Y2” is to be disposed of as California-hazardous (non RCRA) waste at a Class I facility. The ADL Soil Management Types for soil units “X” and “Y1” for the project are shown in Table 3 below.

Copyright 2011 Kleinfelder

Table 3
ADL Soil Management Types
I-805 HOV ADL Survey
Caltrans EA-11-081610

Highway Lanes	All Depths (0-3 feet)	Surface (0.5-1 feet)	Shallow (1.5-2 feet)	Intermediate (<2 feet)	Deep (□2 feet)
I-805 North and South Bound Lanes (Entire Project Corridor)	X[1]	Y1[2]	X	X	X
I-805 North and South Bound Lanes (South Phase[3])	X	Y1	X	X	X
I-805 North and South Bound Lanes (North Phase[4])	Y1	Y1	X	Y1	X

Notes:
1. "X" is not restricted for on-Site use, but requires a lead compliance plan for worker safety. Surplus soil can be disposed of as non-hazardous waste at a Class III facility.
2. "Y1" requires (at a minimum) one foot of clean soil cover if used on Site in addition to health and safety requirements. Surplus soil is to be disposed of as California-hazardous (non RCRA) waste at a Class I facility.
3. South Phase includes the soil sample locations along the Project Corridor from Palomar Street, north, to State Route (SR) 94.
4. North Phase includes the soil sample locations along the Project Corridor from SR 94, north, to the Landis Street over crossing.

In conclusion, based on Caltrans ADL guidance criteria, the soil addressed in this analysis is classified as hazardous in the specific areas listed above (Y1 classification only); however, it can be released to the contractor for use on the project Site in accordance with project specifications and the current DTSC variance. The basis for this conclusion is as follows:

- For these soils, the 95 percent UCL for total lead was less than 1,000 mg/kg for all data sets at all depths (48.4 mg/kg, Table 2A).
- The 95 percent UCL for DI-WET procedure is less than 1.5 mg/L for all data sets at all depths (0.9 mg/L, Table 2A).

Copyright 2011 Kleinfelder

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 VARIANCE CONCLUSIONS

Although certain individual samples have lead concentrations above the maximum soluble lead concentrations allowed by the DTSC Variance, based on statistical analysis of the analytical results of this ADL Survey, soil tested within the Caltrans right-of-way does not contain total lead or DI-WET soluble lead concentrations that would apply to the DTSC Variance conditions (Appendix C). As such, soil within the Site to a depth of 3.5 feet bgs may be released to the contractor as non-hazardous soil (STLC 95% UCL is above California hazardous levels) and reused on Site in accordance with project specifications.

Fifty-nine (59) soil samples had reported pH values above the variance criterion of 5.5. Six samples had values reported between the criterion of 5.0 and 5.5 listed in the DTSC variance. Values less than the criterion of 5.0 listed in the DTSC variance were reported in two samples. Although certain individual samples have pH values below the minimum allowed by the DTSC Variance, based on statistical analysis of the analytical results of this ADL Survey (95% UCL for pH is 7.4), soil tested within the Caltrans right-of-way does not contain a pH value below that which would apply to the DTSC Variance conditions (Appendix C).

Should off-Site 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

Based on the analytical results of this ADL Survey, one soil sample collected at the 240 sample locations along the unpaved shoulders and medians does 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 60 (including 3 duplicate samples) of the 684 samples analyzed for soluble lead by WET at various locations along the Site.

Based on the results of soil sampling (95% UCL for all depths) at locations along the South Phase of the I-805 unpaved shoulders and medians, soils from this area are considered non-hazardous in comparison to California TTLC and STLC limits for depths from the surface to 3.5 feet bgs. In addition, soil samples analyzed for TCLP soluble

Copyright 2011 Kleinfelder

lead concentrations in the South Phase were less than the 5.0 mg/L criterion for RCRA hazardous waste.

Based on the results of soil sampling (95% UCL for all depths) at locations along the North Phase of the I-805 unpaved shoulders and medians, soils from this area are considered non-hazardous in comparison to California TTLC for depths from the surface to 3.5 feet bgs; however, soil is considered hazardous for off-Site disposal in comparison to STLC limits for depths 0 to 3.5 feet bgs. In addition, soil samples analyzed for TCLP soluble lead concentrations in the North Phase were less than the 5.0 mg/L criterion for RCRA hazardous waste.

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 unpaved shoulders and medians of the subject corridor, the general recommendations listed below are provided.

- 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 3.5 feet bgs, additional sampling and laboratory analytical testing should be conducted to characterize the area of excavation.
- Soil subject to export should be characterized to assess the appropriate waste classification in accordance with the requirements of the permitted disposal facility.

Copyright 2011 Kleinfelder

7 LIMITATIONS

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

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

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

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more-detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this report will indicate that the Client has reviewed the document and determined that it does not need or want a greater level of service than provided.

Copyright 2011 Kleinfelder

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.

Copyright 2011 Kleinfelder

8 REFERENCES

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

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

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

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

Kennedy, M.P. and Tan, S.S. 2008. Geologic Map of the San Diego 30 x 60 quadrangle, California: California Geologic Survey, Regional Geologic Map No. 3, scale 1:100000.

Kleinfelder, Inc., 2011a. Aerially Deposited Lead Survey Work Plan, Interstate 805 HOV, General Use, AUX Lanes Between Palomar Street Over Crossing and Landis Street Over Crossing Along I-805, Caltrans EA 11-081610, San Diego, CA. January 21.

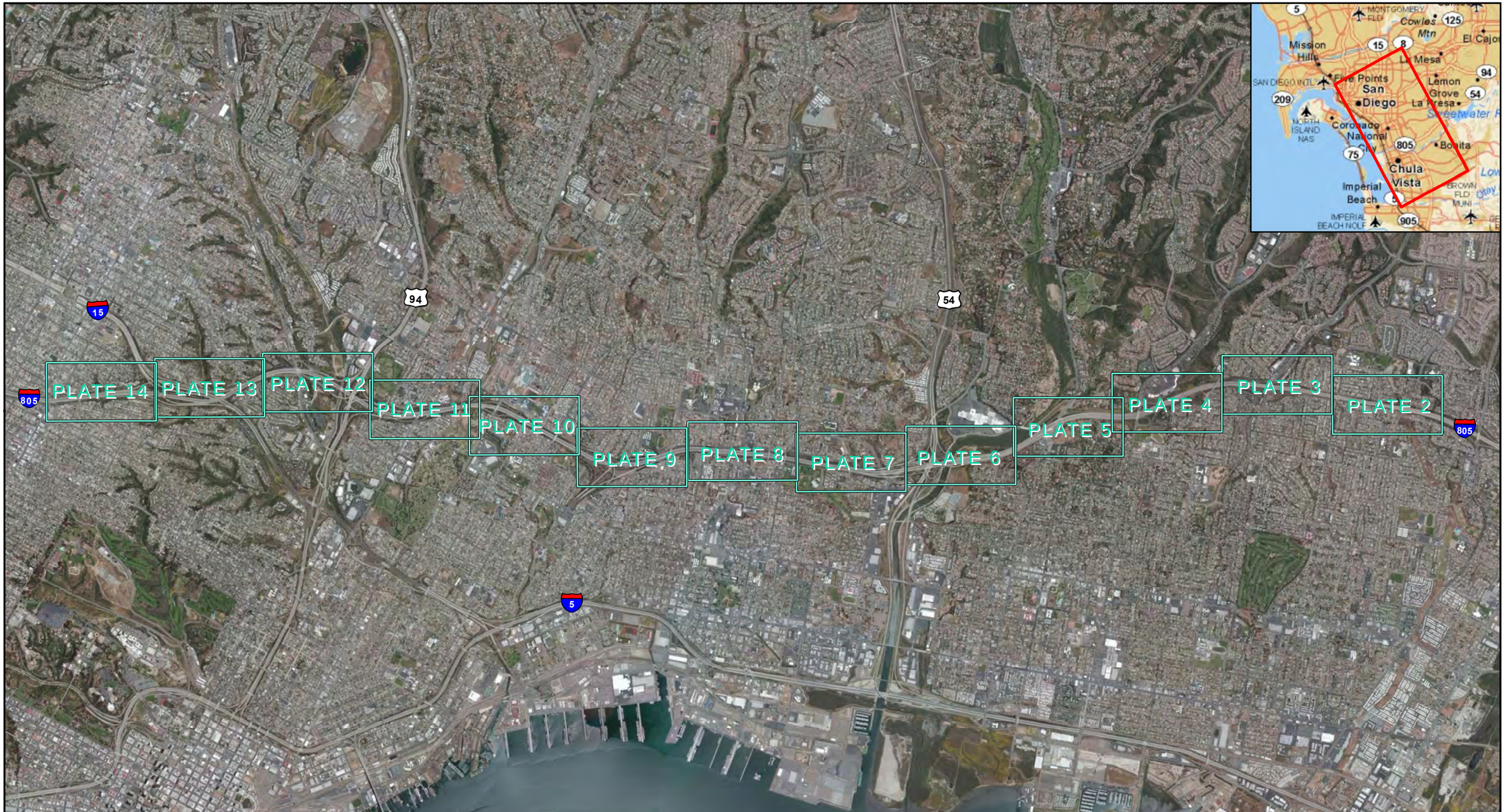
Kleinfelder, Inc., 2011b. Site-Specific Health and Safety Plan, Interstate 805 HOV and Managed Lanes South ADL Survey, San Diego, California. January 21.

United States Environmental Protection Agency (U.S. EPA), 2004a. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. October.

U.S. EPA, 2004b. ProUCL version 3.0. April.

Copyright 2011 Kleinfelder

PLATES



All dimensions and locations are approximate

Miles

0 0.5 1 2 3

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO:115813
DRAWN BY: E D GOFF
CHECKED BY: J JANUSZIEWICZ
DATE: APRIL 2011

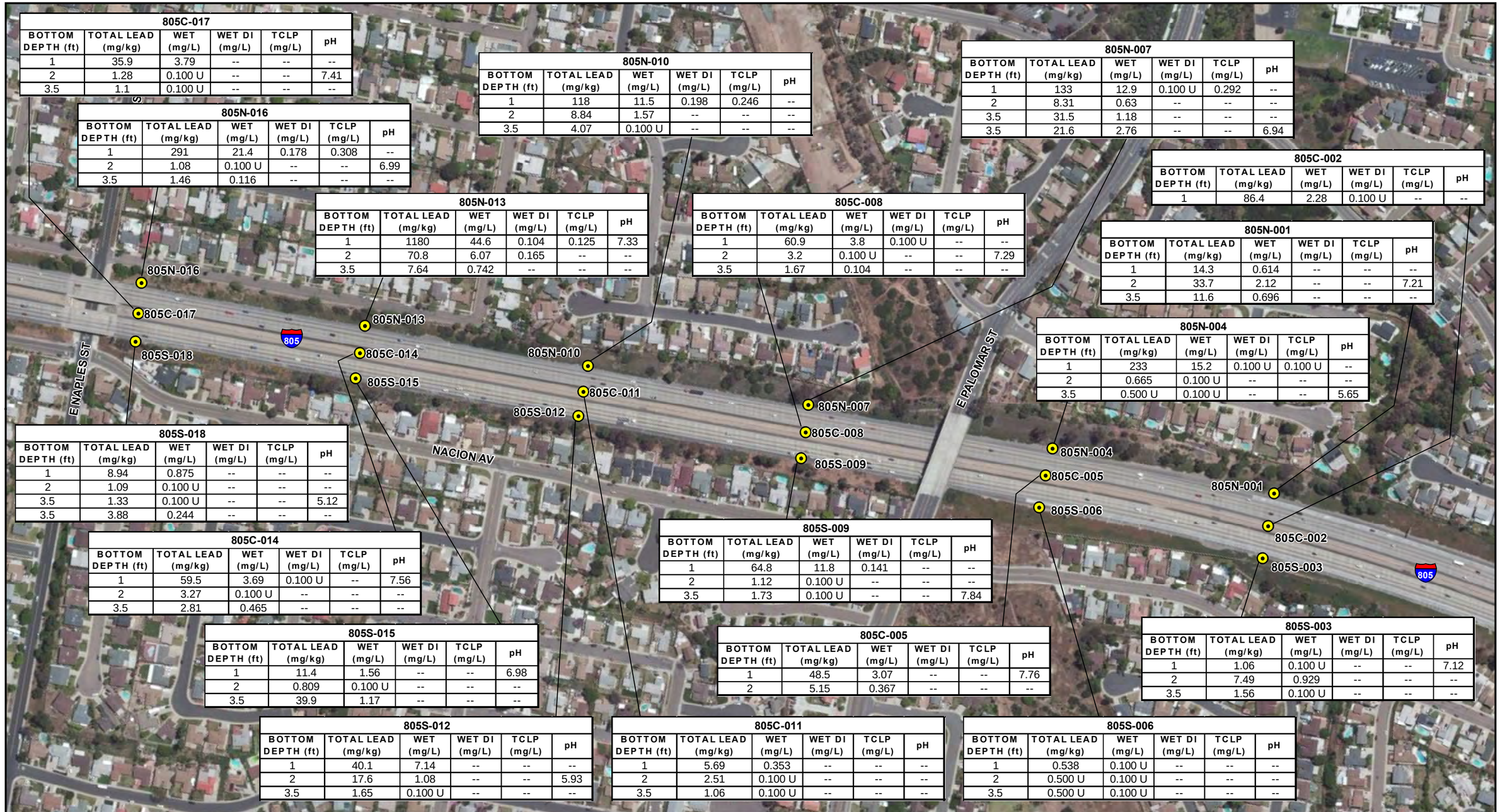
GeomorphIS

SITE LOCATION MAP
Aerially Deposited Lead Survey
I-805 HOV, Caltrans EA 11-081610
San Diego, California

PLATE
1

Imagery: Bing Maps, ESRI

File: Projects\Caltrans\I805_2011\FinalResults



805C-017

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	35.9	3.79	--	--	--
2	1.28	0.100 U	--	--	7.41
3.5	1.1	0.100 U	--	--	--

805N-016

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	291	21.4	0.178	0.308	--
2	1.08	0.100 U	--	--	6.99
3.5	1.46	0.116	--	--	--

805N-010

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	118	11.5	0.198	0.246	--
2	8.84	1.57	--	--	--
3.5	4.07	0.100 U	--	--	--

805N-007

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	133	12.9	0.100 U	0.292	--
2	8.31	0.63	--	--	--
3.5	31.5	1.18	--	--	--
3.5	21.6	2.76	--	--	6.94

805C-002

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	86.4	2.28	0.100 U	--	--

805N-013

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	1180	44.6	0.104	0.125	7.33
2	70.8	6.07	0.165	--	--
3.5	7.64	0.742	--	--	--

805C-008

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	60.9	3.8	0.100 U	--	--
2	3.2	0.100 U	--	--	7.29
3.5	1.67	0.104	--	--	--

805N-001

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	14.3	0.614	--	--	--
2	33.7	2.12	--	--	7.21
3.5	11.6	0.696	--	--	--

805N-004

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	233	15.2	0.100 U	0.100 U	--
2	0.665	0.100 U	--	--	--
3.5	0.500 U	0.100 U	--	--	5.65

805S-018

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	8.94	0.875	--	--	--
2	1.09	0.100 U	--	--	--
3.5	1.33	0.100 U	--	--	5.12
3.5	3.88	0.244	--	--	--

805C-014

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	59.5	3.69	0.100 U	--	7.56
2	3.27	0.100 U	--	--	--
3.5	2.81	0.465	--	--	--

805S-009

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	64.8	11.8	0.141	--	--
2	1.12	0.100 U	--	--	--
3.5	1.73	0.100 U	--	--	7.84

805S-015

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	11.4	1.56	--	--	6.98
2	0.809	0.100 U	--	--	--
3.5	39.9	1.17	--	--	--

805C-005

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	48.5	3.07	--	--	7.76
2	5.15	0.367	--	--	--

805S-003

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	1.06	0.100 U	--	--	7.12
2	7.49	0.929	--	--	--
3.5	1.56	0.100 U	--	--	--

805S-012

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	40.1	7.14	--	--	--
2	17.6	1.08	--	--	5.93
3.5	1.65	0.100 U	--	--	--

805C-011

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	5.69	0.353	--	--	--
2	2.51	0.100 U	--	--	--
3.5	1.06	0.100 U	--	--	--

805S-006

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	0.538	0.100 U	--	--	--
2	0.500 U	0.100 U	--	--	--
3.5	0.500 U	0.100 U	--	--	--

Feet
0 400 800

All dimensions and locations are approximate

LEGEND

805N-103
APPROXIMATE SAMPLE LOCATION AND LOCATION ID

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO:115813
DRAWN BY: E D GOFF
CHECKED BY: J JANUSZIEWICZ
DATE: APRIL 2011

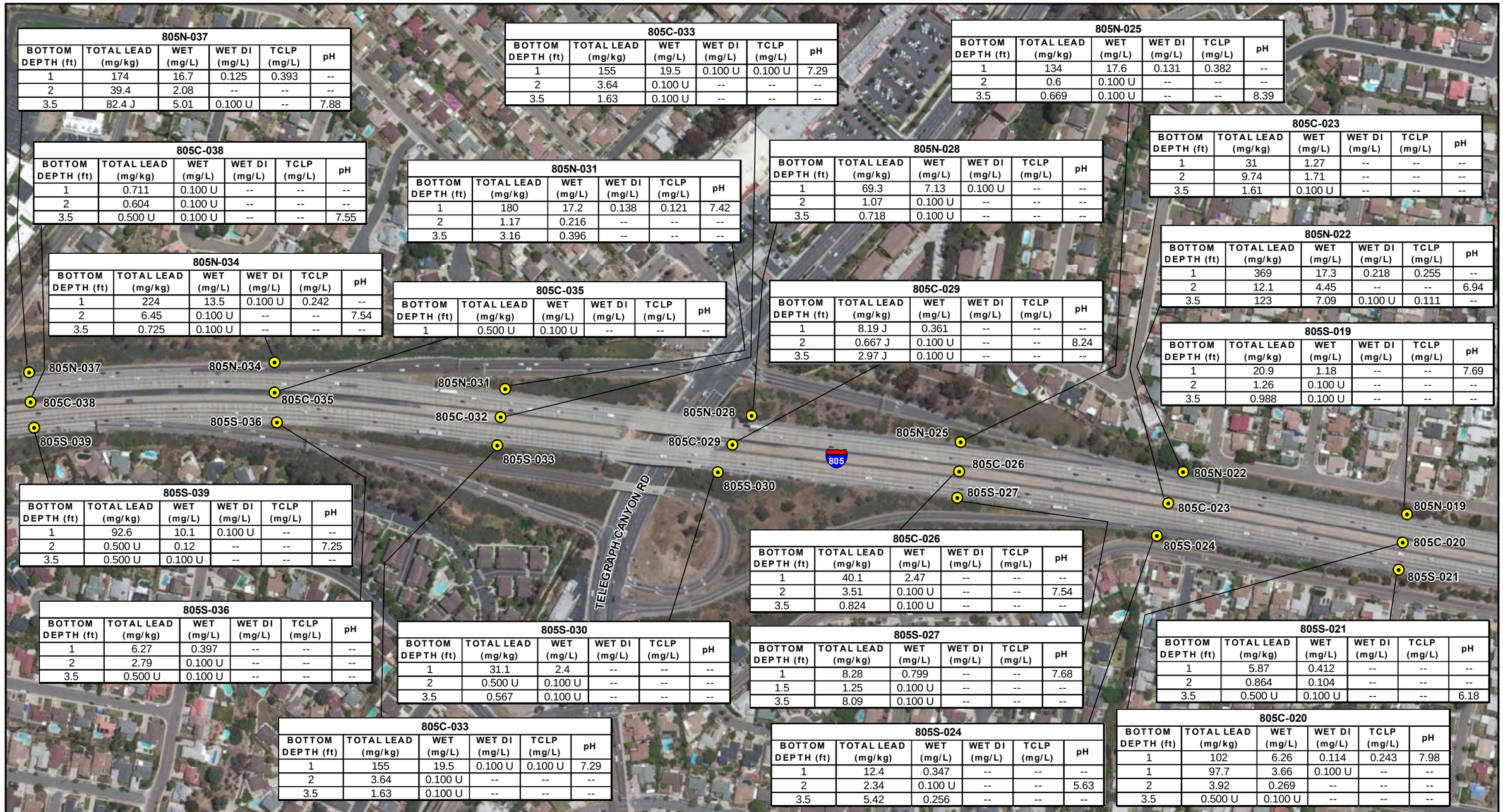
GeomorphIS

SAMPLE LOCATION MAP
Aerially Deposited Lead Survey
I-805 HOV, Caltrans EA 11-081610
San Diego, California

PLATE
2

Imagery: Bing Maps, ESRI

File: Projects\Caltrans\I805_2011\FinalResults



805N-037

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	174	16.7	0.125	0.393	--
2	39.4	2.08	--	--	--
3.5	82.4 J	5.01	0.100 U	--	7.88

805C-038

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	0.711	0.100 U	--	--	--
2	0.604	0.100 U	--	--	--
3.5	0.500 U	0.100 U	--	--	7.55

805N-034

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	224	13.5	0.100 U	0.242	--
2	6.45	0.100 U	--	--	7.54
3.5	0.725	0.100 U	--	--	--

805S-039

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	92.6	10.1	0.100 U	--	--
2	0.500 U	0.12	--	--	7.25
3.5	0.500 U	0.100 U	--	--	--

805S-036

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	6.27	0.397	--	--	--
2	2.79	0.100 U	--	--	--
3.5	0.500 U	0.100 U	--	--	--

805C-033

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	155	19.5	0.100 U	0.100 U	7.29
2	3.64	0.100 U	--	--	--
3.5	1.63	0.100 U	--	--	--

805N-031

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	180	17.2	0.138	0.121	7.42
2	1.17	0.216	--	--	--
3.5	3.16	0.396	--	--	--

805C-035

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	0.500 U	0.100 U	--	--	--

805S-030

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	31.1	2.4	--	--	--
2	0.500 U	0.100 U	--	--	--
3.5	0.567	0.100 U	--	--	--

805N-028

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	69.3	7.13	0.100 U	--	--
2	1.07	0.100 U	--	--	--
3.5	0.718	0.100 U	--	--	--

805C-029

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	8.19 J	0.361	--	--	--
2	0.667 J	0.100 U	--	--	8.24
3.5	2.97 J	0.100 U	--	--	--

805C-026

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	40.1	2.47	--	--	--
2	3.51	0.100 U	--	--	7.54
3.5	0.824	0.100 U	--	--	--

805S-027

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	8.28	0.799	--	--	7.68
1.5	1.25	0.100 U	--	--	--
3.5	8.09	0.100 U	--	--	--

805S-024

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	12.4	0.347	--	--	--
2	2.34	0.100 U	--	--	5.63
3.5	5.42	0.256	--	--	--

805N-025

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	134	17.6	0.131	0.382	--
2	0.6	0.100 U	--	--	--
3.5	0.669	0.100 U	--	--	8.39

805C-023

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	31	1.27	--	--	--
2	9.74	1.71	--	--	--
3.5	1.61	0.100 U	--	--	--

805N-022

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	369	17.3	0.218	0.255	--
2	12.1	4.45	--	--	6.94
3.5	123	7.09	0.100 U	0.111	--

805S-019

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	20.9	1.18	--	--	7.69
2	1.26	0.100 U	--	--	--
3.5	0.988	0.100 U	--	--	--

805S-021

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	5.87	0.412	--	--	--
2	0.864	0.104	--	--	--
3.5	0.500 U	0.100 U	--	--	6.18

805C-020

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	102	6.26	0.114	0.243	7.98
1	97.7	3.66	0.100 U	--	--
2	3.92	0.269	--	--	--
3.5	0.500 U	0.100 U	--	--	--

Feet
0 400 800

All dimensions and locations are approximate

LEGEND

805N-103
APPROXIMATE SAMPLE LOCATION AND LOCATION ID

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO:115813
DRAWN BY: E D GOFF
CHECKED BY: J JANUSZIEWICZ
DATE: APRIL 2011

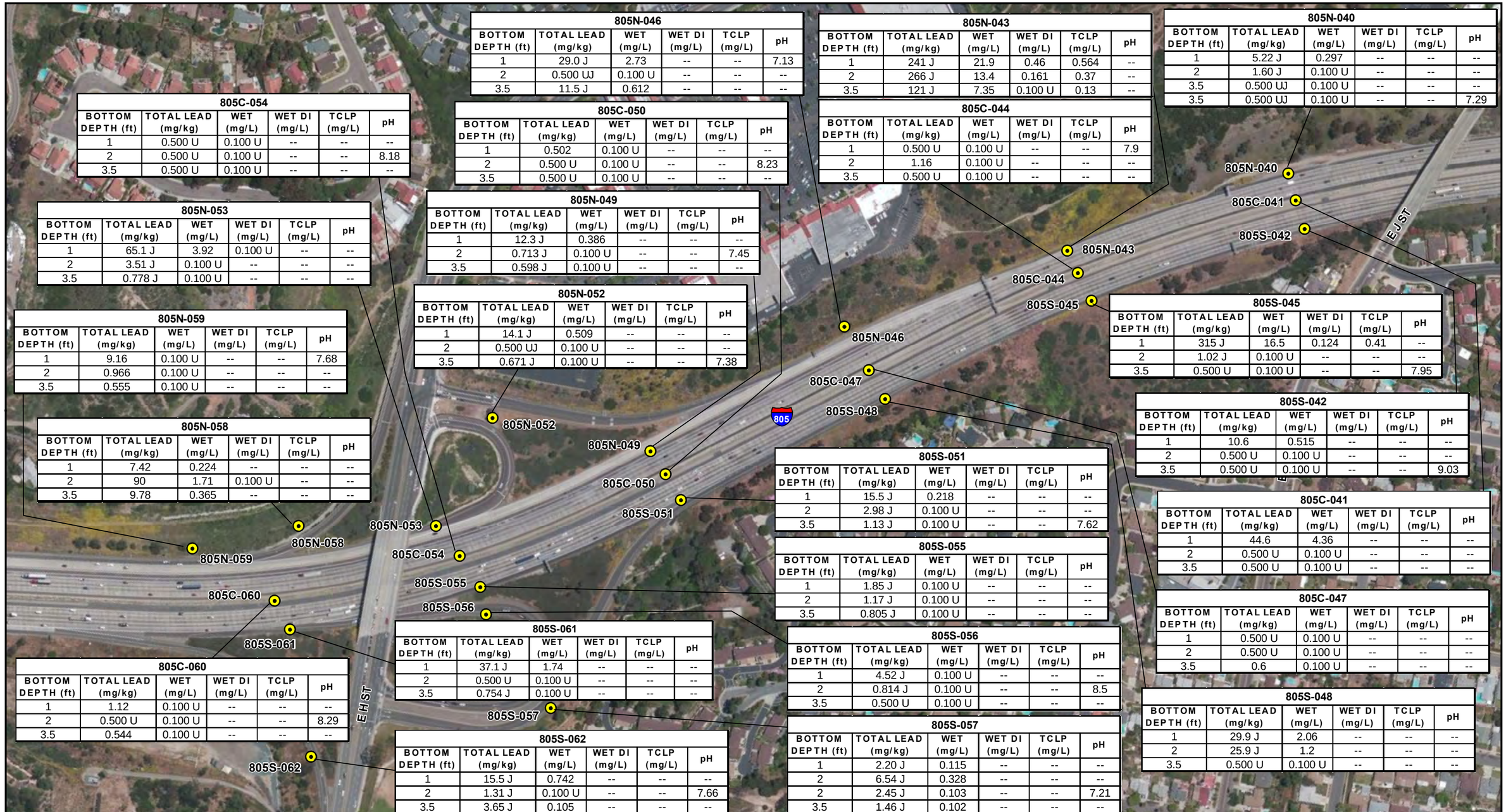
GeomorphIS

SAMPLE LOCATION MAP
Aerially Deposited Lead Survey
I-805 HOV, Caltrans EA 11-081610
San Diego, California

PLATE
3

Imagery: Bing Maps, ESRI

File: Projects\Caltrans\I805_2011\FinalResults



805N-046

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	29.0 J	2.73	--	--	7.13
2	0.500 UJ	0.100 U	--	--	--
3.5	11.5 J	0.612	--	--	--

805N-043

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	241 J	21.9	0.46	0.564	--
2	266 J	13.4	0.161	0.37	--
3.5	121 J	7.35	0.100 U	0.13	--

805N-040

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	5.22 J	0.297	--	--	--
2	1.60 J	0.100 U	--	--	--
3.5	0.500 UJ	0.100 U	--	--	--
3.5	0.500 UJ	0.100 U	--	--	7.29

805C-054

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	0.500 U	0.100 U	--	--	--
2	0.500 U	0.100 U	--	--	8.18
3.5	0.500 U	0.100 U	--	--	--

805C-050

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	0.502	0.100 U	--	--	--
2	0.500 U	0.100 U	--	--	8.23
3.5	0.500 U	0.100 U	--	--	--

805C-044

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	0.500 U	0.100 U	--	--	7.9
2	1.16	0.100 U	--	--	--
3.5	0.500 U	0.100 U	--	--	--

805N-053

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	65.1 J	3.92	0.100 U	--	--
2	3.51 J	0.100 U	--	--	--
3.5	0.778 J	0.100 U	--	--	--

805N-049

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	12.3 J	0.386	--	--	--
2	0.713 J	0.100 U	--	--	7.45
3.5	0.598 J	0.100 U	--	--	--

805N-052

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	14.1 J	0.509	--	--	--
2	0.500 UJ	0.100 U	--	--	--
3.5	0.671 J	0.100 U	--	--	7.38

805S-045

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	315 J	16.5	0.124	0.41	--
2	1.02 J	0.100 U	--	--	--
3.5	0.500 U	0.100 U	--	--	7.95

805N-059

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	9.16	0.100 U	--	--	7.68
2	0.966	0.100 U	--	--	--
3.5	0.555	0.100 U	--	--	--

805S-042

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	10.6	0.515	--	--	--
2	0.500 U	0.100 U	--	--	--
3.5	0.500 U	0.100 U	--	--	9.03

805N-058

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	7.42	0.224	--	--	--
2	90	1.71	0.100 U	--	--
3.5	9.78	0.365	--	--	--

805S-051

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	15.5 J	0.218	--	--	--
2	2.98 J	0.100 U	--	--	--
3.5	1.13 J	0.100 U	--	--	7.62

805C-041

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	44.6	4.36	--	--	--
2	0.500 U	0.100 U	--	--	--
3.5	0.500 U	0.100 U	--	--	--

805S-055

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	1.85 J	0.100 U	--	--	--
2	1.17 J	0.100 U	--	--	--
3.5	0.805 J	0.100 U	--	--	--

805C-047

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	0.500 U	0.100 U	--	--	--
2	0.500 U	0.100 U	--	--	--
3.5	0.6	0.100 U	--	--	--

805C-060

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	1.12	0.100 U	--	--	--
2	0.500 U	0.100 U	--	--	8.29
3.5	0.544	0.100 U	--	--	--

805S-061

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	37.1 J	1.74	--	--	--
2	0.500 U	0.100 U	--	--	--
3.5	0.754 J	0.100 U	--	--	--

805S-056

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	4.52 J	0.100 U	--	--	--
2	0.814 J	0.100 U	--	--	8.5
3.5	0.500 U	0.100 U	--	--	--

805S-048

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	29.9 J	2.06	--	--	--
2	25.9 J	1.2	--	--	--
3.5	0.500 U	0.100 U	--	--	--

805S-057

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	2.20 J	0.115	--	--	--
2	6.54 J	0.328	--	--	--
2	2.45 J	0.103	--	--	7.21
3.5	1.46 J	0.102	--	--	--

805S-062

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	15.5 J	0.742	--	--	--
2	1.31 J	0.100 U	--	--	7.66
3.5	3.65 J	0.105	--	--	--

Feet
0 400 800

All dimensions and locations are approximate

LEGEND

805N-103
APPROXIMATE SAMPLE LOCATION AND LOCATION ID

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO:115813
DRAWN BY: E D GOFF
CHECKED BY: J JANUSZIEWICZ
DATE: APRIL 2011

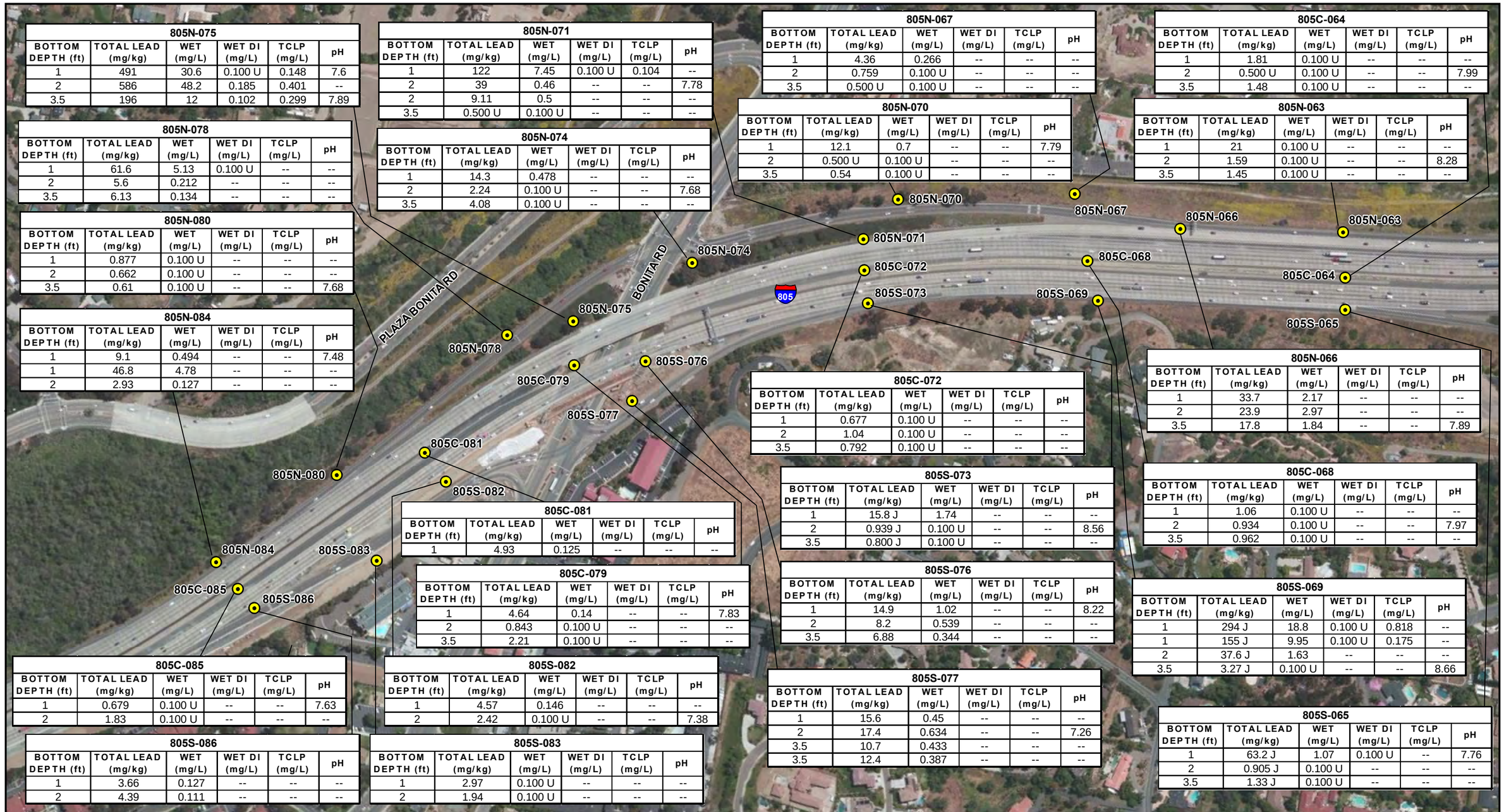
GeomorphIS

SAMPLE LOCATION MAP
Aerially Deposited Lead Survey
I-805 HOV, Caltrans EA 11-081610
San Diego, California

PLATE
4

Imagery: Bing Maps, ESRI

File: Projects\Caltrans\I805_2011\FinalResults



805N-075					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	491	30.6	0.100 U	0.148	7.6
2	586	48.2	0.185	0.401	--
3.5	196	12	0.102	0.299	7.89

805N-071					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	122	7.45	0.100 U	0.104	--
2	39	0.46	--	--	7.78
2	9.11	0.5	--	--	--
3.5	0.500 U	0.100 U	--	--	--

805N-067					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	4.36	0.266	--	--	--
2	0.759	0.100 U	--	--	--
3.5	0.500 U	0.100 U	--	--	--

805C-064					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	1.81	0.100 U	--	--	--
2	0.500 U	0.100 U	--	--	7.99
3.5	1.48	0.100 U	--	--	--

805N-078					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	61.6	5.13	0.100 U	--	--
2	5.6	0.212	--	--	--
3.5	6.13	0.134	--	--	--

805N-074					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	14.3	0.478	--	--	--
2	2.24	0.100 U	--	--	7.68
3.5	4.08	0.100 U	--	--	--

805N-070					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	12.1	0.7	--	--	7.79
2	0.500 U	0.100 U	--	--	--
3.5	0.54	0.100 U	--	--	--

805N-063					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	21	0.100 U	--	--	--
2	1.59	0.100 U	--	--	8.28
3.5	1.45	0.100 U	--	--	--

805N-080					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	0.877	0.100 U	--	--	--
2	0.662	0.100 U	--	--	--
3.5	0.61	0.100 U	--	--	7.68

805N-084					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	9.1	0.494	--	--	7.48
1	46.8	4.78	--	--	--
2	2.93	0.127	--	--	--

805N-066					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	33.7	2.17	--	--	--
2	23.9	2.97	--	--	--
3.5	17.8	1.84	--	--	7.89

805C-072					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	0.677	0.100 U	--	--	--
2	1.04	0.100 U	--	--	--
3.5	0.792	0.100 U	--	--	--

805S-073					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	15.8 J	1.74	--	--	--
2	0.939 J	0.100 U	--	--	8.56
3.5	0.800 J	0.100 U	--	--	--

805C-068					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	1.06	0.100 U	--	--	--
2	0.934	0.100 U	--	--	7.97
3.5	0.962	0.100 U	--	--	--

805C-081					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	4.93	0.125	--	--	--

805S-076					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	14.9	1.02	--	--	8.22
2	8.2	0.539	--	--	--
3.5	6.88	0.344	--	--	--

805S-069					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	294 J	18.8	0.100 U	0.818	--
1	155 J	9.95	0.100 U	0.175	--
2	37.6 J	1.63	--	--	--
3.5	3.27 J	0.100 U	--	--	8.66

805C-079					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	4.64	0.14	--	--	7.83
2	0.843	0.100 U	--	--	--
3.5	2.21	0.100 U	--	--	--

805C-085					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	0.679	0.100 U	--	--	7.63
2	1.83	0.100 U	--	--	--

805S-082					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	4.57	0.146	--	--	--
2	2.42	0.100 U	--	--	7.38

805S-077					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	15.6	0.45	--	--	--
2	17.4	0.634	--	--	7.26
3.5	10.7	0.433	--	--	--
3.5	12.4	0.387	--	--	--

805S-065					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	63.2 J	1.07	0.100 U	--	7.76
2	0.905 J	0.100 U	--	--	--
3.5	1.33 J	0.100 U	--	--	--

805S-086					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	3.66	0.127	--	--	--
2	4.39	0.111	--	--	--

805S-083					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	2.97	0.100 U	--	--	--
2	1.94	0.100 U	--	--	--

Feet
0 400 800

All dimensions and locations are approximate

LEGEND

805N-103
APPROXIMATE SAMPLE LOCATION AND LOCATION ID

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO:115813
DRAWN BY: E D GOFF
CHECKED BY: J JANUSZIEWICZ
DATE: APRIL 2011

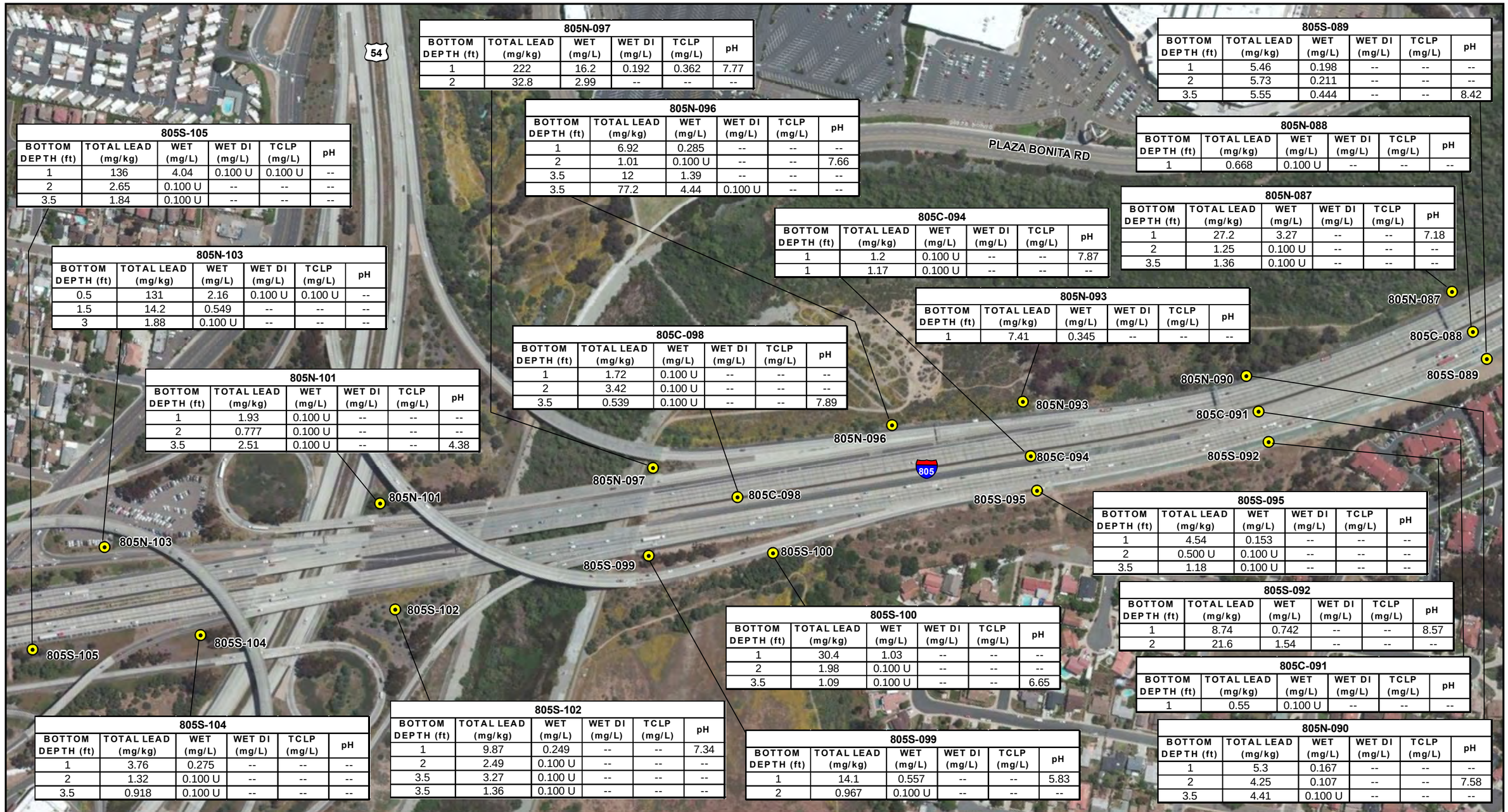
GeomorphIS

SAMPLE LOCATION MAP
Aerially Deposited Lead Survey
I-805 HOV, Caltrans EA 11-081610
San Diego, California

PLATE
5

Imagery: Bing Maps, ESRI

File: Projects\Caltrans\I805_2011\FinalResults



805N-097					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	222	16.2	0.192	0.362	7.77
2	32.8	2.99	--	--	--

805N-096					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	6.92	0.285	--	--	--
2	1.01	0.100 U	--	--	7.66
3.5	12	1.39	--	--	--
3.5	77.2	4.44	0.100 U	--	--

805S-089					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	5.46	0.198	--	--	--
2	5.73	0.211	--	--	--
3.5	5.55	0.444	--	--	8.42

805N-088					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	0.668	0.100 U	--	--	--

805S-105					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	136	4.04	0.100 U	0.100 U	--
2	2.65	0.100 U	--	--	--
3.5	1.84	0.100 U	--	--	--

805N-087					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	27.2	3.27	--	--	7.18
2	1.25	0.100 U	--	--	--
3.5	1.36	0.100 U	--	--	--

805C-094					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	1.2	0.100 U	--	--	7.87
1	1.17	0.100 U	--	--	--

805N-103					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	131	2.16	0.100 U	0.100 U	--
1.5	14.2	0.549	--	--	--
3	1.88	0.100 U	--	--	--

805N-093					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	7.41	0.345	--	--	--

805C-098					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	1.72	0.100 U	--	--	--
2	3.42	0.100 U	--	--	--
3.5	0.539	0.100 U	--	--	7.89

805N-101					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	1.93	0.100 U	--	--	--
2	0.777	0.100 U	--	--	--
3.5	2.51	0.100 U	--	--	4.38

805S-095					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	4.54	0.153	--	--	--
2	0.500 U	0.100 U	--	--	--
3.5	1.18	0.100 U	--	--	--

805S-092					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	8.74	0.742	--	--	8.57
2	21.6	1.54	--	--	--

805S-100					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	30.4	1.03	--	--	--
2	1.98	0.100 U	--	--	--
3.5	1.09	0.100 U	--	--	6.65

805C-091					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	0.55	0.100 U	--	--	--

805S-104					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	3.76	0.275	--	--	--
2	1.32	0.100 U	--	--	--
3.5	0.918	0.100 U	--	--	--

805S-102					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	9.87	0.249	--	--	7.34
2	2.49	0.100 U	--	--	--
3.5	3.27	0.100 U	--	--	--
3.5	1.36	0.100 U	--	--	--

805S-099					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	14.1	0.557	--	--	5.83
2	0.967	0.100 U	--	--	--

805N-090					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	5.3	0.167	--	--	--
2	4.25	0.107	--	--	7.58
3.5	4.41	0.100 U	--	--	--

N

Feet

0 400 800

All dimensions and locations are approximate

LEGEND

805N-103

APPROXIMATE SAMPLE LOCATION AND LOCATION ID

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO:115813
DRAWN BY: E D GOFF
CHECKED BY: J JANUSZIEWICZ
DATE: APRIL 2011

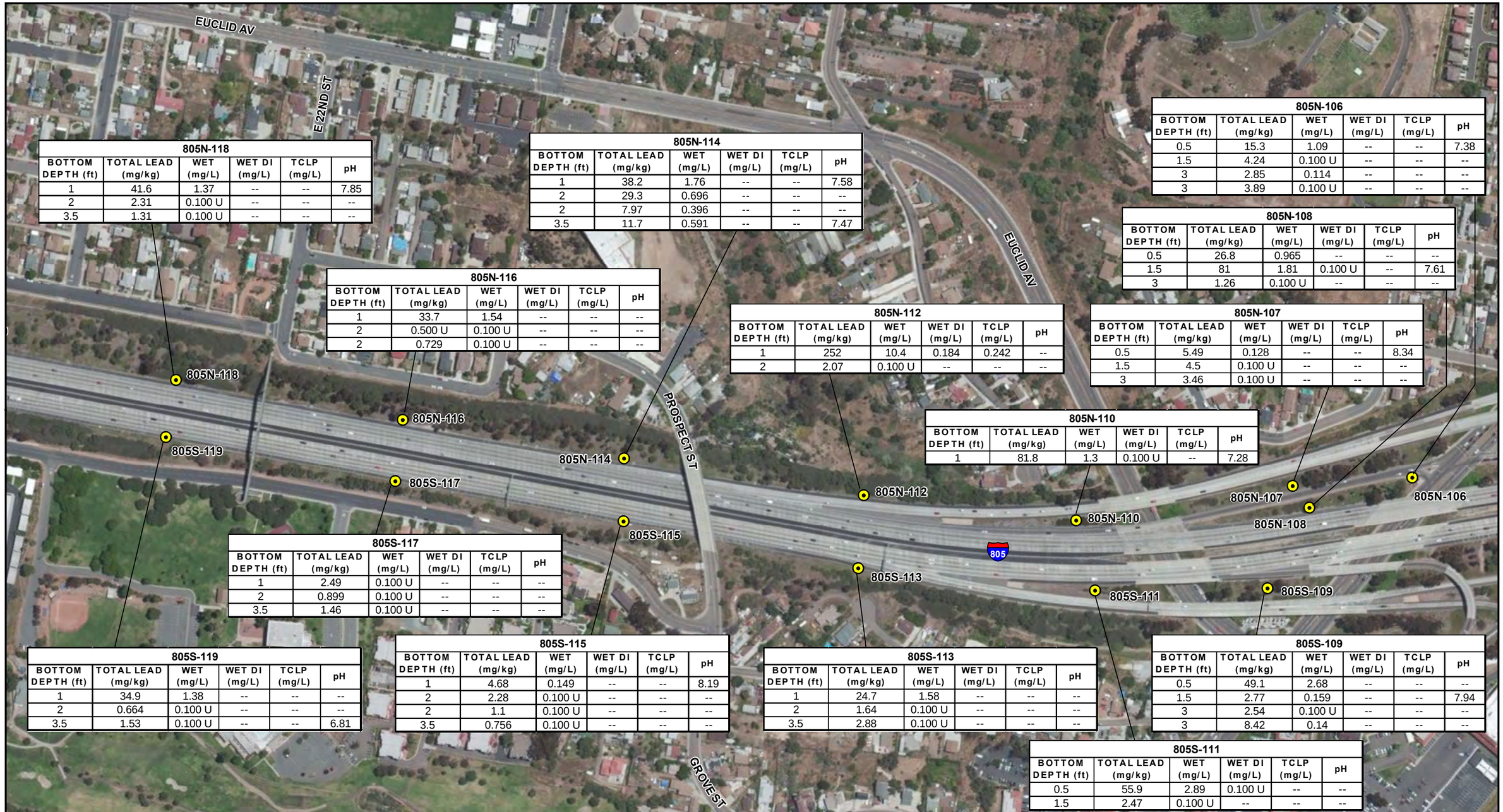
GeomorphIS

SAMPLE LOCATION MAP
Aerially Deposited Lead Survey
I-805 HOV, Caltrans EA 11-081610
San Diego, California

PLATE
6

Imagery: Bing Maps, ESRI

File: Projects\Caltrans\I805_2011\FinalResults



805N-118

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	41.6	1.37	--	--	7.85
2	2.31	0.100 U	--	--	--
3.5	1.31	0.100 U	--	--	--

805N-114

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	38.2	1.76	--	--	7.58
2	29.3	0.696	--	--	--
2	7.97	0.396	--	--	--
3.5	11.7	0.591	--	--	7.47

805N-106

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	15.3	1.09	--	--	7.38
1.5	4.24	0.100 U	--	--	--
3	2.85	0.114	--	--	--
3	3.89	0.100 U	--	--	--

805N-108

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	26.8	0.965	--	--	--
1.5	81	1.81	0.100 U	--	7.61
3	1.26	0.100 U	--	--	--

805N-116

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	33.7	1.54	--	--	--
2	0.500 U	0.100 U	--	--	--
2	0.729	0.100 U	--	--	--

805N-112

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	252	10.4	0.184	0.242	--
2	2.07	0.100 U	--	--	--

805N-107

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	5.49	0.128	--	--	8.34
1.5	4.5	0.100 U	--	--	--
3	3.46	0.100 U	--	--	--

805N-110

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	81.8	1.3	0.100 U	--	7.28

805S-117

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	2.49	0.100 U	--	--	--
2	0.899	0.100 U	--	--	--
3.5	1.46	0.100 U	--	--	--

805S-119

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	34.9	1.38	--	--	--
2	0.664	0.100 U	--	--	--
3.5	1.53	0.100 U	--	--	6.81

805S-115

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	4.68	0.149	--	--	8.19
2	2.28	0.100 U	--	--	--
2	1.1	0.100 U	--	--	--
3.5	0.756	0.100 U	--	--	--

805S-113

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	24.7	1.58	--	--	--
2	1.64	0.100 U	--	--	--
3.5	2.88	0.100 U	--	--	--

805S-109

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	49.1	2.68	--	--	--
1.5	2.77	0.159	--	--	7.94
3	2.54	0.100 U	--	--	--
3	8.42	0.14	--	--	--

805S-111

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	55.9	2.89	0.100 U	--	--
1.5	2.47	0.100 U	--	--	--

Feet
0 400 800

All dimensions and locations are approximate

LEGEND

805N-103
APPROXIMATE SAMPLE LOCATION AND LOCATION ID

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO:115813
DRAWN BY: E D GOFF
CHECKED BY: J JANUSZIEWICZ
DATE: APRIL 2011

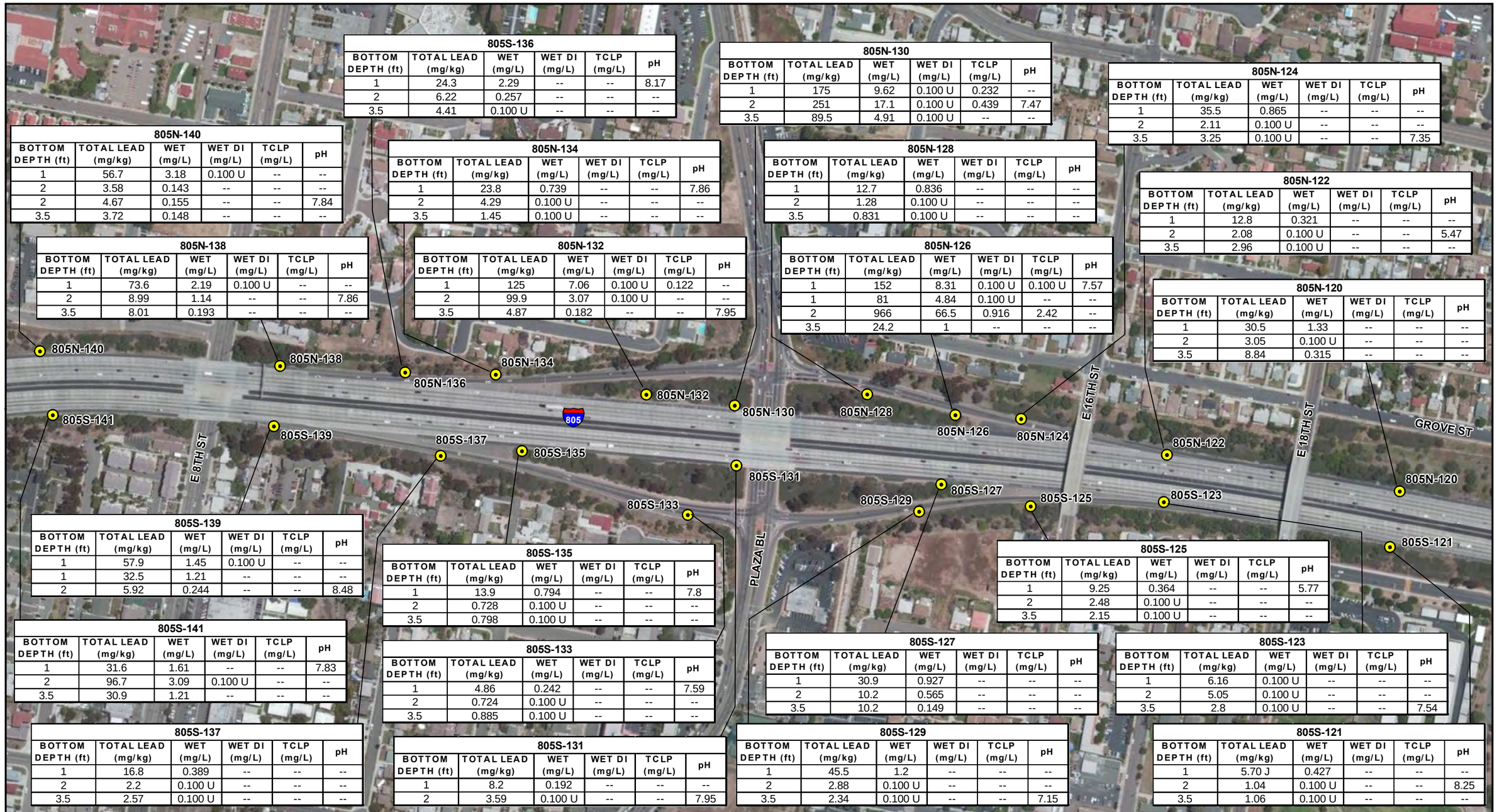
GeomorphIS

SAMPLE LOCATION MAP
Aerially Deposited Lead Survey
I-805 HOV, Caltrans EA 11-081610
San Diego, California

PLATE
7

Imagery: Bing Maps, ESRI

File: Projects\Caltrans\I805_2011\FinalResults



805S-136

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	24.3	2.29	--	--	8.17
2	6.22	0.257	--	--	--
3.5	4.41	0.100 U	--	--	--

805N-130

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	175	9.62	0.100 U	0.232	--
2	251	17.1	0.100 U	0.439	7.47
3.5	89.5	4.91	0.100 U	--	--

805N-124

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	35.5	0.865	--	--	--
2	2.11	0.100 U	--	--	--
3.5	3.25	0.100 U	--	--	7.35

805N-140

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	56.7	3.18	0.100 U	--	--
2	3.58	0.143	--	--	--
2	4.67	0.155	--	--	7.84
3.5	3.72	0.148	--	--	--

805N-134

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	23.8	0.739	--	--	7.86
2	4.29	0.100 U	--	--	--
3.5	1.45	0.100 U	--	--	--

805N-128

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	12.7	0.836	--	--	--
2	1.28	0.100 U	--	--	--
3.5	0.831	0.100 U	--	--	--

805N-122

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	12.8	0.321	--	--	--
2	2.08	0.100 U	--	--	5.47
3.5	2.96	0.100 U	--	--	--

805N-138

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	73.6	2.19	0.100 U	--	--
2	8.99	1.14	--	--	7.86
3.5	8.01	0.193	--	--	--

805N-132

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	125	7.06	0.100 U	0.122	--
2	99.9	3.07	0.100 U	--	--
3.5	4.87	0.182	--	--	7.95

805N-126

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	152	8.31	0.100 U	0.100 U	7.57
1	81	4.84	0.100 U	--	--
2	966	66.5	0.916	2.42	--
3.5	24.2	1	--	--	--

805N-120

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	30.5	1.33	--	--	--
2	3.05	0.100 U	--	--	--
3.5	8.84	0.315	--	--	--

805S-139

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	57.9	1.45	0.100 U	--	--
1	32.5	1.21	--	--	--
2	5.92	0.244	--	--	8.48

805S-135

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	13.9	0.794	--	--	7.8
2	0.728	0.100 U	--	--	--
3.5	0.798	0.100 U	--	--	--

805S-125

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	9.25	0.364	--	--	5.77
2	2.48	0.100 U	--	--	--
3.5	2.15	0.100 U	--	--	--

805S-141

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	31.6	1.61	--	--	7.83
2	96.7	3.09	0.100 U	--	--
3.5	30.9	1.21	--	--	--

805S-133

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	4.86	0.242	--	--	7.59
2	0.724	0.100 U	--	--	--
3.5	0.885	0.100 U	--	--	--

805S-127

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	30.9	0.927	--	--	--
2	10.2	0.565	--	--	--
3.5	10.2	0.149	--	--	--

805S-123

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	6.16	0.100 U	--	--	--
2	5.05	0.100 U	--	--	--
3.5	2.8	0.100 U	--	--	7.54

805S-137

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	16.8	0.389	--	--	--
2	2.2	0.100 U	--	--	--
3.5	2.57	0.100 U	--	--	--

805S-131

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	8.2	0.192	--	--	--
2	3.59	0.100 U	--	--	7.95

805S-129

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	45.5	1.2	--	--	--
2	2.88	0.100 U	--	--	--
3.5	2.34	0.100 U	--	--	7.15

805S-121

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	5.70 J	0.427	--	--	--
2	1.04	0.100 U	--	--	8.25
3.5	1.06	0.100 U	--	--	--

Feet
0 400 800

All dimensions and locations are approximate

LEGEND

805N-103
APPROXIMATE SAMPLE LOCATION AND LOCATION ID

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO:115813
DRAWN BY: E D GOFF
CHECKED BY: J JANUSZIEWICZ
DATE: APRIL 2011

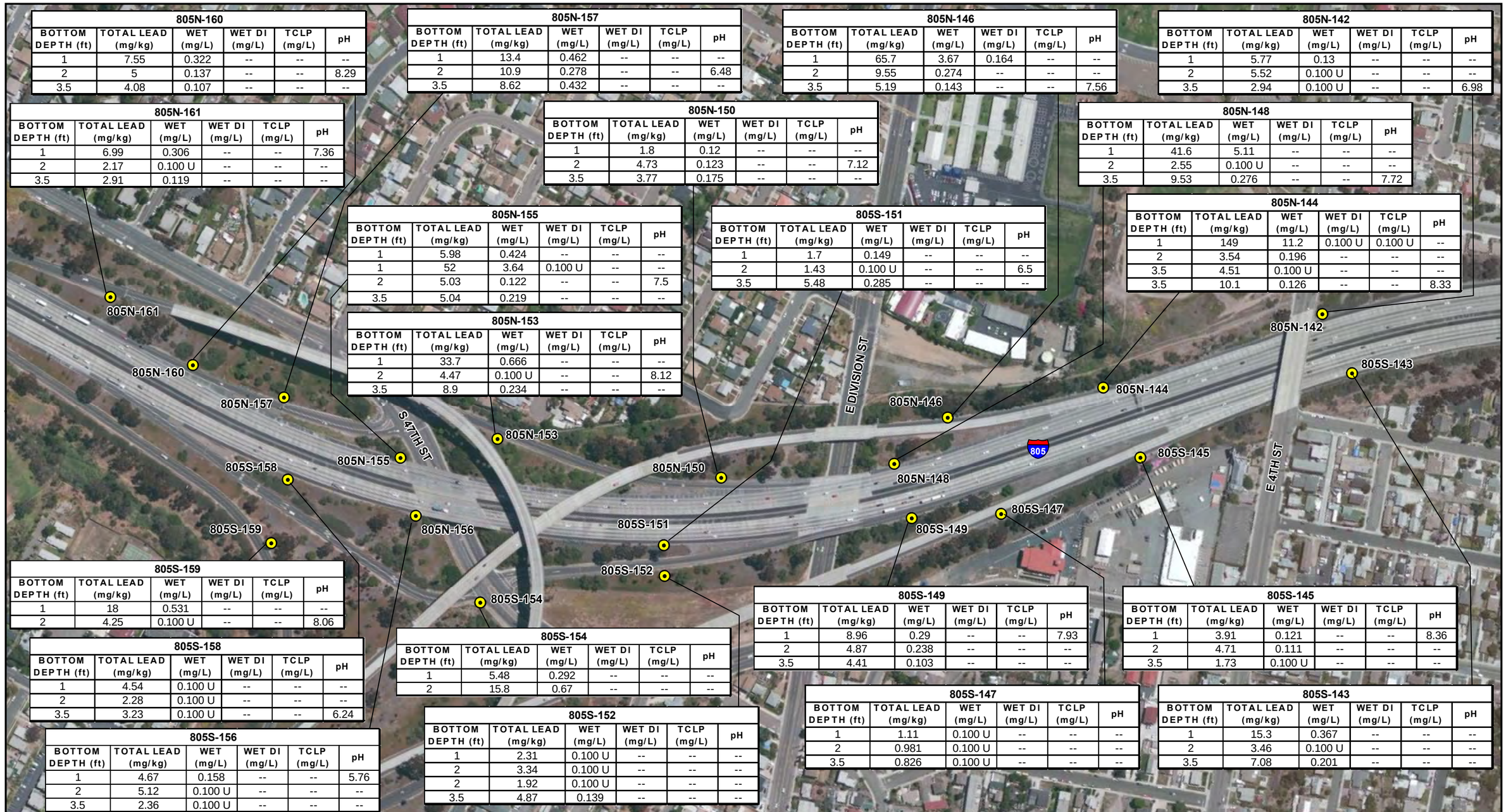
GeomorphIS

SAMPLE LOCATION MAP
Aerially Deposited Lead Survey
I-805 HOV, Caltrans EA 11-081610
San Diego, California

PLATE
8

Imagery: Bing Maps, ESRI

File: Projects\Caltrans\I805_2011\FinalResults



805N-160

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	7.55	0.322	--	--	--
2	5	0.137	--	--	8.29
3.5	4.08	0.107	--	--	--

805N-157

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	13.4	0.462	--	--	--
2	10.9	0.278	--	--	6.48
3.5	8.62	0.432	--	--	--

805N-146

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	65.7	3.67	0.164	--	--
2	9.55	0.274	--	--	--
3.5	5.19	0.143	--	--	7.56

805N-142

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	5.77	0.13	--	--	--
2	5.52	0.100 U	--	--	--
3.5	2.94	0.100 U	--	--	6.98

805N-161

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	6.99	0.306	--	--	7.36
2	2.17	0.100 U	--	--	--
3.5	2.91	0.119	--	--	--

805N-150

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	1.8	0.12	--	--	--
2	4.73	0.123	--	--	7.12
3.5	3.77	0.175	--	--	--

805N-148

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	41.6	5.11	--	--	--
2	2.55	0.100 U	--	--	--
3.5	9.53	0.276	--	--	7.72

805N-155

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	5.98	0.424	--	--	--
1	52	3.64	0.100 U	--	--
2	5.03	0.122	--	--	7.5
3.5	5.04	0.219	--	--	--

805S-151

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	1.7	0.149	--	--	--
2	1.43	0.100 U	--	--	6.5
3.5	5.48	0.285	--	--	--

805N-144

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	149	11.2	0.100 U	0.100 U	--
2	3.54	0.196	--	--	--
3.5	4.51	0.100 U	--	--	--
3.5	10.1	0.126	--	--	8.33

805N-153

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	33.7	0.666	--	--	--
2	4.47	0.100 U	--	--	8.12
3.5	8.9	0.234	--	--	--

805S-159

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	18	0.531	--	--	--
2	4.25	0.100 U	--	--	8.06

805S-158

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	4.54	0.100 U	--	--	--
2	2.28	0.100 U	--	--	--
3.5	3.23	0.100 U	--	--	6.24

805S-156

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	4.67	0.158	--	--	5.76
2	5.12	0.100 U	--	--	--
3.5	2.36	0.100 U	--	--	--

805S-154

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	5.48	0.292	--	--	--
2	15.8	0.67	--	--	--

805S-152

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	2.31	0.100 U	--	--	--
2	3.34	0.100 U	--	--	--
2	1.92	0.100 U	--	--	--
3.5	4.87	0.139	--	--	--

805S-149

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	8.96	0.29	--	--	7.93
2	4.87	0.238	--	--	--
3.5	4.41	0.103	--	--	--

805S-145

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	3.91	0.121	--	--	8.36
2	4.71	0.111	--	--	--
3.5	1.73	0.100 U	--	--	--

805S-147

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	1.11	0.100 U	--	--	--
2	0.981	0.100 U	--	--	--
3.5	0.826	0.100 U	--	--	--

805S-143

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	15.3	0.367	--	--	--
2	3.46	0.100 U	--	--	--
3.5	7.08	0.201	--	--	--

Feet
0 400 800

All dimensions and locations are approximate

LEGEND

805N-103
APPROXIMATE SAMPLE LOCATION AND LOCATION ID

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO:115813
DRAWN BY: E D GOFF
CHECKED BY: J JANUSZIEWICZ
DATE: APRIL 2011

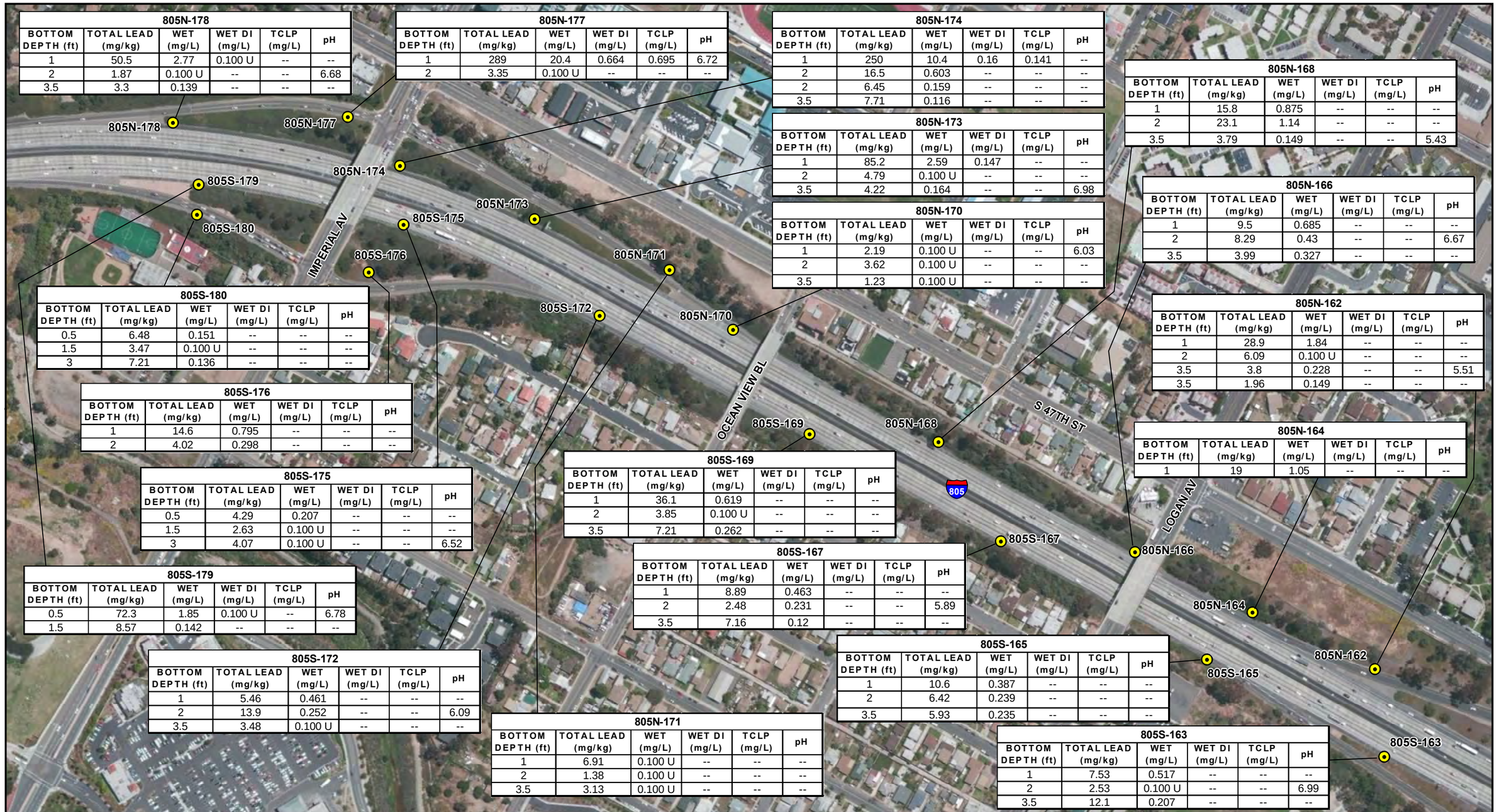
GeomorphIS

SAMPLE LOCATION MAP
Aerially Deposited Lead Survey
I-805 HOV, Caltrans EA 11-081610
San Diego, California

PLATE
9

Imagery: Bing Maps, ESRI

File: Projects\Caltrans\I805_2011\FinalResults



805N-178

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	50.5	2.77	0.100 U	--	--
2	1.87	0.100 U	--	--	6.68
3.5	3.3	0.139	--	--	--

805N-177

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	289	20.4	0.664	0.695	6.72
2	3.35	0.100 U	--	--	--

805N-174

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	250	10.4	0.16	0.141	--
2	16.5	0.603	--	--	--
2	6.45	0.159	--	--	--
3.5	7.71	0.116	--	--	--

805N-173

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	85.2	2.59	0.147	--	--
2	4.79	0.100 U	--	--	--
3.5	4.22	0.164	--	--	6.98

805N-170

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	2.19	0.100 U	--	--	6.03
2	3.62	0.100 U	--	--	--
3.5	1.23	0.100 U	--	--	--

805N-168

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	15.8	0.875	--	--	--
2	23.1	1.14	--	--	--
3.5	3.79	0.149	--	--	5.43

805N-166

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	9.5	0.685	--	--	--
2	8.29	0.43	--	--	6.67
3.5	3.99	0.327	--	--	--

805N-162

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	28.9	1.84	--	--	--
2	6.09	0.100 U	--	--	--
3.5	3.8	0.228	--	--	5.51
3.5	1.96	0.149	--	--	--

805N-164

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	19	1.05	--	--	--

805S-180

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	6.48	0.151	--	--	--
1.5	3.47	0.100 U	--	--	--
3	7.21	0.136	--	--	--

805S-176

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	14.6	0.795	--	--	--
2	4.02	0.298	--	--	--

805S-175

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	4.29	0.207	--	--	--
1.5	2.63	0.100 U	--	--	--
3	4.07	0.100 U	--	--	6.52

805S-169

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	36.1	0.619	--	--	--
2	3.85	0.100 U	--	--	--
3.5	7.21	0.262	--	--	--

805S-167

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	8.89	0.463	--	--	--
2	2.48	0.231	--	--	5.89
3.5	7.16	0.12	--	--	--

805S-179

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	72.3	1.85	0.100 U	--	6.78
1.5	8.57	0.142	--	--	--

805S-172

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	5.46	0.461	--	--	--
2	13.9	0.252	--	--	6.09
3.5	3.48	0.100 U	--	--	--

805S-165

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	10.6	0.387	--	--	--
2	6.42	0.239	--	--	--
3.5	5.93	0.235	--	--	--

805N-171

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	6.91	0.100 U	--	--	--
2	1.38	0.100 U	--	--	--
3.5	3.13	0.100 U	--	--	--

805S-163

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	7.53	0.517	--	--	--
2	2.53	0.100 U	--	--	6.99
3.5	12.1	0.207	--	--	--

N

Feet

0 400 800

All dimensions and locations are approximate

LEGEND

805N-103

APPROXIMATE SAMPLE LOCATION AND LOCATION ID

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO:115813
DRAWN BY: E D GOFF
CHECKED BY: J JANUSZIEWICZ
DATE: APRIL 2011

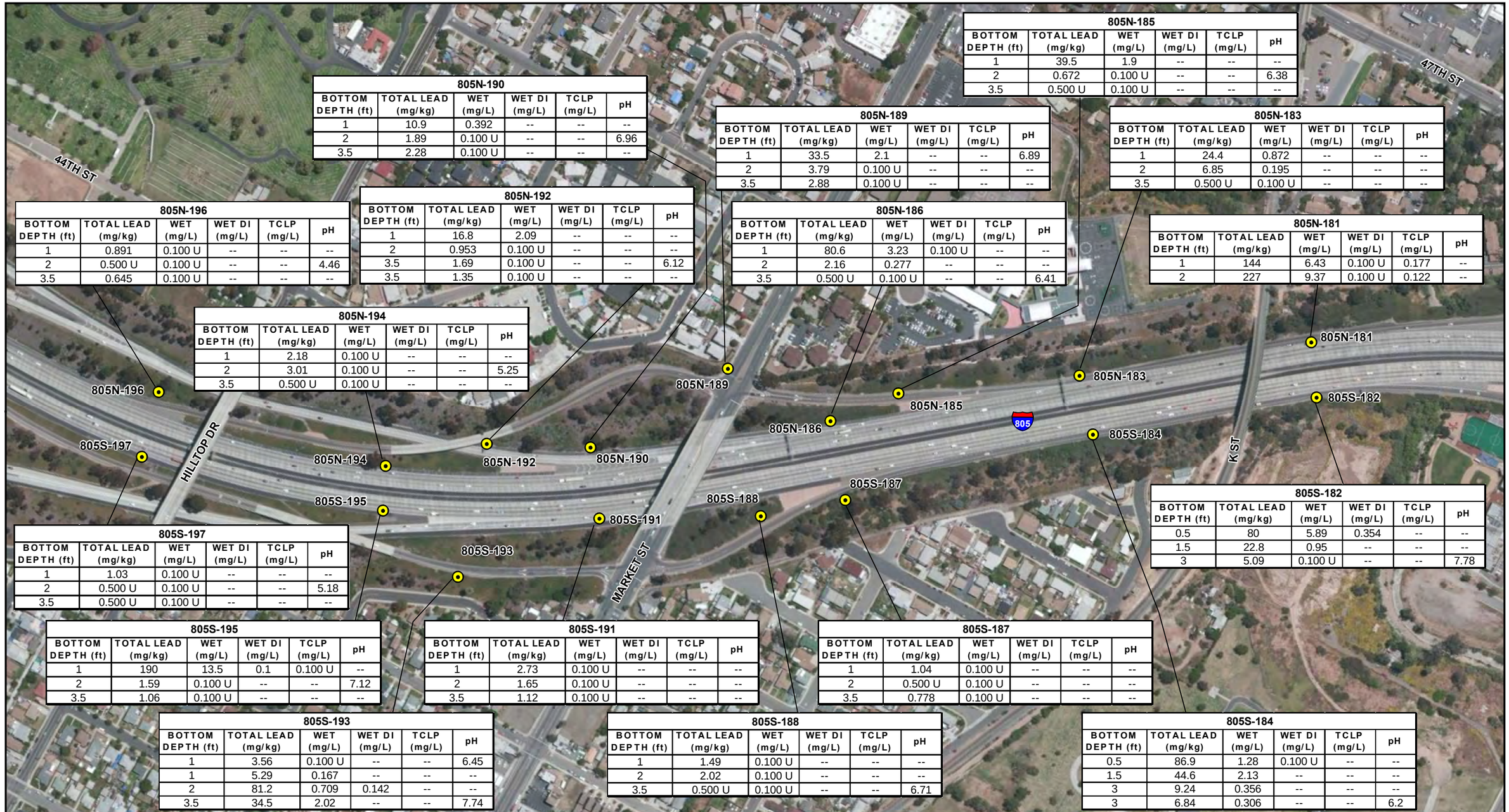
GeomorphIS

SAMPLE LOCATION MAP
Aerially Deposited Lead Survey
I-805 HOV, Caltrans EA 11-081610
San Diego, California

PLATE
10

Imagery: Bing Maps, ESRI

File: Projects\Caltrans\I805_2011\FinalResults



805N-190

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	10.9	0.392	--	--	--
2	1.89	0.100 U	--	--	6.96
3.5	2.28	0.100 U	--	--	--

805N-185

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	39.5	1.9	--	--	--
2	0.672	0.100 U	--	--	6.38
3.5	0.500 U	0.100 U	--	--	--

805N-189

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	33.5	2.1	--	--	6.89
2	3.79	0.100 U	--	--	--
3.5	2.88	0.100 U	--	--	--

805N-183

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	24.4	0.872	--	--	--
2	6.85	0.195	--	--	--
3.5	0.500 U	0.100 U	--	--	--

805N-196

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	0.891	0.100 U	--	--	--
2	0.500 U	0.100 U	--	--	4.46
3.5	0.645	0.100 U	--	--	--

805N-192

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	16.8	2.09	--	--	--
2	0.953	0.100 U	--	--	--
3.5	1.69	0.100 U	--	--	6.12
3.5	1.35	0.100 U	--	--	--

805N-186

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	80.6	3.23	0.100 U	--	--
2	2.16	0.277	--	--	--
3.5	0.500 U	0.100 U	--	--	6.41

805N-181

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	144	6.43	0.100 U	0.177	--
2	227	9.37	0.100 U	0.122	--

805N-194

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	2.18	0.100 U	--	--	--
2	3.01	0.100 U	--	--	5.25
3.5	0.500 U	0.100 U	--	--	--

805S-182

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	80	5.89	0.354	--	--
1.5	22.8	0.95	--	--	--
3	5.09	0.100 U	--	--	7.78

805S-197

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	1.03	0.100 U	--	--	--
2	0.500 U	0.100 U	--	--	5.18
3.5	0.500 U	0.100 U	--	--	--

805S-195

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	190	13.5	0.1	0.100 U	--
2	1.59	0.100 U	--	--	7.12
3.5	1.06	0.100 U	--	--	--

805S-191

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	2.73	0.100 U	--	--	--
2	1.65	0.100 U	--	--	--
3.5	1.12	0.100 U	--	--	--

805S-187

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	1.04	0.100 U	--	--	--
2	0.500 U	0.100 U	--	--	--
3.5	0.778	0.100 U	--	--	--

805S-193

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	3.56	0.100 U	--	--	6.45
1	5.29	0.167	--	--	--
2	81.2	0.709	0.142	--	--
3.5	34.5	2.02	--	--	7.74

805S-188

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	1.49	0.100 U	--	--	--
2	2.02	0.100 U	--	--	--
3.5	0.500 U	0.100 U	--	--	6.71

805S-184

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	86.9	1.28	0.100 U	--	--
1.5	44.6	2.13	--	--	--
3	9.24	0.356	--	--	--
3	6.84	0.306	--	--	6.2

Feet
0 400 800

All dimensions and locations are approximate

LEGEND

805N-103
APPROXIMATE SAMPLE LOCATION AND LOCATION ID

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO:115813
DRAWN BY: E D GOFF
CHECKED BY: J JANUSZIEWICZ
DATE: APRIL 2011

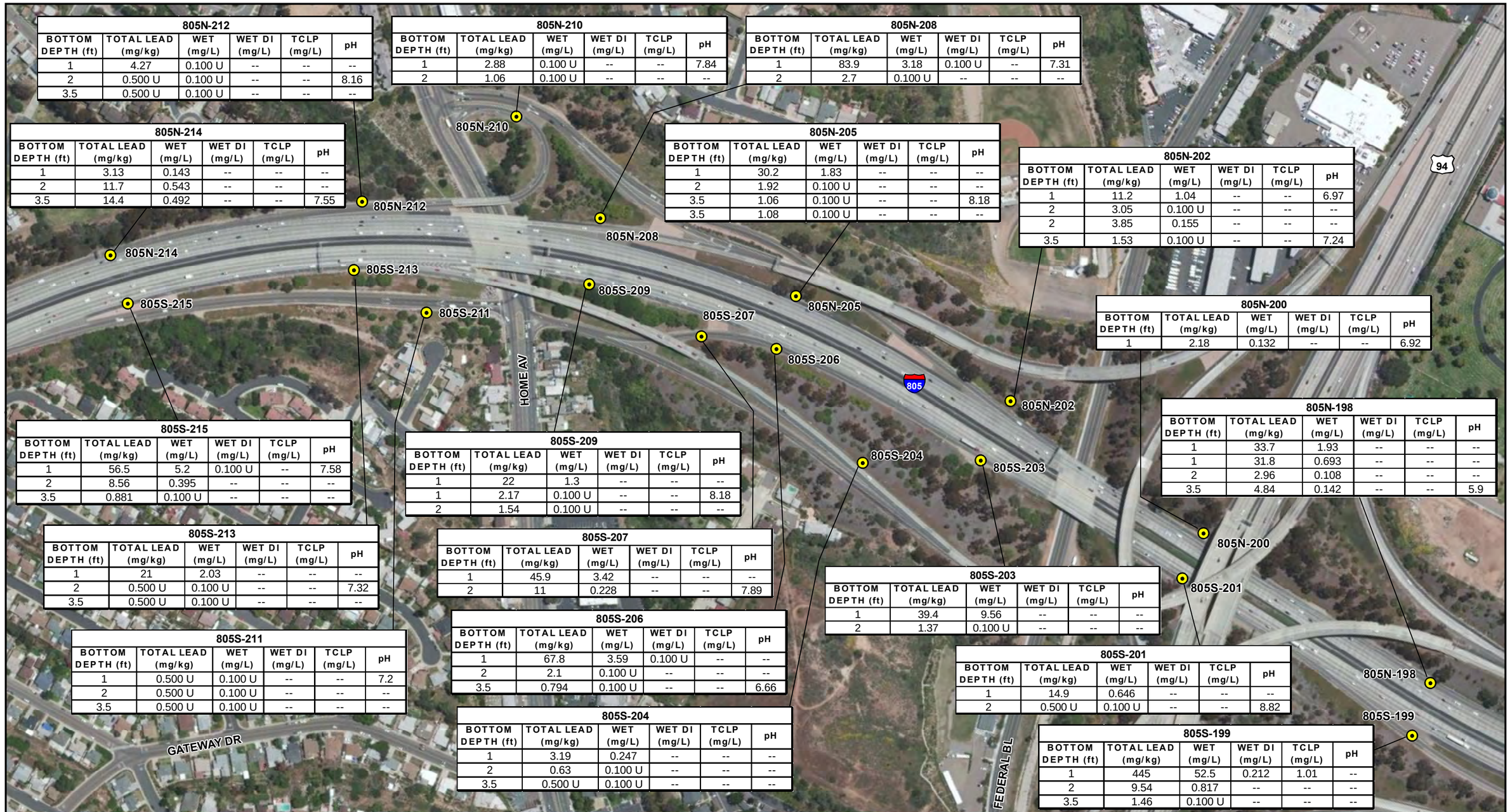
GeomorphIS

SAMPLE LOCATION MAP
Aerially Deposited Lead Survey
I-805 HOV, Caltrans EA 11-081610
San Diego, California

PLATE
11

Imagery: Bing Maps, ESRI

File: Projects\Caltrans\I805_2011\FinalResults



805N-212

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	4.27	0.100 U	--	--	--
2	0.500 U	0.100 U	--	--	8.16
3.5	0.500 U	0.100 U	--	--	--

805N-210

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	2.88	0.100 U	--	--	7.84
2	1.06	0.100 U	--	--	--

805N-208

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	83.9	3.18	0.100 U	--	7.31
2	2.7	0.100 U	--	--	--

805N-214

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	3.13	0.143	--	--	--
2	11.7	0.543	--	--	--
3.5	14.4	0.492	--	--	7.55

805N-205

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	30.2	1.83	--	--	--
2	1.92	0.100 U	--	--	--
3.5	1.06	0.100 U	--	--	8.18
3.5	1.08	0.100 U	--	--	--

805N-202

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	11.2	1.04	--	--	6.97
2	3.05	0.100 U	--	--	--
2	3.85	0.155	--	--	--
3.5	1.53	0.100 U	--	--	7.24

805N-200

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	2.18	0.132	--	--	6.92

805N-198

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	33.7	1.93	--	--	--
1	31.8	0.693	--	--	--
2	2.96	0.108	--	--	--
3.5	4.84	0.142	--	--	5.9

805S-215

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	56.5	5.2	0.100 U	--	7.58
2	8.56	0.395	--	--	--
3.5	0.881	0.100 U	--	--	--

805S-209

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	22	1.3	--	--	--
1	2.17	0.100 U	--	--	8.18
2	1.54	0.100 U	--	--	--

805S-213

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	21	2.03	--	--	--
2	0.500 U	0.100 U	--	--	7.32
3.5	0.500 U	0.100 U	--	--	--

805S-207

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	45.9	3.42	--	--	--
2	11	0.228	--	--	7.89

805S-203

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	39.4	9.56	--	--	--
2	1.37	0.100 U	--	--	--

805S-211

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	0.500 U	0.100 U	--	--	7.2
2	0.500 U	0.100 U	--	--	--
3.5	0.500 U	0.100 U	--	--	--

805S-206

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	67.8	3.59	0.100 U	--	--
2	2.1	0.100 U	--	--	--
3.5	0.794	0.100 U	--	--	6.66

805S-201

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	14.9	0.646	--	--	--
2	0.500 U	0.100 U	--	--	8.82

805S-204

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	3.19	0.247	--	--	--
2	0.63	0.100 U	--	--	--
3.5	0.500 U	0.100 U	--	--	--

805S-199

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	445	52.5	0.212	1.01	--
2	9.54	0.817	--	--	--
3.5	1.46	0.100 U	--	--	--

Feet
0 400 800

All dimensions and locations are approximate

LEGEND

805N-103
APPROXIMATE SAMPLE LOCATION AND LOCATION ID

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO:115813
DRAWN BY: E D GOFF
CHECKED BY: J JANUSZIEWICZ
DATE: APRIL 2011

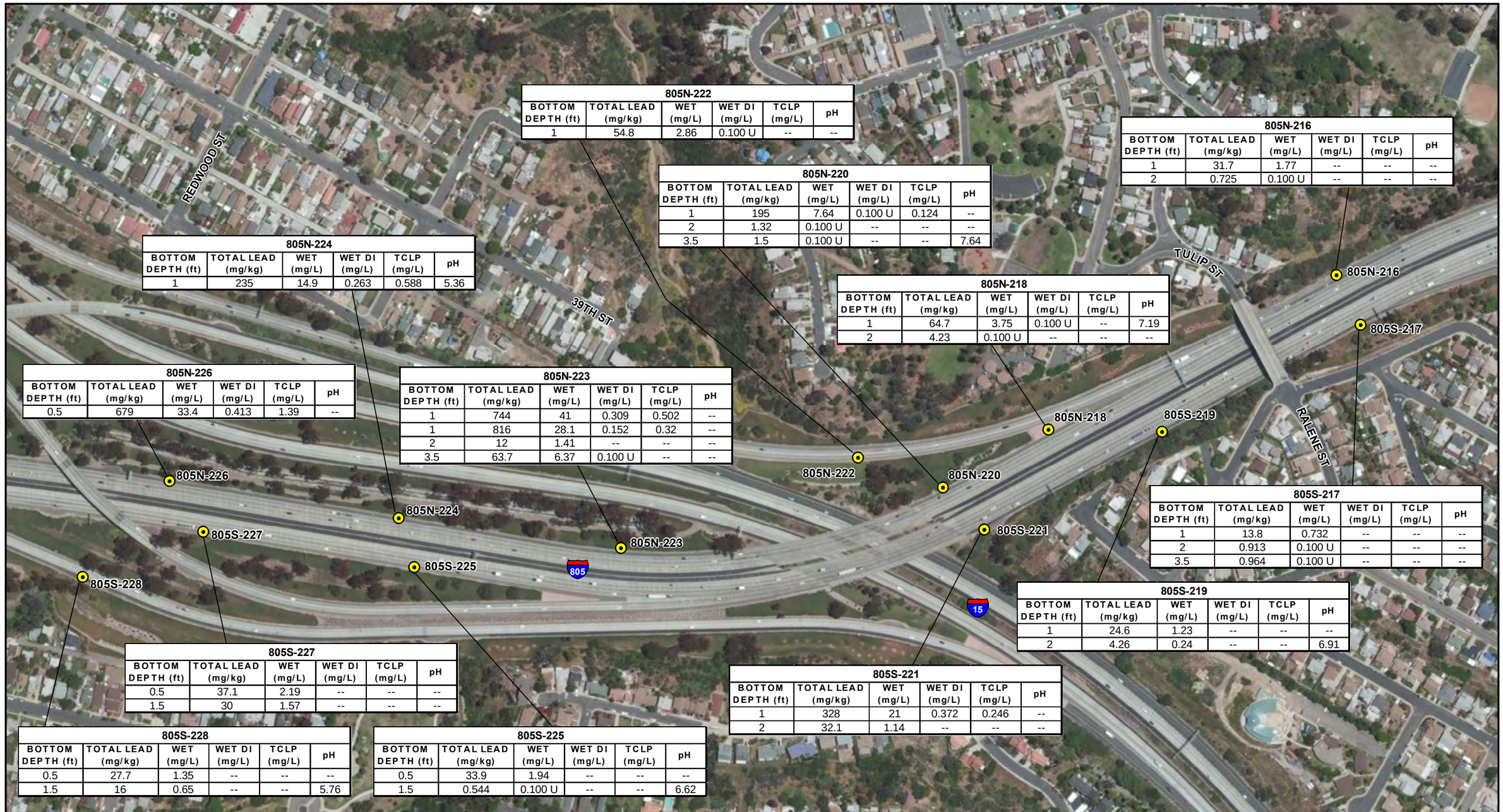
GeomorphIS

SAMPLE LOCATION MAP
Aerially Deposited Lead Survey
I-805 HOV, Caltrans EA 11-081610
San Diego, California

PLATE
12

Imagery: Bing Maps, ESRI

File: Projects\Caltrans\I805_2011\FinalResults



805N-222

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	54.8	2.86	0.100 U	--	--

805N-220

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	195	7.64	0.100 U	0.124	--
2	1.32	0.100 U	--	--	--
3.5	1.5	0.100 U	--	--	7.64

805N-216

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	31.7	1.77	--	--	--
2	0.725	0.100 U	--	--	--

805N-224

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	235	14.9	0.263	0.588	5.36

805N-218

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	64.7	3.75	0.100 U	--	7.19
2	4.23	0.100 U	--	--	--

805N-226

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	679	33.4	0.413	1.39	--

805N-223

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	744	41	0.309	0.502	--
1	816	28.1	0.152	0.32	--
2	12	1.41	--	--	--
3.5	63.7	6.37	0.100 U	--	--

805S-217

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	13.8	0.732	--	--	--
2	0.913	0.100 U	--	--	--
3.5	0.964	0.100 U	--	--	--

805S-219

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	24.6	1.23	--	--	--
2	4.26	0.24	--	--	6.91

805S-227

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	37.1	2.19	--	--	--
1.5	30	1.57	--	--	--

805S-221

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	328	21	0.372	0.246	--
2	32.1	1.14	--	--	--

805S-228

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	27.7	1.35	--	--	--
1.5	16	0.65	--	--	5.76

805S-225

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	33.9	1.94	--	--	--
1.5	0.544	0.100 U	--	--	6.62

Feet
0 400 800

All dimensions and locations are approximate

LEGEND

805N-103
APPROXIMATE SAMPLE LOCATION AND LOCATION ID

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO:115813
DRAWN BY: E D GOFF
CHECKED BY: J JANUSZIEWICZ
DATE: APRIL 2011

GeomorphIS

SAMPLE LOCATION MAP
Aerially Deposited Lead Survey
I-805 HOV, Caltrans EA 11-081610
San Diego, California

PLATE
13

Imagery: Bing Maps, ESRI

File: Projects\Caltrans\I805_2011\FinalResults

805N-229

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
1	23.2	1.33	--	--	--
2	127	8.46	0.100 U	0.113	--

805N-237

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	55	2.48	0.21	--	--
1.5	10.4	0.363	--	--	6.06

805N-233

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	11.6	1.11	--	--	--

805N-230

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	4.51	0.173	--	--	6.36
1.5	0.503	0.100 U	--	--	--

805N-239

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	323	13.1	0.12	0.100 U	--

805N-235

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	4.9	0.100 U	--	--	--
1.5	0.545	0.100 U	--	--	--

805N-231

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	96.9	3.5	0.12	--	--
1.5	20.3	0.695	--	--	--

805S-236

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	22.7	1.19	--	--	--
1.5	46	2.02	--	--	--

805S-232

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	38.2	4.8	--	--	6.31
1.5	46.7	0.517	--	--	--

805S-238

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	193	23.8	0.448	0.527	--
1.5	11	0.391	--	--	--
0.5	265	24.5	0.232	0.367	--

805S-234

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	4.08	0.100 U	--	--	7.13
1.5	6.77	0.167	--	--	--
0.5	5.7	0.115	--	--	--

805S-240

BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	WET (mg/L)	WET DI (mg/L)	TCLP (mg/L)	pH
0.5	4.39	0.494	--	--	--
1.5	1.41	0.100 U	--	--	6.66
3	4.42	0.269	--	--	6.68

N

Feet

0 400 800

All dimensions and locations are approximate

LEGEND

805N-103

APPROXIMATE SAMPLE LOCATION AND LOCATION ID

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO:115813
DRAWN BY: E D GOFF
CHECKED BY: J JANUSZIEWICZ
DATE: APRIL 2011

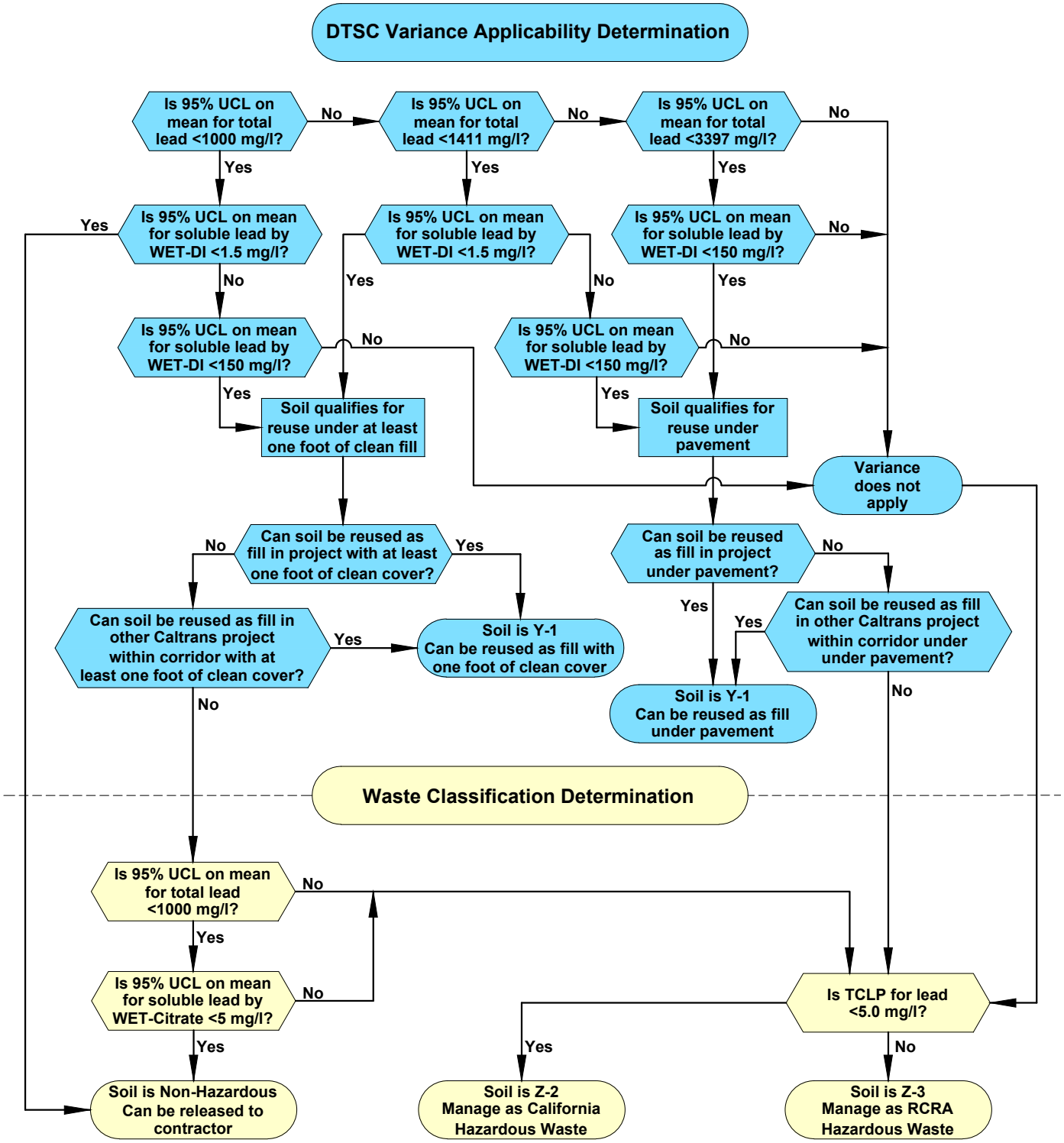
GeomorphIS

SAMPLE LOCATION MAP
Aerially Deposited Lead Survey
I-805 HOV, Caltrans EA 11-081610
San Diego, California

PLATE
14

Imagery: Bing Maps, ESRI

File: Projects\Caltrans\I805_2011\FinalResults



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

SOURCE:

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

KLEINFELDER
Bright People. Right Solutions.
www.kleinfelder.com

PROJECT NO.	115813
DRAWN:	5/9/11
DRAWN BY:	JP
CHECKED BY:	MH
FILE NAME:	115813flow.dwg

ADL-IMPACTED SOILS MANAGEMENT FLOW CHART

AERIALLY DEPOSITED LEAD SURVEY
I-805 HOV, CALTRANS EA 11-081610
SAN DIEGO, CALIFORNIA

PLATE

15

TABLES

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-001	805N-001-0.5	N	3/1/2011	0.5	No	14.3	0.614	--	--	--
	805N-001-1.5	N	3/1/2011	1.5	No	33.7	2.12	--	--	7.21
	805N-001-3.0	N	3/1/2011	3	No	11.6	0.696	--	--	--
805C-002	805C-002-0.5	N	3/9/2011	0.5	Yes	86.4	2.28	0.100 U	--	--
805S-003	805S-003-0.5	N	3/1/2011	0.5	No	1.06	0.100 U	--	--	7.12
	805S-003-1.5	N	3/1/2011	1.5	No	7.49	0.929	--	--	--
	805S-003-3.0	N	3/1/2011	3	No	1.56	0.100 U	--	--	--
805N-004	805N-004-0.5	N	3/1/2011	0.5	No	233	15.2	0.100 U	0.100 U	--
	805N-004-1.5	N	3/1/2011	1.5	No	0.665	0.100 U	--	--	--
	805N-004-3.0	N	3/1/2011	3	No	0.500 U	0.100 U	--	--	5.65
805C-005	805C-005-0.5	N	3/9/2011	0.5	No	48.5	3.07	--	--	7.76
	805C-005-1.5	N	3/9/2011	1.5	Yes	5.15	0.367	--	--	--
805S-006	805S-006-0.5	N	3/1/2011	0.5	No	0.538	0.100 U	--	--	--
	805S-006-1.5	N	3/1/2011	1.5	No	0.500 U	0.100 U	--	--	--
	805S-006-3.0	N	3/1/2011	3	No	0.500 U	0.100 U	--	--	--
805N-007	805N-007-0.5	N	3/1/2011	0.5	No	133	12.9	0.100 U	0.292	--
	805N-007-1.5	N	3/1/2011	1.5	No	8.31	0.630	--	--	--
	805N-007-3.0	N	3/1/2011	3	No	31.5	1.18	--	--	--
	805N-007-100	FD	3/1/2011	3	No	21.6	2.76	--	--	6.94
805C-008	805C-008-0.5	N	3/9/2011	0.5	No	60.9	3.80	0.100 U	--	--
	805C-008-1.5	N	3/9/2011	1.5	No	3.20	0.100 U	--	--	7.29
	805C-008-3.0	N	3/9/2011	3	No	1.67	0.104	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805S-009	805S-009-0.5	N	3/1/2011	0.5	No	64.8	11.8	0.141	--	--
	805S-009-1.5	N	3/1/2011	1.5	No	1.12	0.100 U	--	--	--
	805S-009-3.0	N	3/1/2011	3	No	1.73	0.100 U	--	--	7.84
805N-010	805N-010-0.5	N	3/1/2011	0.5	No	118	11.5	0.198	0.246	--
	805N-010-1.5	N	3/1/2011	1.5	No	8.84	1.57	--	--	--
	805N-010-3.0	N	3/1/2011	3	No	4.07	0.100 U	--	--	--
805C-011	805C-011-0.5	N	3/9/2011	0.5	No	5.69	0.353	--	--	--
	805C-011-1.5	N	3/9/2011	1.5	No	2.51	0.100 U	--	--	--
	805C-011-3.0	N	3/9/2011	3	No	1.06	0.100 U	--	--	--
805S-012	805S-012-0.5	N	3/1/2011	0.5	No	40.1	7.14	--	--	--
	805S-012-1.5	N	3/1/2011	1.5	No	17.6	1.08	--	--	5.93
	805S-012-3.0	N	3/1/2011	3	No	1.65	0.100 U	--	--	--
805N-013	805N-013-0.5	N	3/1/2011	0.5	No	1180	44.6	0.104	0.125	7.33
	805N-013-1.5	N	3/1/2011	1.5	No	70.8	6.07	0.165	--	--
	805N-013-3.0	N	3/1/2011	3	No	7.64	0.742	--	--	--
805C-014	805C-014-0.5	N	3/9/2011	0.5	No	59.5	3.69	0.100 U	--	7.56
	805C-014-1.5	N	3/9/2011	1.5	No	3.27	0.100 U	--	--	--
	805C-014-3.0	N	3/9/2011	3	No	2.81	0.465	--	--	--
805S-015	805S-015-0.5	N	3/1/2011	0.5	No	11.4	1.56	--	--	6.98
	805S-015-1.5	N	3/1/2011	1.5	No	0.809	0.100 U	--	--	--
	805S-015-3.0	N	3/1/2011	3	No	39.9	1.17	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-016	805N-016-0.5	N	3/1/2011	0.5	No	291	21.4	0.178	0.308	--
	805N-016-1.5	N	3/1/2011	1.5	No	1.08	0.100 U	--	--	6.99
	805N-016-3.0	N	3/1/2011	3	No	1.46	0.116	--	--	--
805C-017	805C-017-0.5	N	3/9/2011	0.5	No	35.9	3.79	--	--	--
	805C-017-1.5	N	3/9/2011	1.5	No	1.28	0.100 U	--	--	7.41
	805C-017-3.0	N	3/9/2011	3	No	1.10	0.100 U	--	--	--
805S-018	805S-018-0.5	N	2/28/2011	0.5	No	8.94	0.875	--	--	--
	805S-018-1.5	N	2/28/2011	1.5	No	1.09	0.100 U	--	--	--
	805S-018-3.0	N	2/28/2011	3	No	1.33	0.100 U	--	--	5.12
	805S-018-100	FD	2/28/2011	3	No	3.88	0.244	--	--	--
805N-019	805N-019-0.5	N	3/2/2011	0.5	No	20.9	1.18	--	--	7.69
	805N-019-1.5	N	3/2/2011	1.5	No	1.26	0.100 U	--	--	--
	805N-019-3.0	N	3/2/2011	3	No	0.988	0.100 U	--	--	--
805C-020	805C-020-0.5	N	3/9/2011	0.5	No	102	6.26	0.114	0.243	7.98
	805C-020-100	FD	3/9/2011	0.5	No	97.7	3.66	0.100 U	--	--
	805C-020-1.5	N	3/9/2011	1.5	No	3.92	0.269	--	--	--
	805C-020-3.0	N	3/9/2011	3	No	0.500 U	0.100 U	--	--	--
805S-021	805S-021-0.5	N	2/28/2011	0.5	No	5.87	0.412	--	--	--
	805S-021-1.5	N	2/28/2011	1.5	No	0.864	0.104	--	--	--
	805S-021-3.0	N	2/28/2011	3	No	0.500 U	0.100 U	--	--	6.18
805N-022	805N-022-0.5	N	3/2/2011	0.5	No	369	17.3	0.218	0.255	--
	805N-022-1.5	N	3/2/2011	1.5	No	12.1	4.45	--	--	6.94
	805N-022-3.0	N	3/2/2011	3	No	123	7.09	0.100 U	0.111	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805C-023	805C-023-0.5	N	3/9/2011	0.5	No	31.0	1.27	--	--	--
	805C-023-1.5	N	3/9/2011	1.5	No	9.74	1.71	--	--	--
	805C-023-3.0	N	3/9/2011	3	No	1.61	0.100 U	--	--	--
805S-024	805S-024-0.5	N	2/28/2011	0.5	No	12.4	0.347	--	--	--
	805S-024-1.5	N	2/28/2011	1.5	No	2.34	0.100 U	--	--	5.63
	805S-024-3.0	N	2/28/2011	3	No	5.42	0.256	--	--	--
805N-025	805N-025-0.5	N	3/2/2011	0.5	No	134	17.6	0.131	0.382	--
	805N-025-1.5	N	3/2/2011	1.5	No	0.600	0.100 U	--	--	--
	805N-025-3.0	N	3/2/2011	3	No	0.669	0.100 U	--	--	8.39
805C-026	805C-026-0.5	N	3/9/2011	0.5	No	40.1	2.47	--	--	--
	805C-026-1.5	N	3/9/2011	1.5	No	3.51	0.100 U	--	--	7.54
	805C-026-3.0	N	3/9/2011	3	No	0.824	0.100 U	--	--	--
805S-027	805S-027-0.5	N	2/28/2011	0.5	No	8.28	0.799	--	--	7.68
	805S-027-1.0	N	2/28/2011	1	No	1.25	0.100 U	--	--	--
	805S-027-3.0	N	2/28/2011	3	No	8.09	0.100 U	--	--	--
805N-028	805N-028-0.5	N	3/2/2011	0.5	No	69.3	7.13	0.100 U	--	--
	805N-028-1.5	N	3/2/2011	1.5	No	1.07	0.100 U	--	--	--
	805N-028-3.0	N	3/2/2011	3	No	0.718	0.100 U	--	--	--
805C-029	805C-029-0.5	N	3/10/2011	0.5	No	8.19 J	0.361	--	--	--
	805C-029-1.5	N	3/10/2011	1.5	No	0.667 J	0.100 U	--	--	8.24
	805C-029-3.0	N	3/10/2011	3	No	2.97 J	0.100 U	--	--	--
805S-030	805S-030-0.5	N	2/28/2011	0.5	No	31.1	2.40	--	--	--
	805S-030-1.5	N	2/28/2011	1.5	No	0.500 U	0.100 U	--	--	--
	805S-030-3.0	N	2/28/2011	3	No	0.567	0.100 U	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-031	805N-031-0.5	N	3/2/2011	0.5	No	180	17.2	0.138	0.121	7.42
	805N-031-1.5	N	3/2/2011	1.5	No	1.17	0.216	--	--	--
	805N-031-3.0	N	3/2/2011	3	No	3.16	0.396	--	--	--
805C-032	805C-032-0.5	N	3/9/2011	0.5	No	0.571	0.100 U	--	--	--
	805C-032-100	FD	3/9/2011	0.5	No	422	17.6	0.100 U	0.674	--
	805C-032-1.5	N	3/9/2011	1.5	No	0.805	0.100 U	--	--	7.93
	805C-032-3.0	N	3/9/2011	3	No	0.500 U	0.100 U	--	--	--
805S-033	805S-033-0.5	N	2/28/2011	0.5	No	155	19.5	0.100 U	0.100 U	7.29
	805S-033-1.5	N	2/28/2011	1.5	No	3.64	0.100 U	--	--	--
	805S-033-3.0	N	2/28/2011	3	No	1.63	0.100 U	--	--	--
805N-034	805N-034-0.5	N	3/2/2011	0.5	No	224	13.5	0.100 U	0.242	--
	805N-034-1.5	N	3/2/2011	1.5	No	6.45	0.100 U	--	--	7.54
	805N-034-3.0	N	3/2/2011	3	No	0.725	0.100 U	--	--	--
805C-035	805C-035-0.5	N	3/10/2011	0.5	Yes	0.500 U	0.100 U	--	--	--
805S-036	805S-036-0.5	N	2/28/2011	0.5	No	6.27	0.397	--	--	--
	805S-036-1.5	N	2/28/2011	1.5	No	2.79	0.100 U	--	--	--
	805S-036-3.0	N	2/28/2011	3	No	0.500 U	0.100 U	--	--	--
805N-037	805N-037-0.5	N	3/2/2011	0.5	No	174	16.7	0.125	0.393	--
	805N-037-1.5	N	3/2/2011	1.5	No	39.4	2.08	--	--	--
	805N-037-3.0	N	3/2/2011	3	No	82.4 J	5.01	0.100 U	--	7.88
805C-038	805C-038-0.5	N	3/9/2011	0.5	No	0.711	0.100 U	--	--	--
	805C-038-1.5	N	3/9/2011	1.5	No	0.604	0.100 U	--	--	--
	805C-038-3.0	N	3/9/2011	3	No	0.500 U	0.100 U	--	--	7.55

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805S-039	805S-039-0.5	N	2/28/2011	0.5	No	92.6	10.1	0.100 U	--	--
	805S-039-1.5	N	2/28/2011	1.5	No	0.500 U	0.120	--	--	7.25
	805S-039-3.0	N	2/28/2011	3	No	0.500 U	0.100 U	--	--	--
805N-040	805N-040-0.5	N	3/2/2011	0.5	No	5.22 J	0.297	--	--	--
	805N-040-1.5	N	3/2/2011	1.5	No	1.60 J	0.100 U	--	--	--
	805N-040-3.0	N	3/2/2011	3	No	0.500 UJ	0.100 U	--	--	--
	805N-040-100	FD	3/2/2011	3	No	0.500 UJ	0.100 U	--	--	7.29
805C-041	805C-041-0.5	N	3/9/2011	0.5	No	44.6	4.36	--	--	--
	805C-041-1.5	N	3/9/2011	1.5	No	0.500 U	0.100 U	--	--	--
	805C-041-3.0	N	3/9/2011	3	No	0.500 U	0.100 U	--	--	--
805S-042	805S-042-0.5	N	2/28/2011	0.5	No	10.6	0.515	--	--	--
	805S-042-1.5	N	2/28/2011	1.5	No	0.500 U	0.100 U	--	--	--
	805S-042-3.0	N	2/28/2011	3	No	0.500 U	0.100 U	--	--	9.03
805N-043	805N-043-0.5	N	3/2/2011	0.5	No	241 J	21.9	0.460	0.564	--
	805N-043-1.5	N	3/2/2011	1.5	No	266 J	13.4	0.161	0.370	--
	805N-043-3.0	N	3/2/2011	3	No	121 J	7.35	0.100 U	0.130	--
805C-044	805C-044-0.5	N	3/9/2011	0.5	No	0.500 U	0.100 U	--	--	7.90
	805C-044-1.5	N	3/9/2011	1.5	No	1.16	0.100 U	--	--	--
	805C-044-3.0	N	3/9/2011	3	No	0.500 U	0.100 U	--	--	--
805S-045	805S-045-0.5	N	3/10/2011	0.5	No	315 J	16.5	0.124	0.410	--
	805S-045-1.5	N	3/10/2011	1.5	No	1.02 J	0.100 U	--	--	--
	805S-045-3.0	N	3/10/2011	3	No	0.500 U	0.100 U	--	--	7.95

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-046	805N-046-0.5	N	3/2/2011	0.5	No	29.0 J	2.73	--	--	7.13
	805N-046-1.5	N	3/2/2011	1.5	No	0.500 UJ	0.100 U	--	--	--
	805N-046-3.0	N	3/2/2011	3	No	11.5 J	0.612	--	--	--
805C-047	805C-047-0.5	N	3/9/2011	0.5	No	0.500 U	0.100 U	--	--	--
	805C-047-1.5	N	3/9/2011	1.5	No	0.500 U	0.100 U	--	--	--
	805C-047-3.0	N	3/9/2011	3	No	0.600	0.100 U	--	--	--
805S-048	805S-048-0.5	N	3/10/2011	0.5	No	29.9 J	2.06	--	--	--
	805S-048-1.5	N	3/10/2011	1.5	No	25.9 J	1.20	--	--	--
	805S-048-3.0	N	3/10/2011	3	No	0.500 U	0.100 U	--	--	--
805N-049	805N-049-0.5	N	3/2/2011	0.5	No	12.3 J	0.386	--	--	--
	805N-049-1.5	N	3/2/2011	1.5	No	0.713 J	0.100 U	--	--	7.45
	805N-049-3.0	N	3/2/2011	3	No	0.598 J	0.100 U	--	--	--
805C-050	805C-050-0.5	N	3/9/2011	0.5	No	0.502	0.100 U	--	--	--
	805C-050-1.5	N	3/9/2011	1.5	No	0.500 U	0.100 U	--	--	8.23
	805C-050-3.0	N	3/9/2011	3	No	0.500 U	0.100 U	--	--	--
805S-051	805S-051-0.5	N	3/10/2011	0.5	No	15.5 J	0.218	--	--	--
	805S-051-1.5	N	3/10/2011	1.5	No	2.98 J	0.100 U	--	--	--
	805S-051-3.0	N	3/10/2011	3	No	1.13 J	0.100 U	--	--	7.62
805N-052	805N-052-0.5	N	3/2/2011	0.5	No	14.1 J	0.509	--	--	--
	805N-052-1.5	N	3/2/2011	1.5	No	0.500 UJ	0.100 U	--	--	--
	805N-052-3.0	N	3/2/2011	3	No	0.671 J	0.100 U	--	--	7.38
805N-053	805N-053-0.5	N	3/2/2011	0.5	No	65.1 J	3.92	0.100 U	--	--
	805N-053-1.5	N	3/2/2011	1.5	No	3.51 J	0.100 U	--	--	--
	805N-053-3.0	N	3/2/2011	3	No	0.778 J	0.100 U	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805C-054	805C-054-0.5	N	3/9/2011	0.5	No	0.500 U	0.100 U	--	--	--
	805C-054-1.5	N	3/9/2011	1.5	No	0.500 U	0.100 U	--	--	8.18
	805C-054-3.0	N	3/9/2011	3	No	0.500 U	0.100 U	--	--	--
805S-055	805S-055-0.5	N	3/10/2011	0.5	No	1.85 J	0.100 U	--	--	--
	805S-055-1.5	N	3/10/2011	1.5	No	1.17 J	0.100 U	--	--	--
	805S-055-3.0	N	3/10/2011	3	No	0.805 J	0.100 U	--	--	--
805S-056	805S-056-0.5	N	3/10/2011	0.5	No	4.52 J	0.100 U	--	--	--
	805S-056-1.5	N	3/10/2011	1.5	No	0.814 J	0.100 U	--	--	8.50
	805S-056-3.0	N	3/10/2011	3	No	0.500 U	0.100 U	--	--	--
805S-057	805S-057-0.5	N	3/10/2011	0.5	No	2.20 J	0.115	--	--	--
	805S-057-1.5	N	3/10/2011	1.5	No	6.54 J	0.328	--	--	--
	805S-057-100	FD	3/10/2011	1.5	No	2.45 J	0.103	--	--	7.21
	805S-057-3.0	N	3/10/2011	3	No	1.46 J	0.102	--	--	--
805N-058	805N-058-0.5	N	3/2/2011	0.5	No	7.42	0.224	--	--	--
	805N-058-1.5	N	3/2/2011	1.5	No	90.0	1.71	0.100 U	--	--
	805N-058-3.0	N	3/2/2011	3	No	9.78	0.365	--	--	--
805N-059	805N-059-0.5	N	3/2/2011	0.5	No	9.16	0.100 U	--	--	7.68
	805N-059-1.5	N	3/2/2011	1.5	No	0.966	0.100 U	--	--	--
	805N-059-3.0	N	3/2/2011	3	No	0.555	0.100 U	--	--	--
805C-060	805C-060-0.5	N	3/9/2011	0.5	No	1.12	0.100 U	--	--	--
	805C-060-1.5	N	3/9/2011	1.5	No	0.500 U	0.100 U	--	--	8.29
	805C-060-3.0	N	3/9/2011	3	No	0.544	0.100 U	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805S-061	805S-061-0.5	N	3/10/2011	0.5	No	37.1 J	1.74	--	--	--
	805S-061-1.5	N	3/10/2011	1.5	No	0.500 U	0.100 U	--	--	--
	805S-061-3.0	N	3/10/2011	3	No	0.754 J	0.100 U	--	--	--
805S-062	805S-062-0.5	N	3/10/2011	0.5	No	15.5 J	0.742	--	--	--
	805S-062-1.5	N	3/10/2011	1.5	No	1.31 J	0.100 U	--	--	7.66
	805S-062-3.0	N	3/10/2011	3	No	3.65 J	0.105	--	--	--
805N-063	805N-063-0.5	N	3/2/2011	0.5	No	21.0	0.100 U	--	--	--
	805N-063-1.5	N	3/2/2011	1.5	No	1.59	0.100 U	--	--	8.28
	805N-063-3.0	N	3/2/2011	3	No	1.45	0.100 U	--	--	--
805C-064	805C-064-0.5	N	3/9/2011	0.5	No	1.81	0.100 U	--	--	--
	805C-064-1.5	N	3/9/2011	1.5	No	0.500 U	0.100 U	--	--	7.99
	805C-064-3.0	N	3/9/2011	3	No	1.48	0.100 U	--	--	--
805S-065	805S-065-0.5	N	3/10/2011	0.5	No	63.2 J	1.07	0.100 U	--	7.76
	805S-065-1.5	N	3/10/2011	1.5	No	0.905 J	0.100 U	--	--	--
	805S-065-3.0	N	3/10/2011	3	No	1.33 J	0.100 U	--	--	--
805N-066	805N-066-0.5	N	3/2/2011	0.5	No	33.7	2.17	--	--	--
	805N-066-1.5	N	3/2/2011	1.5	No	23.9	2.97	--	--	--
	805N-066-3.0	N	3/2/2011	3	No	17.8	1.84	--	--	7.89
805N-067	805N-067-0.5	N	3/2/2011	0.5	No	4.36	0.266	--	--	--
	805N-067-1.5	N	3/2/2011	1.5	No	0.759	0.100 U	--	--	--
	805N-067-3.0	N	3/2/2011	3	No	0.500 U	0.100 U	--	--	--
805C-068	805C-068-0.5	N	3/9/2011	0.5	No	1.06	0.100 U	--	--	--
	805C-068-1.5	N	3/9/2011	1.5	No	0.934	0.100 U	--	--	7.97
	805C-068-3.0	N	3/9/2011	3	No	0.962	0.100 U	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

California Hazardous Waste Criteria [1]						1,000	5.0			
RCRA Hazardous Waste Criteria [2]									5.0	
CALTRANS Variance Criteria [3]					Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805S-069	805S-069-0.5	N	3/10/2011	0.5	No	294 J	18.8	0.100 U	0.818	--
	805S-069-100	FD	3/10/2011	0.5	No	155 J	9.95	0.100 U	0.175	--
	805S-069-1.5	N	3/10/2011	1.5	No	37.6 J	1.63	--	--	--
	805S-069-3.0	N	3/10/2011	3	No	3.27 J	0.100 U	--	--	8.66
805N-070	805N-070-0.5	N	3/2/2011	0.5	No	12.1	0.700	--	--	7.79
	805N-070-1.5	N	3/2/2011	1.5	No	0.500 U	0.100 U	--	--	--
	805N-070-3.0	N	3/2/2011	3	No	0.540	0.100 U	--	--	--
805N-071	805N-071-0.5	N	3/3/2011	0.5	No	122	7.45	0.100 U	0.104	--
	805N-071-1.5	N	3/3/2011	1.5	No	39.0	0.460	--	--	7.78
	805N-071-100	FD	3/3/2011	1.5	No	9.11	0.500	--	--	--
	805N-071-3.0	N	3/3/2011	3	No	0.500 U	0.100 U	--	--	--
805C-072	805C-072-0.5	N	3/9/2011	0.5	No	0.677	0.100 U	--	--	--
	805C-072-1.5	N	3/9/2011	1.5	No	1.04	0.100 U	--	--	--
	805C-072-3.0	N	3/9/2011	3	No	0.792	0.100 U	--	--	--
805S-073	805S-073-0.5	N	3/10/2011	0.5	No	15.8 J	1.74	--	--	--
	805S-073-1.5	N	3/10/2011	1.5	No	0.939 J	0.100 U	--	--	8.56
	805S-073-3.0	N	3/10/2011	3	No	0.800 J	0.100 U	--	--	--
805N-074	805N-074-0.5	N	3/3/2011	0.5	No	14.3	0.478	--	--	--
	805N-074-1.5	N	3/3/2011	1.5	No	2.24	0.100 U	--	--	7.68
	805N-074-3.0	N	3/3/2011	3	No	4.08	0.100 U	--	--	--
805N-075	805N-075-0.5	N	3/2/2011	0.5	No	491	30.6	0.100 U	0.148	7.60
	805N-075-1.5	N	3/2/2011	1.5	No	586	48.2	0.185	0.401	--
	805N-075-3.0	N	3/2/2011	3	No	196	12.0	0.102	0.299	7.89

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

California Hazardous Waste Criteria [1]						1,000	5.0			
RCRA Hazardous Waste Criteria [2]									5.0	
CALTRANS Variance Criteria [3]					Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805S-076	805S-076-0.5	N	3/8/2011	0.5	No	14.9	1.02	--	--	8.22
	805S-076-1.5	N	3/8/2011	1.5	No	8.20	0.539	--	--	--
	805S-076-3.0	N	3/8/2011	3	No	6.88	0.344	--	--	--
805S-077	805S-077-0.5	N	3/8/2011	0.5	No	15.6	0.450	--	--	--
	805S-077-1.5	N	3/8/2011	1.5	No	17.4	0.634	--	--	7.26
	805S-077-3.0	N	3/8/2011	3	No	10.7	0.433	--	--	--
	805S-077-100	FD	3/8/2011	3	No	12.4	0.387	--	--	--
805N-078	805N-078-0.5	N	3/3/2011	0.5	No	61.6	5.13	0.100 U	--	--
	805N-078-1.5	N	3/3/2011	1.5	No	5.60	0.212	--	--	--
	805N-078-3.0	N	3/3/2011	3	No	6.13	0.134	--	--	--
805C-079	805C-079-0.5	N	3/9/2011	0.5	No	4.64	0.140	--	--	7.83
	805C-079-1.5	N	3/9/2011	1.5	No	0.843	0.100 U	--	--	--
	805C-079-3.0	N	3/9/2011	3	No	2.21	0.100 U	--	--	--
805N-080	805N-080-0.5	N	3/3/2011	0.5	No	0.877	0.100 U	--	--	--
	805N-080-1.5	N	3/3/2011	1.5	No	0.662	0.100 U	--	--	--
	805N-080-3.0	N	3/3/2011	3	No	0.610	0.100 U	--	--	7.68
805C-081	805C-081-0.5	N	3/9/2011	0.5	Yes	4.93	0.125	--	--	--
805S-082	805S-082-0.5	N	3/8/2011	0.5	No	4.57	0.146	--	--	--
	805S-082-1.5	N	3/8/2011	1.5	Yes	2.42	0.100 U	--	--	7.38
805S-083	805S-083-0.5	N	3/8/2011	0.5	No	2.97	0.100 U	--	--	--
	805S-083-1.5	N	3/8/2011	1.5	Yes	1.94	0.100 U	--	--	--
805N-084	805N-084-0.5	N	3/3/2011	0.5	No	9.10	0.494	--	--	7.48
	805N-084-100	FD	3/3/2011	0.5	No	46.8	4.78	--	--	--
	805N-084-1.5	N	3/3/2011	1.5	No	2.93	0.127	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805C-085	805C-085-0.5	N	3/9/2011	0.5	No	0.679	0.100 U	--	--	7.63
	805C-085-1.5	N	3/9/2011	1.5	Yes	1.83	0.100 U	--	--	--
805S-086	805S-086-0.5	N	3/16/2011	0.5	No	3.66	0.127	--	--	--
	805S-086-1.5	N	3/16/2011	1.5	Yes	4.39	0.111	--	--	--
805N-087	805N-087-0.5	N	3/3/2011	0.5	No	27.2	3.27	--	--	7.18
	805N-087-1.5	N	3/3/2011	1.5	No	1.25	0.100 U	--	--	--
	805N-087-3.0	N	3/3/2011	3	No	1.36	0.100 U	--	--	--
805C-088	805C-088-0.5	N	3/9/2011	0.5	Yes	0.668	0.100 U	--	--	--
805S-089	805S-089-0.5	N	3/8/2011	0.5	No	5.46	0.198	--	--	--
	805S-089-1.5	N	3/8/2011	1.5	No	5.73	0.211	--	--	--
	805S-089-3.0	N	3/8/2011	3	No	5.55	0.444	--	--	8.42
805N-090	805N-090-0.5	N	3/3/2011	0.5	No	5.30	0.167	--	--	--
	805N-090-1.5	N	3/3/2011	1.5	No	4.25	0.107	--	--	7.58
	805N-090-3.0	N	3/3/2011	3	No	4.41	0.100 U	--	--	--
805C-091	805C-091-0.5	N	3/9/2011	0.5	Yes	0.550	0.100 U	--	--	--
805S-092	805S-092-0.5	N	3/8/2011	0.5	No	8.74	0.742	--	--	8.57
	805S-092-1.5	N	3/8/2011	1.5	Yes	21.6	1.54	--	--	--
805N-093	805N-093-0.5	N	3/3/2011	0.5	Yes	7.41	0.345	--	--	--
805C-094	805C-094-0.5	N	3/9/2011	0.5	No	1.20	0.100 U	--	--	7.87
	805C-094-100	FD	3/9/2011	0.5	Yes	1.17	0.100 U	--	--	--
805S-095	805S-095-0.5	N	3/8/2011	0.5	No	4.54	0.153	--	--	--
	805S-095-1.5	N	3/8/2011	1.5	No	0.500 U	0.100 U	--	--	--
	805S-095-3.0	N	3/8/2011	3	No	1.18	0.100 U	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

California Hazardous Waste Criteria [1]						1,000	5.0			
RCRA Hazardous Waste Criteria [2]									5.0	
CALTRANS Variance Criteria [3]					Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-096	805N-096-0.5	N	3/3/2011	0.5	No	6.92	0.285	--	--	--
	805N-096-1.5	N	3/3/2011	1.5	No	1.01	0.100 U	--	--	7.66
	805N-096-3.0	N	3/3/2011	3	No	12.0	1.39	--	--	--
	805N-096-100	FD	3/3/2011	3	No	77.2	4.44	0.100 U	--	--
805N-097	805N-097-0.5	N	3/17/2011	0.5	No	222	16.2	0.192	0.362	7.77
	805N-097-1.5	N	3/17/2011	1.5	No	32.8	2.99	--	--	--
805C-098	805C-098-0.5	N	3/9/2011	0.5	No	1.72	0.100 U	--	--	--
	805C-098-1.5	N	3/9/2011	1.5	No	3.42	0.100 U	--	--	--
	805C-098-3.0	N	3/9/2011	3	No	0.539	0.100 U	--	--	7.89
805S-099	805S-099-0.5	N	3/8/2011	0.5	No	14.1	0.557	--	--	5.83
	805S-099-1.5	N	3/8/2011	1.5	Yes	0.967	0.100 U	--	--	--
805S-100	805S-100-0.5	N	3/8/2011	0.5	No	30.4	1.03	--	--	--
	805S-100-1.5	N	3/8/2011	1.5	No	1.98	0.100 U	--	--	--
	805S-100-3.0	N	3/8/2011	3	No	1.09	0.100 U	--	--	6.65
805N-101	805N-101-0.5	N	3/10/2011	0.5	No	1.93	0.100 U	--	--	--
	805N-101-1.5	N	3/10/2011	1.5	No	0.777	0.100 U	--	--	--
	805N-101-3.0	N	3/10/2011	3	No	2.51	0.100 U	--	--	4.38
805S-102	805S-102-0.5	N	3/8/2011	0.5	No	9.87	0.249	--	--	7.34
	805S-102-1.5	N	3/8/2011	1.5	No	2.49	0.100 U	--	--	--
	805S-102-3.0	N	3/8/2011	3	No	3.27	0.100 U	--	--	--
	805S-102-100	FD	3/8/2011	3	No	1.36	0.100 U	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-103	805N-103-0.5	N	3/16/2011	0.5	No	131	2.16	0.100 U	0.100 U	--
	805N-103-1.5	N	3/16/2011	1.5	No	14.2	0.549	--	--	--
	805N-103-3.0	N	3/16/2011	3	No	1.88	0.100 U	--	--	--
805S-104	805S-104-0.5	N	3/8/2011	0.5	No	3.76	0.275	--	--	--
	805S-104-1.5	N	3/8/2011	1.5	No	1.32	0.100 U	--	--	--
	805S-104-3.0	N	3/8/2011	3	No	0.918	0.100 U	--	--	--
805S-105	805S-105-0.5	N	3/17/2011	0.5	No	136	4.04	0.100 U	0.100 U	--
	805S-105-1.5	N	3/17/2011	1.5	No	2.65	0.100 U	--	--	--
	805S-105-3.0	N	3/17/2011	3	No	1.84	0.100 U	--	--	--
805N-106	805N-106-0.5	N	3/16/2011	0.5	No	15.3	1.09	--	--	7.38
	805N-106-1.5	N	3/16/2011	1.5	No	4.24	0.100 U	--	--	--
	805N-106-3.0	N	3/16/2011	3	No	2.85	0.114	--	--	--
	805S-106-100	FD	3/16/2011	3	No	3.89	0.100 U	--	--	--
805N-107	805N-107-0.5	N	3/16/2011	0.5	No	5.49	0.128	--	--	8.34
	805N-107-1.5	N	3/16/2011	1.5	No	4.50	0.100 U	--	--	--
	805N-107-3.0	N	3/16/2011	3	No	3.46	0.100 U	--	--	--
805N-108	805N-108-0.5	N	3/16/2011	0.5	No	26.8	0.965	--	--	--
	805N-108-1.5	N	3/16/2011	1.5	No	81.0	1.81	0.100 U	--	7.61
	805N-108-3.0	N	3/16/2011	3	No	1.26	0.100 U	--	--	--
805S-109	805S-109-0.5	N	3/16/2011	0.5	No	49.1	2.68	--	--	--
	805S-109-1.5	N	3/16/2011	1.5	No	2.77	0.159	--	--	7.94
	805S-109-3.0	N	3/16/2011	3	No	8.42	0.140	--	--	--
	805S-109-100	FD	3/16/2011	3	No	2.54	0.100 U	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

California Hazardous Waste Criteria [1]						1,000	5.0			
RCRA Hazardous Waste Criteria [2]									5.0	
CALTRANS Variance Criteria [3]					Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-110	805N-110-0.5	N	3/2/2011	0.5	Yes	81.8	1.30	0.100 U	--	7.28
805S-111	805S-111-0.5	N	3/16/2011	0.5	No	55.9	2.89	0.100 U	--	--
	805S-111-1.5	N	3/16/2011	1.5	Yes	2.47	0.100 U	--	--	--
805N-112	805N-112-0.5	N	3/17/2011	0.5	No	252	10.4	0.184	0.242	--
	805N-112-1.5	N	3/17/2011	1.5	Yes	2.07	0.100 U	--	--	--
805S-113	805S-113-0.5	N	3/10/2011	0.5	No	24.7	1.58	--	--	--
	805S-113-1.5	N	3/10/2011	1.5	No	1.64	0.100 U	--	--	--
	805S-113-3.0	N	3/10/2011	3	No	2.88	0.100 U	--	--	--
805N-114	805N-114-0.5	N	3/17/2011	0.5	No	38.2	1.76	--	--	7.58
	805N-114-1.5	N	3/17/2011	1.5	No	29.3	0.696	--	--	--
	805N-114-100	FD	3/17/2011	1.5	No	7.97	0.396	--	--	--
	805N-114-3.0	N	3/17/2011	3	No	11.7	0.591	--	--	7.47
805S-115	805S-115-0.5	N	3/10/2011	0.5	No	4.68	0.149	--	--	8.19
	805S-115-1.5	N	3/10/2011	1.5	No	2.28	0.100 U	--	--	--
	805S-115-100	FD	3/10/2011	1.5	No	1.10	0.100 U	--	--	--
	805S-115-3.0	N	3/10/2011	3	No	0.756	0.100 U	--	--	--
805N-116	805N-116-0.5	N	3/14/2011	0.5	No	33.7	1.54	--	--	--
	805N-116-1.5	N	3/14/2011	1.5	No	0.500 U	0.100 U	--	--	--
	805N-116-100	FD	3/14/2011	1.5	Yes	0.729	0.100 U	--	--	--
805S-117	805S-117-0.5	N	3/10/2011	0.5	No	2.49	0.100 U	--	--	--
	805S-117-1.5	N	3/10/2011	1.5	No	0.899	0.100 U	--	--	--
	805S-117-3.0	N	3/10/2011	3	No	1.46	0.100 U	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

California Hazardous Waste Criteria [1]						1,000	5.0			
RCRA Hazardous Waste Criteria [2]									5.0	
CALTRANS Variance Criteria [3]					Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-118	805N-118-0.5	N	3/14/2011	0.5	No	41.6	1.37	--	--	7.85
	805N-118-1.5	N	3/14/2011	1.5	No	2.31	0.100 U	--	--	--
	805N-118-3.0	N	3/14/2011	3	No	1.31	0.100 U	--	--	--
805S-119	805S-119-0.5	N	3/10/2011	0.5	No	34.9	1.38	--	--	--
	805S-119-1.5	N	3/10/2011	1.5	No	0.664	0.100 U	--	--	--
	805S-119-3.0	N	3/10/2011	3	No	1.53	0.100 U	--	--	6.81
805N-120	805N-120-0.5	N	3/14/2011	0.5	No	30.5	1.33	--	--	--
	805N-120-1.5	N	3/14/2011	1.5	No	3.05	0.100 U	--	--	--
	805N-120-3.0	N	3/14/2011	3	No	8.84	0.315	--	--	--
805S-121	805S-121-0.5	N	3/10/2011	0.5	No	5.70 J	0.427	--	--	--
	805S-121-1.5	N	3/10/2011	1.5	No	1.04	0.100 U	--	--	8.25
	805S-121-3.0	N	3/10/2011	3	No	1.06	0.100 U	--	--	--
805N-122	805N-122-0.5	N	3/14/2011	0.5	No	12.8	0.321	--	--	--
	805N-122-1.5	N	3/14/2011	1.5	No	2.08	0.100 U	--	--	5.47
	805N-122-3.0	N	3/14/2011	3	No	2.96	0.100 U	--	--	--
805S-123	805S-123-0.5	N	3/14/2011	0.5	No	6.16	0.100 U	--	--	--
	805S-123-1.5	N	3/14/2011	1.5	No	5.05	0.100 U	--	--	--
	805S-123-3.0	N	3/14/2011	3	No	2.80	0.100 U	--	--	7.54
805N-124	805N-124-0.5	N	3/14/2011	0.5	No	35.5	0.865	--	--	--
	805N-124-1.5	N	3/14/2011	1.5	No	2.11	0.100 U	--	--	--
	805N-124-3.0	N	3/14/2011	3	No	3.25	0.100 U	--	--	7.35
805S-125	805S-125-0.5	N	3/14/2011	0.5	No	9.25	0.364	--	--	5.77
	805S-125-1.5	N	3/14/2011	1.5	No	2.48	0.100 U	--	--	--
	805S-125-3.0	N	3/14/2011	3	No	2.15	0.100 U	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

California Hazardous Waste Criteria [1]						1,000	5.0			
RCRA Hazardous Waste Criteria [2]									5.0	
CALTRANS Variance Criteria [3]					Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-126	805N-126-0.5	N	3/14/2011	0.5	No	152	8.31	0.100 U	0.100 U	7.57
	805N-126-100	FD	3/14/2011	0.5	No	81.0	4.84	0.100 U	--	--
	805N-126-1.5	N	3/14/2011	1.5	No	966	66.5	0.916	2.42	--
	805N-126-3.0	N	3/14/2011	3	No	24.2	1.00	--	--	--
805S-127	805S-127-0.5	N	3/14/2011	0.5	No	30.9	0.927	--	--	--
	805S-127-1.5	N	3/14/2011	1.5	No	10.2	0.565	--	--	--
	805S-127-3.0	N	3/14/2011	3	No	10.2	0.149	--	--	--
805N-128	805N-128-0.5	N	3/14/2011	0.5	No	12.7	0.836	--	--	--
	805N-128-1.5	N	3/14/2011	1.5	No	1.28	0.100 U	--	--	--
	805N-128-3.0	N	3/14/2011	3	No	0.831	0.100 U	--	--	--
805S-129	805S-129-0.5	N	3/14/2011	0.5	No	45.5	1.20	--	--	--
	805S-129-1.5	N	3/14/2011	1.5	No	2.88	0.100 U	--	--	--
	805S-129-3.0	N	3/14/2011	3	No	2.34	0.100 U	--	--	7.15
805N-130	805N-130-0.5	N	3/14/2011	0.5	No	175	9.62	0.100 U	0.232	--
	805N-130-1.5	N	3/14/2011	1.5	No	251	17.1	0.100 U	0.439	7.47
	805N-130-3.0	N	3/14/2011	3	No	89.5	4.91	0.100 U	--	--
805S-131	805S-131-0.5	N	3/14/2011	0.5	No	8.20	0.192	--	--	--
	805S-131-1.5	N	3/14/2011	1.5	Yes	3.59	0.100 U	--	--	7.95
805N-132	805N-132-0.5	N	3/14/2011	0.5	No	125	7.06	0.100 U	0.122	--
	805N-132-1.5	N	3/14/2011	1.5	No	99.9	3.07	0.100 U	--	--
	805N-132-3.0	N	3/14/2011	3	No	4.87	0.182	--	--	7.95

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

California Hazardous Waste Criteria [1]						1,000	5.0			
RCRA Hazardous Waste Criteria [2]									5.0	
CALTRANS Variance Criteria [3]					Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805S-133	805S-133-0.5	N	3/14/2011	0.5	No	4.86	0.242	--	--	7.59
	805S-133-1.5	N	3/14/2011	1.5	No	0.724	0.100 U	--	--	--
	805S-133-3.0	N	3/14/2011	3	No	0.885	0.100 U	--	--	--
805N-134	805N-134-0.5	N	3/14/2011	0.5	No	23.8	0.739	--	--	7.86
	805N-134-1.5	N	3/14/2011	1.5	No	4.29	0.100 U	--	--	--
	805N-134-3.0	N	3/14/2011	3	No	1.45	0.100 U	--	--	--
805S-135	805S-135-0.5	N	3/14/2011	0.5	No	13.9	0.794	--	--	7.80
	805S-135-1.5	N	3/14/2011	1.5	No	0.728	0.100 U	--	--	--
	805S-135-3.0	N	3/14/2011	3	No	0.798	0.100 U	--	--	--
805N-136	805N-136-0.5	N	3/14/2011	0.5	No	24.3	2.29	--	--	8.17
	805N-136-1.5	N	3/14/2011	1.5	No	6.22	0.257	--	--	--
	805N-136-3.0	N	3/14/2011	3	No	4.41	0.100 U	--	--	--
805S-137	805S-137-0.5	N	3/14/2011	0.5	No	16.8	0.389	--	--	--
	805S-137-1.5	N	3/14/2011	1.5	No	2.20	0.100 U	--	--	--
	805S-137-3.0	N	3/14/2011	3	No	2.57	0.100 U	--	--	--
805N-138	805N-138-0.5	N	3/14/2011	0.5	No	73.6	2.19	0.100 U	--	--
	805N-138-1.5	N	3/14/2011	1.5	No	8.99	1.14	--	--	7.86
	805N-138-3.0	N	3/14/2011	3	No	8.01	0.193	--	--	--
805S-139	805S-139-0.5	N	3/14/2011	0.5	No	57.9	1.45	0.100 U	--	--
	805S-139-100	FD	3/14/2011	0.5	No	32.5	1.21	--	--	--
	805S-139-1.5	N	3/14/2011	1.5	Yes	5.92	0.244	--	--	8.48

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-140	805N-140-0.5	N	3/14/2011	0.5	No	56.7	3.18	0.100 U	--	--
	805N-140-1.5	N	3/14/2011	1.5	No	3.58	0.143	--	--	--
	805N-140-100	FD	3/14/2011	1.5	No	4.67	0.155	--	--	7.84
	805N-140-3.0	N	3/14/2011	3	No	3.72	0.148	--	--	--
805S-141	805S-141-0.5	N	3/14/2011	0.5	No	31.6	1.61	--	--	7.83
	805S-141-1.5	N	3/14/2011	1.5	No	96.7	3.09	0.100 U	--	--
	805S-141-3.0	N	3/14/2011	3	No	30.9	1.21	--	--	--
805N-142	805N-142-0.5	N	3/14/2011	0.5	No	5.77	0.130	--	--	--
	805N-142-1.5	N	3/14/2011	1.5	No	5.52	0.100 U	--	--	--
	805N-142-3.0	N	3/14/2011	3	No	2.94	0.100 U	--	--	6.98
805S-143	805S-143-0.5	N	3/14/2011	0.5	No	15.3	0.367	--	--	--
	805S-143-1.5	N	3/14/2011	1.5	No	3.46	0.100 U	--	--	--
	805S-143-3.0	N	3/14/2011	3	No	7.08	0.201	--	--	--
805N-144	805N-144-0.5	N	3/14/2011	0.5	No	149	11.2	0.100 U	0.100 U	--
	805N-144-1.5	N	3/14/2011	1.5	No	3.54	0.196	--	--	--
	805N-144-3.0	N	3/14/2011	3	No	4.51	0.100 U	--	--	--
	805N-144-100	FD	3/14/2011	3	No	10.1	0.126	--	--	8.33
805S-145	805S-145-0.5	N	3/14/2011	0.5	No	3.91	0.121	--	--	8.36
	805S-145-1.5	N	3/14/2011	1.5	No	4.71	0.111	--	--	--
	805S-145-3.0	N	3/14/2011	3	No	1.73	0.100 U	--	--	--
805N-146	805N-146-0.5	N	3/14/2011	0.5	No	65.7	3.67	0.164	--	--
	805N-146-1.5	N	3/14/2011	1.5	No	9.55	0.274	--	--	--
	805N-146-3.0	N	3/14/2011	3	No	5.19	0.143	--	--	7.56

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

California Hazardous Waste Criteria [1]						1,000	5.0			
RCRA Hazardous Waste Criteria [2]									5.0	
CALTRANS Variance Criteria [3]					Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805S-147	805S-147-0.5	N	3/14/2011	0.5	No	1.11	0.100 U	--	--	--
	805S-147-1.5	N	3/14/2011	1.5	No	0.981	0.100 U	--	--	--
	805S-147-3.0	N	3/14/2011	3	No	0.826	0.100 U	--	--	--
805N-148	805N-148-0.5	N	3/17/2011	0.5	No	41.6	5.11	--	--	--
	805N-148-1.5	N	3/17/2011	1.5	No	2.55	0.100 U	--	--	--
	805N-148-3.0	N	3/17/2011	3	No	9.53	0.276	--	--	7.72
805S-149	805S-149-0.5	N	3/8/2011	0.5	No	8.96	0.290	--	--	7.93
	805S-149-1.5	N	3/8/2011	1.5	No	4.87	0.238	--	--	--
	805S-149-3.0	N	3/8/2011	3	No	4.41	0.103	--	--	--
805N-150	805N-150-0.5	N	3/17/2011	0.5	No	1.80	0.120	--	--	--
	805N-150-1.5	N	3/17/2011	1.5	No	4.73	0.123	--	--	7.12
	805N-150-3.0	N	3/17/2011	3	No	3.77	0.175	--	--	--
805S-151	805S-151-0.5	N	3/8/2011	0.5	No	1.70	0.149	--	--	--
	805S-151-1.5	N	3/8/2011	1.5	No	1.43	0.100 U	--	--	6.50
	805S-151-3.0	N	3/8/2011	3	No	5.48	0.285	--	--	--
805S-152	805S-152-0.5	N	3/8/2011	0.5	No	2.31	0.100 U	--	--	--
	805S-152-1.5	N	3/8/2011	1.5	No	3.34	0.100 U	--	--	--
	805S-152-100	FD	3/8/2011	1.5	No	1.92	0.100 U	--	--	--
	805S-152-3.0	N	3/8/2011	3	No	4.87	0.139	--	--	--
805N-153	805N-153-0.5	N	3/17/2011	0.5	No	33.7	0.666	--	--	--
	805N-153-1.5	N	3/17/2011	1.5	No	4.47	0.100 U	--	--	8.12
	805N-153-3.0	N	3/17/2011	3	No	8.90	0.234	--	--	--
805S-154	805S-154-0.5	N	3/11/2011	0.5	No	5.48	0.292	--	--	--
	805S-154-1.5	N	3/11/2011	1.5	Yes	15.8	0.670	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

California Hazardous Waste Criteria [1]						1,000	5.0			
RCRA Hazardous Waste Criteria [2]									5.0	
CALTRANS Variance Criteria [3]					Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-155	805N-155-0.5	N	3/11/2011	0.5	No	5.98	0.424	--	--	--
	805N-155-100	FD	3/11/2011	0.5	No	52.0	3.64	0.100 U	--	--
	805N-155-1.5	N	3/11/2011	1.5	No	5.03	0.122	--	--	7.50
	805N-155-3.0	N	3/11/2011	3	No	5.04	0.219	--	--	--
805S-156	805S-156-0.5	N	3/8/2011	0.5	No	4.67	0.158	--	--	5.76
	805S-156-1.5	N	3/8/2011	1.5	No	5.12	0.100 U	--	--	--
	805S-156-3.0	N	3/8/2011	3	No	2.36	0.100 U	--	--	--
805N-157	805N-157-0.5	N	3/11/2011	0.5	No	13.4	0.462	--	--	--
	805N-157-1.5	N	3/11/2011	1.5	No	10.9	0.278	--	--	6.48
	805N-157-3.0	N	3/11/2011	3	No	8.62	0.432	--	--	--
805S-158	805S-158-0.5	N	3/8/2011	0.5	No	4.54	0.100 U	--	--	--
	805S-158-1.5	N	3/8/2011	1.5	No	2.28	0.100 U	--	--	--
	805S-158-3.0	N	3/8/2011	3	No	3.23	0.100 U	--	--	6.24
805S-159	805S-159-0.5	N	3/17/2011	0.5	No	18.0	0.531	--	--	--
	805S-159-1.5	N	3/17/2011	1.5	Yes	4.25	0.100 U	--	--	8.06
805N-160	805N-160-0.5	N	3/11/2011	0.5	No	7.55	0.322	--	--	--
	805N-160-1.5	N	3/11/2011	1.5	No	5.00	0.137	--	--	8.29
	805N-160-3.0	N	3/11/2011	3	No	4.08	0.107	--	--	--
805N-161	805N-161-0.5	N	3/11/2011	0.5	No	6.99	0.306	--	--	7.36
	805N-161-1.5	N	3/11/2011	1.5	No	2.17	0.100 U	--	--	--
	805N-161-3.0	N	3/11/2011	3	No	2.91	0.119	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-162	805N-162-0.5	N	3/11/2011	0.5	No	28.9	1.84	--	--	--
	805N-162-1.5	N	3/11/2011	1.5	No	6.09	0.100 U	--	--	--
	805N-162-3.0	N	3/11/2011	3	No	3.80	0.228	--	--	5.51
	805N-162-100	FD	3/11/2011	3	No	1.96	0.149	--	--	--
805S-163	805S-163-0.5	N	3/8/2011	0.5	No	7.53	0.517	--	--	--
	805S-163-1.5	N	3/8/2011	1.5	No	2.53	0.100 U	--	--	6.99
	805S-163-3.0	N	3/8/2011	3	No	12.1	0.207	--	--	--
805N-164	805N-164-0.5	N	3/11/2011	0.5	Yes	19.0	1.05	--	--	--
805S-165	805S-165-0.5	N	3/8/2011	0.5	No	10.6	0.387	--	--	--
	805S-165-1.5	N	3/8/2011	1.5	No	6.42	0.239	--	--	--
	805S-165-3.0	N	3/8/2011	3	No	5.93	0.235	--	--	--
805N-166	805N-166-0.5	N	3/11/2011	0.5	No	9.50	0.685	--	--	--
	805N-166-1.5	N	3/11/2011	1.5	No	8.29	0.430	--	--	6.67
	805N-166-3.0	N	3/11/2011	3	No	3.99	0.327	--	--	--
805S-167	805S-167-0.5	N	3/8/2011	0.5	No	8.89	0.463	--	--	--
	805S-167-1.5	N	3/8/2011	1.5	No	2.48	0.231	--	--	5.89
	805S-167-3.0	N	3/8/2011	3	No	7.16	0.120	--	--	--
805N-168	805N-168-0.5	N	3/11/2011	0.5	No	15.8	0.875	--	--	--
	805N-168-1.5	N	3/11/2011	1.5	No	23.1	1.14	--	--	--
	805N-168-3.0	N	3/11/2011	3	No	3.79	0.149	--	--	5.43
805S-169	805S-169-0.5	N	3/8/2011	0.5	No	36.1	0.619	--	--	--
	805S-169-1.5	N	3/8/2011	1.5	No	3.85	0.100 U	--	--	--
	805S-169-3.0	N	3/8/2011	3	No	7.21	0.262	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

California Hazardous Waste Criteria [1]						1,000	5.0			
RCRA Hazardous Waste Criteria [2]									5.0	
CALTRANS Variance Criteria [3]					Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-170	805N-170-0.5	N	3/11/2011	0.5	No	2.19	0.100 U	--	--	6.03
	805N-170-1.5	N	3/11/2011	1.5	No	3.62	0.100 U	--	--	--
	805N-170-3.0	N	3/11/2011	3	No	1.23	0.100 U	--	--	--
805N-171	805N-171-0.5	N	3/11/2011	0.5	No	6.91	0.100 U	--	--	--
	805N-171-1.5	N	3/11/2011	1.5	No	1.38	0.100 U	--	--	--
	805N-171-3.0	N	3/11/2011	3	No	3.13	0.100 U	--	--	--
805S-172	805S-172-0.5	N	3/8/2011	0.5	No	5.46	0.461	--	--	--
	805S-172-1.5	N	3/8/2011	1.5	No	13.9	0.252	--	--	6.09
	805S-172-3.0	N	3/8/2011	3	No	3.48	0.100 U	--	--	--
805N-173	805N-173-0.5	N	3/15/2011	0.5	No	85.2	2.59	0.147	--	--
	805N-173-1.5	N	3/15/2011	1.5	No	4.79	0.100 U	--	--	--
	805N-173-3.0	N	3/15/2011	3	No	4.22	0.164	--	--	6.98
805N-174	805N-174-0.5	N	3/15/2011	0.5	No	250	10.4	0.160	0.141	--
	805N-174-1.5	N	3/15/2011	1.5	No	16.5	0.603	--	--	--
	805N-174-100	FD	3/15/2011	1.5	No	6.45	0.159	--	--	--
	805N-174-3.0	N	3/15/2011	3	No	7.71	0.116	--	--	--
805S-175	805S-175-0.5	N	3/16/2011	0.5	No	4.29	0.207	--	--	--
	805S-175-1.5	N	3/16/2011	1.5	No	2.63	0.100 U	--	--	--
	805S-175-3.0	N	3/16/2011	3	No	4.07	0.100 U	--	--	6.52
805S-176	805S-176-0.5	N	3/8/2011	0.5	No	14.6	0.795	--	--	--
	805S-176-1.5	N	3/8/2011	1.5	Yes	4.02	0.298	--	--	--
805N-177	805N-177-0.5	N	3/11/2011	0.5	No	289	20.4	0.664	0.695	6.72
	805N-177-1.5	N	3/11/2011	1.5	Yes	3.35	0.100 U	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-178	805N-178-0.5	N	3/11/2011	0.5	No	50.5	2.77	0.100 U	--	--
	805N-178-1.5	N	3/11/2011	1.5	No	1.87	0.100 U	--	--	6.68
	805N-178-3.0	N	3/11/2011	3	No	3.30	0.139	--	--	--
805S-179	805S-179-0.5	N	3/16/2011	0.5	No	72.3	1.85	0.100 U	--	6.78
	805S-179-1.5	N	3/16/2011	1.5	Yes	8.57	0.142	--	--	--
805S-180	805S-180-0.5	N	3/16/2011	0.5	No	6.48	0.151	--	--	--
	805S-180-1.5	N	3/16/2011	1.5	No	3.47	0.100 U	--	--	--
	805S-180-3.0	N	3/16/2011	3	No	7.21	0.136	--	--	--
805N-181	805N-181-0.5	N	3/11/2011	0.5	No	144	6.43	0.100 U	0.177	--
	805N-181-1.5	N	3/11/2011	1.5	Yes	227	9.37	0.100 U	0.122	--
805S-182	805S-182-0.5	N	3/16/2011	0.5	No	80.0	5.89	0.354	--	--
	805S-182-1.5	N	3/16/2011	1.5	No	22.8	0.950	--	--	--
	805S-182-3.0	N	3/16/2011	3	No	5.09	0.100 U	--	--	7.78
805N-183	805N-183-0.5	N	3/11/2011	0.5	No	24.4	0.872	--	--	--
	805N-183-1.5	N	3/11/2011	1.5	No	6.85	0.195	--	--	--
	805N-183-3.0	N	3/11/2011	3	No	0.500 U	0.100 U	--	--	--
805S-184	805S-184-0.5	N	3/16/2011	0.5	No	86.9	1.28	0.100 U	--	--
	805S-184-1.5	N	3/16/2011	1.5	No	44.6	2.13	--	--	--
	805S-184-3.0	N	3/16/2011	3	No	6.84	0.306	--	--	6.20
	805S-184-100	FD	3/16/2011	3	No	9.24	0.356	--	--	--
805N-185	805N-185-0.5	N	3/11/2011	0.5	No	39.5	1.90	--	--	--
	805N-185-1.5	N	3/11/2011	1.5	No	0.672	0.100 U	--	--	6.38
	805N-185-3.0	N	3/11/2011	3	No	0.500 U	0.100 U	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

California Hazardous Waste Criteria [1]						1,000	5.0			
RCRA Hazardous Waste Criteria [2]									5.0	
CALTRANS Variance Criteria [3]					Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-186	805N-186-0.5	N	3/11/2011	0.5	No	80.6	3.23	0.100 U	--	--
	805N-186-1.5	N	3/11/2011	1.5	No	2.16	0.277	--	--	--
	805N-186-3.0	N	3/11/2011	3	No	0.500 U	0.100 U	--	--	6.41
805S-187	805S-187-0.5	N	3/15/2011	0.5	No	1.04	0.100 U	--	--	--
	805S-187-1.5	N	3/15/2011	1.5	No	0.500 U	0.100 U	--	--	--
	805S-187-3.0	N	3/15/2011	3	No	0.778	0.100 U	--	--	--
805S-188	805S-188-0.5	N	3/15/2011	0.5	No	1.49	0.100 U	--	--	--
	805S-188-1.5	N	3/15/2011	1.5	No	2.02	0.100 U	--	--	--
	805S-188-3.0	N	3/15/2011	3	No	0.500 U	0.100 U	--	--	6.71
805N-189	805N-189-0.5	N	3/11/2011	0.5	No	33.5	2.10	--	--	6.89
	805N-189-1.5	N	3/11/2011	1.5	No	3.79	0.100 U	--	--	--
	805N-189-3.0	N	3/11/2011	3	No	2.88	0.100 U	--	--	--
805N-190	805N-190-0.5	N	3/11/2011	0.5	No	10.9	0.392	--	--	--
	805N-190-1.5	N	3/11/2011	1.5	No	1.89	0.100 U	--	--	6.96
	805N-190-3.0	N	3/11/2011	3	No	2.28	0.100 U	--	--	--
805S-191	805S-191-0.5	N	3/15/2011	0.5	No	2.73	0.100 U	--	--	--
	805S-191-1.5	N	3/15/2011	1.5	No	1.65	0.100 U	--	--	--
	805S-191-3.0	N	3/15/2011	3	No	1.12	0.100 U	--	--	--
805N-192	805N-192-0.5	N	3/11/2011	0.5	No	16.8	2.09	--	--	--
	805N-192-1.5	N	3/11/2011	1.5	No	0.953	0.100 U	--	--	--
	805N-192-3.0	N	3/11/2011	3	No	1.69	0.100 U	--	--	6.12
	805N-192-100	FD	3/11/2011	3	No	1.35	0.100 U	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

California Hazardous Waste Criteria [1]						1,000	5.0			
RCRA Hazardous Waste Criteria [2]									5.0	
CALTRANS Variance Criteria [3]					Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805S-193	805S-193-0.5	N	3/15/2011	0.5	No	3.56	0.100 U	--	--	6.45
	805S-193-100	FD	3/15/2011	0.5	No	5.29	0.167	--	--	--
	805S-193-1.5	N	3/15/2011	1.5	No	81.2	0.709	0.142	--	--
	805S-193-3.0	N	3/15/2011	3	No	34.5	2.02	--	--	7.74
805N-194	805N-194-0.5	N	3/11/2011	0.5	No	2.18	0.100 U	--	--	--
	805N-194-1.5	N	3/11/2011	1.5	No	3.01	0.100 U	--	--	5.25
	805N-194-3.0	N	3/11/2011	3	No	0.500 U	0.100 U	--	--	--
805S-195	805S-195-0.5	N	3/15/2011	0.5	No	190	13.5	0.100	0.100 U	--
	805S-195-1.5	N	3/15/2011	1.5	No	1.59	0.100 U	--	--	7.12
	805S-195-3.0	N	3/15/2011	3	No	1.06	0.100 U	--	--	--
805N-196	805N-196-0.5	N	3/11/2011	0.5	No	0.891	0.100 U	--	--	--
	805N-196-1.5	N	3/11/2011	1.5	No	0.500 U	0.100 U	--	--	4.46
	805N-196-3.0	N	3/11/2011	3	No	0.645	0.100 U	--	--	--
805S-197	805S-197-0.5	N	3/15/2011	0.5	No	1.03	0.100 U	--	--	--
	805S-197-1.5	N	3/15/2011	1.5	No	0.500 U	0.100 U	--	--	5.18
	805S-197-3.0	N	3/15/2011	3	No	0.500 U	0.100 U	--	--	--
805N-198	805N-198-0.5	N	3/11/2011	0.5	No	33.7	1.93	--	--	--
	805N-198-100	FD	3/11/2011	0.5	No	31.8	0.693	--	--	--
	805N-198-1.5	N	3/11/2011	1.5	No	2.96	0.108	--	--	--
	805N-198-3.0	N	3/11/2011	3	No	4.84	0.142	--	--	5.90
805S-199	805S-199-0.5	N	3/15/2011	0.5	No	445	52.5	0.212	1.01	--
	805S-199-1.5	N	3/15/2011	1.5	No	9.54	0.817	--	--	--
	805S-199-3.0	N	3/15/2011	3	No	1.46	0.100 U	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

California Hazardous Waste Criteria [1]						1,000	5.0			
RCRA Hazardous Waste Criteria [2]									5.0	
CALTRANS Variance Criteria [3]					Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-200	805N-200-0.5	N	3/11/2011	0.5	Yes	2.18	0.132	--	--	6.92
805S-201	805S-201-0.5	N	3/15/2011	0.5	No	14.9	0.646	--	--	--
	805S-201-1.5	N	3/15/2011	1.5	Yes	0.500 U	0.100 U	--	--	8.82
805N-202	805N-202-0.5	N	3/11/2011	0.5	No	11.2	1.04	--	--	6.97
	805N-202-1.5	N	3/11/2011	1.5	No	3.05	0.100 U	--	--	--
	805N-202-100	FD	3/11/2011	1.5	No	3.85	0.155	--	--	--
	805N-202-3.0	N	3/11/2011	3	No	1.53	0.100 U	--	--	7.24
805S-203	805S-203-0.5	N	3/15/2011	0.5	No	39.4	9.56	--	--	--
	805S-203-1.5	N	3/15/2011	1.5	Yes	1.37	0.100 U	--	--	--
805S-204	805S-204-0.5	N	3/15/2011	0.5	No	3.19	0.247	--	--	--
	805S-204-1.5	N	3/15/2011	1.5	No	0.630	0.100 U	--	--	--
	805S-204-3.0	N	3/15/2011	3	No	0.500 U	0.100 U	--	--	--
805N-205	805N-205-0.5	N	3/11/2011	0.5	No	30.2	1.83	--	--	--
	805N-205-1.5	N	3/11/2011	1.5	No	1.92	0.100 U	--	--	--
	805N-205-3.0	N	3/11/2011	3	No	1.06	0.100 U	--	--	8.18
	805N-205-100	FD	3/11/2011	3	No	1.08	0.100 U	--	--	--
805S-206	805S-206-0.5	N	3/15/2011	0.5	No	67.8	3.59	0.100 U	--	--
	805S-206-1.5	N	3/15/2011	1.5	No	2.10	0.100 U	--	--	--
	805S-206-3.0	N	3/15/2011	3	No	0.794	0.100 U	--	--	6.66
805S-207	805S-207-0.5	N	3/15/2011	0.5	No	45.9	3.42	--	--	--
	805S-207-1.5	N	3/15/2011	1.5	Yes	11.0	0.228	--	--	7.89
805N-208	805N-208-0.5	N	3/15/2011	0.5	No	83.9	3.18	0.100 U	--	7.31
	805N-208-1.5	N	3/15/2011	1.5	Yes	2.70	0.100 U	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805S-209	805S-209-0.5	N	3/15/2011	0.5	No	22.0	1.30	--	--	--
	805S-209-100	FD	3/15/2011	0.5	No	2.17	0.100 U	--	--	8.18
	805S-209-1.5	N	3/15/2011	1.5	Yes	1.54	0.100 U	--	--	--
805N-210	805N-210-0.5	N	3/15/2011	0.5	No	2.88	0.100 U	--	--	7.84
	805N-210-1.5	N	3/15/2011	1.5	Yes	1.06	0.100 U	--	--	--
805S-211	805S-211-0.5	N	3/15/2011	0.5	No	0.500 U	0.100 U	--	--	7.20
	805S-211-1.5	N	3/15/2011	1.5	No	0.500 U	0.100 U	--	--	--
	805S-211-3.0	N	3/15/2011	3	No	0.500 U	0.100 U	--	--	--
805N-212	805N-212-0.5	N	3/15/2011	0.5	No	4.27	0.100 U	--	--	--
	805N-212-1.5	N	3/15/2011	1.5	No	0.500 U	0.100 U	--	--	8.16
	805N-212-3.0	N	3/15/2011	3	No	0.500 U	0.100 U	--	--	--
805S-213	805S-213-0.5	N	3/15/2011	0.5	No	21.0	2.03	--	--	--
	805S-213-1.5	N	3/15/2011	1.5	No	0.500 U	0.100 U	--	--	7.32
	805S-213-3.0	N	3/15/2011	3	No	0.500 U	0.100 U	--	--	--
805N-214	805N-214-0.5	N	3/15/2011	0.5	No	3.13	0.143	--	--	--
	805N-214-1.5	N	3/15/2011	1.5	No	11.7	0.543	--	--	--
	805N-214-3.0	N	3/15/2011	3	No	14.4	0.492	--	--	7.55
805S-215	805S-215-0.5	N	3/15/2011	0.5	No	56.5	5.20	0.100 U	--	7.58
	805S-215-1.5	N	3/15/2011	1.5	No	8.56	0.395	--	--	--
	805S-215-3.0	N	3/15/2011	3	No	0.881	0.100 U	--	--	--
805N-216	805N-216-0.5	N	3/15/2011	0.5	No	31.7	1.77	--	--	--
	805N-216-1.5	N	3/15/2011	1.5	Yes	0.725	0.100 U	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

California Hazardous Waste Criteria [1]						1,000	5.0			
RCRA Hazardous Waste Criteria [2]									5.0	
CALTRANS Variance Criteria [3]					Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805S-217	805S-217-0.5	N	3/15/2011	0.5	No	13.8	0.732	--	--	--
	805S-217-1.5	N	3/15/2011	1.5	No	0.913	0.100 U	--	--	--
	805S-217-3.0	N	3/15/2011	3	No	0.964	0.100 U	--	--	--
805N-218	805N-218-0.5	N	3/15/2011	0.5	No	64.7	3.75	0.100 U	--	7.19
	805N-218-1.5	N	3/15/2011	1.5	Yes	4.23	0.100 U	--	--	--
805S-219	805S-219-0.5	N	3/15/2011	0.5	No	24.6	1.23	--	--	--
	805S-219-1.5	N	3/15/2011	1.5	Yes	4.26	0.240	--	--	6.91
805N-220	805N-220-0.5	N	3/15/2011	0.5	No	195	7.64	0.100 U	0.124	--
	805N-220-1.5	N	3/15/2011	1.5	No	1.32	0.100 U	--	--	--
	805N-220-3.0	N	3/15/2011	3	No	1.50	0.100 U	--	--	7.64
805S-221	805S-221-0.5	N	3/15/2011	0.5	No	328	21.0	0.372	0.246	--
	805S-221-1.5	N	3/15/2011	1.5	Yes	32.1	1.14	--	--	--
805N-222	805N-222-0.5	N	3/17/2011	0.5	Yes	54.8	2.86	0.100 U	--	--
805N-223	805N-223-0.5	N	3/15/2011	0.5	No	744	41.0	0.309	0.502	--
	805N-223-100	FD	3/15/2011	0.5	No	816	28.1	0.152	0.320	--
	805N-223-1.5	N	3/15/2011	1.5	No	12.0	1.41	--	--	--
	805N-223-3.0	N	3/15/2011	3	No	63.7	6.37	0.100 U	--	--
805N-224	805N-224-0.5	N	3/15/2011	0.5	Yes	235	14.9	0.263	0.588	5.36
805S-225	805S-225-0.5	N	3/16/2011	0.5	No	33.9	1.94	--	--	--
	805S-225-1.5	N	3/16/2011	1.5	Yes	0.544	0.100 U	--	--	6.62
805N-226	805N-226-0.5	N	3/16/2011	0.5	Yes	679	33.4	0.413	1.39	--
805S-227	805S-227-0.5	N	3/16/2011	0.5	No	37.1	2.19	--	--	--
	805S-227-1.5	N	3/16/2011	1.5	Yes	30.0	1.57	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

California Hazardous Waste Criteria [1]						1,000	5.0			
RCRA Hazardous Waste Criteria [2]									5.0	
CALTRANS Variance Criteria [3]					Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805S-228	805S-228-0.5	N	3/16/2011	0.5	No	27.7	1.35	--	--	--
	805S-228-1.5	N	3/16/2011	1.5	Yes	16.0	0.650	--	--	5.76
805N-229	805N-229-0.5	N	3/15/2011	0.5	No	23.2	1.33	--	--	--
	805N-229-1.5	N	3/15/2011	1.5	Yes	127	8.46	0.100 U	0.113	--
805N-230	805N-230-0.5	N	3/16/2011	0.5	No	4.51	0.173	--	--	6.36
	805N-230-1.5	N	3/16/2011	1.5	Yes	0.503	0.100 U	--	--	--
805N-231	805N-231-0.5	N	3/16/2011	0.5	No	96.9	3.50	0.120	--	--
	805N-231-1.5	N	3/16/2011	1.5	Yes	20.3	0.695	--	--	--
805S-232	805S-232-0.5	N	3/16/2011	0.5	No	38.2	4.80	--	--	6.31
	805S-232-1.5	N	3/16/2011	1.5	Yes	46.7	0.517	--	--	--
805N-233	805N-233-0.5	N	3/16/2011	0.5	Yes	11.6	1.11	--	--	--
805S-234	805S-234-0.5	N	3/16/2011	0.5	No	4.08	0.100 U	--	--	7.13
	805S-234-100	FD	3/16/2011	0.5	No	5.70	0.115	--	--	--
	805S-234-1.5	N	3/16/2011	1.5	Yes	6.77	0.167	--	--	--
805N-235	805N-235-0.5	N	3/16/2011	0.5	No	4.90	0.100 U	--	--	--
	805N-235-1.5	N	3/16/2011	1.5	Yes	0.545	0.100 U	--	--	--
805S-236	805S-236-0.5	N	3/16/2011	0.5	No	22.7	1.19	--	--	--
	805S-236-1.5	N	3/16/2011	1.5	Yes	46.0	2.02	--	--	--
805N-237	805N-237-0.5	N	3/16/2011	0.5	No	55.0	2.48	0.210	--	--
	805N-237-1.5	N	3/16/2011	1.5	Yes	10.4	0.363	--	--	6.06
805S-238	805S-238-0.5	N	3/16/2011	0.5	No	193	23.8	0.448	0.527	--
	805S-238-100	FD	3/16/2011	0.5	No	265	24.5	0.232	0.367	--
	805S-238-1.5	N	3/16/2011	1.5	Yes	11.0	0.391	--	--	--

Copyright 2011 Kleinfelder

Table 1
Soil Analytical Results Summary
I-805 HOV ADL SURVEY
CALTRANS EA 11-081610

					California Hazardous Waste Criteria [1]	1,000	5.0			
					RCRA Hazardous Waste Criteria [2]				5.0	
					CALTRANS Variance Criteria [3] Condition 9.c/9.e	1,411		1.50		5.5
					Condition 9.d/9.e	3,397		150.00		5.0 - 5.5
					Chemical Name	Lead [5,6]	Lead	Lead	Lead	pH
					Method	SW6010B	SW6010B	SW6010B	SW6010B	SW9045D
					Preparation	TTLC	WET	WET_DI	TCLP	
					Units	mg/kg	mg/l	mg/l	mg/l	pH units
Location Name	**Sample Name**	**Sample Type**	**Date**	**Depth (feet)**	**Refusal [4] (Yes / No)**					
805N-239	805N-239-0.5	N	3/16/2011	0.5	Yes	323	13.1	0.120	0.100 U	--
805S-240	805S-240-0.5	N	3/16/2011	0.5	No	4.39	0.494	--	--	--
	805S-240-1.5	N	3/16/2011	1.5	No	1.41	0.100 U	--	--	6.66
	805S-240-3.0	N	3/16/2011	3	No	4.42	0.269	--	--	6.68

Notes:
1 - California hazardous waste criteria from California Code of Regulations 66261.21-24
2 - RCRA hazardous waste criteria from California Code of Federal Regulations, Title 40, Part 261.24
3 - CALTRANS specific criteria for ADL impacted soil and re-use within CALTRANS right-of-way (CALEPA Variance V09HQSCD006, dated July 1, 2009)
4 - Refusal was noted from approximately 0.5 to 1 foot below the sample depth
5 - DI WET analysis if total lead was equal to or greater than 50 mg/kg
6 - Soluble lead (TCLP) analysis if total lead is equal to or greater than 100 mg/kg
Bold and Italicized text denotes a concentration above the hazardous waste limits
FD - field duplicate sample
J - result is considered an estimated value (see Section xxx)
mg/kg - milligrams per kilogram
mg/L - milligrams per liter
N - normal environmental sample
TCLP - USEPA toxicity characteristic leaching procedure
TTLC - total threshold limit concentration
U - chemical was not detected at or above the value listed
WET - California waste extraction test using citric acid
WET-DI - California waste extraction test using deionized water
Highlighted values indicate sample results not applicable under the CALTRANS variance

Copyright 2011 Kleinfelder

Table 2A
Summary of the 95 Percent Upper Confidence Limits

Data Set	All Depths (0-3 feet)	Surface (0.5-1 feet)	Shallow (1.5-2 feet)	Intermediate (<2 feet)	Deep (□2 feet)
All Data Sets (Entire Project Corridor)					
Total Lead (mg/kg)	48.4	106.2	42.3	64.1*	14.9**
Leaching Lead (WET) (mg/L)	2.9	6.0	2.8	3.9*	0.9**
Leaching Lead (WET-DI) (mg/L)	0.9	0.7	0.9	0.9*	0.1**
Leaching Lead (TCLP) (mg/L)	2.4	1.4	2.4	2.4*	0.3**
pH	7.4	7.5	7.5	7.4*	7.4**
I-805 North and South Bound Lanes (South Phase)					
Total Lead (mg/kg)	45.8	100.2	47.7	62.1*	15.3**
Leaching Lead (WET) (mg/L)	2.8	5.7	3.2	3.9*	0.9**
Leaching Lead (WET-DI) (mg/L)	0.9	0.7	0.9	0.9*	0.1**
Leaching Lead (TCLP) (mg/L)	2.4	1.0	2.4	2.4*	0.3**
pH	7.4	7.6	7.5	7.5*	7.4**

Notes:
* indicates data was analyzed for depths 2-feet and shallower
** indicates data was analyzed for depths 2-feet and deeper
Highlighted data denotes the 95% Upper Confidence Level (UCL) for a particular data set is outside of either hazardous waste criteria or non-paved DTSC variance criteria.

bgs – below ground surface
mg/kg – milligrams per kilogram
mg/L – milligrams per liter
NA – insufficient data needed to calculate a 95% UCL for a particular data set
TCLP – toxicity characteristic leaching procedure
WET – waste extraction test
WET-DI – waste extraction test using deionized water as the extractant

Copyright 2011 Kleinfelder

Table 2A (Continued)
Summary of the 95 Percent Upper Confidence Limits

Data Set	All Depths (0-3 feet)	Surface (0.5-1 feet)	Shallow (1.5-2 feet)	Intermediate (<2 feet)	Deep (□2 feet)
I-805 North and South Bound Lanes (North Phase)					
Total Lead (mg/kg)	120.1	251.7	29.4	146.7*	28.1**
Leaching Lead (WET) (mg/L)	6.2	11.9	1.7	7.1*	2.7**
Leaching Lead (WET-DI) (mg/L)	0.4	0.4	0.1	0.4*	0.1**
Leaching Lead (TCLP) (mg/L)	1.4	1.4	0.1	1.4*	NA**
pH	7.4	7.5	7.5	7.4*	7.4**

Notes:
* indicates data was analyzed for depths 2-feet and shallower
** indicates data was analyzed for depths 2-feet and deeper
Highlighted data denotes the 95% Upper Confidence Level (UCL) for a particular data set is outside of either hazardous waste criteria or non-paved DTSC variance criteria.

bgs – below ground surface
mg/kg – milligrams per kilogram
mg/L – milligrams per liter
NA – insufficient data needed to calculate a 95% UCL for a particular data set
TCLP – toxicity characteristic leaching procedure
WET – waste extraction test
WET-DI – waste extraction test using deionized water as the extractant

Copyright 2011 Kleinfelder

Table 2B
Summary of Mean Values
I-805 HOV ADL Study
Caltrans EA-11-081610

Data Set	All Depths (0-3 feet)	Surface (0.5-1 feet)	Shallow (1.5-2 feet)	Intermediate (<2 feet)	Deep (□2 feet)
All Data Sets (Entire Project Corridor)					
Total Lead (mg/kg)	32.2	63.6	18.6	41.9	7.8
Leaching Lead (WET) (mg/L)	1.9	3.9	1.1	2.5	0.4
pH	7.3	7.4	7.3	7.3	7.2
I-805 North and South Bound Lanes (South Phase)					
Total Lead (mg/kg)	29.4	57.2	19.9	38.9	7.9
Leaching Lead (WET) (mg/L)	1.8	3.5	1.2	2.4	0.4
pH	7.3	7.5	7.3	7.4	7.2
I-805 North and South Bound Lanes (North Phase)					
Total Lead (mg/kg)	49.6	93.1	12.0	56.7	7.0
Leaching Lead (WET) (mg/L)	3.0	5.7	0.6	3.4	0.6
pH	7.1	6.9	7.1	7.0	7.3

Notes:
bgs – below ground surface
mg/kg – milligrams per kilogram
mg/L – milligrams per liter
TCLP – toxicity characteristic leaching procedure
WET – waste extraction test
WET-DI – waste extraction test using deionized water as the extractant

Copyright 2011 Kleinfelder

APPENDI□ A

Sample Location Coordinates (Table A-1)

Table A-1
Sample Location Coordinates
I-805 HOV ADL Study
Caltrans EA-11-081610

Sample Location Name	-Coordinate (Latitude in decimal degrees)	Y-Coordinate (Longitude in decimal degrees)
805N-001	6319401.897	1803465.239
805C-002	6319304.893	1803433.72
805S-003	6319209.952	1803402.872
805N-004	6319205.155	1804126.932
805C-005	6319122.65	1804106.97
805S-006	6319027.039	1804078.185
805N-007	6318973.176	1804847.912
805C-008	6318894.694	1804815.567
805S-009	6318818.329	1804790.754
805N-010	6318761.934	1805498.048
805C-011	6318685.569	1805473.236
805S-012	6318612.661	1805451.828
805N-013	6318550.073	1806157.111
805C-014	6318469.58	1806130.957
805S-015	6318395.279	1806106.815
805N-016	6318345.798	1806820.92
805C-017	6318259.061	1806785.892
805S-018	6318178.515	1806752.876
805N-019	6318134.608	1807477.918
805C-020	6318052.721	1807449.03
805S-021	6317972.899	1807420.813
805N-022	6317928.268	1808141.057
805C-023	6317822.546	1808136.369
805S-024	6317718.112	1808120.691
805N-025	6317690.195	1808782.475
805C-026	6317608.927	1808744.661
805S-027	6317535.244	1808711.592
805N-028	6317461.892	1809382.978
805C-029	6317356.578	1809393.144
805S-030	6317261.835	1809393.301
805N-031	6317181.164	1810084.477
805C-032	6317098.851	1810056.827
805S-033	6317018.023	1810025.098
805N-034	6316922.882	1810743.339
805C-035	6316841.687	1810699.929
805S-036	6316764.757	1810651.145
805N-037	6316544.461	1811389.65
805C-038	6316466.789	1811342.905
805S-039	6316402.837	1811296.534
805N-040	6316102.759	1811943.556
805C-041	6316041.378	1811885.245

Copyright 2011 Kleinfelder

Table A-1 (Continued)
Sample Location Coordinates
I-805 HOV ADL Study
Caltrans EA-11-081610

Sample Location Name	-Coordinate (Latitude in decimal degrees)	Y-Coordinate (Longitude in decimal degrees)
805S-042	6315976.928	1811820.795
805N-043	6315579.488	1812426.93
805C-044	6315534.987	1812367.084
805S-045	6315479.744	1812290.358
805N-046	6315057.436	1812917.026
805C-047	6314974.887	1812789.077
805S-048	6314921.179	1812704.678
805N-049	6314445.478	1813260.174
805C-050	6314405.58	1813186.518
805S-051	6314358.01	1813108.257
805N-052	6314309.521	1813732.088
805N-053	6313938.07	1813729.234
805C-054	6313891.933	1813622.794
805S-055	6313837.536	1813522.969
805S-056	6313772.357	1813468.278
805S-057	6313612.912	1813161.11
805N-058	6313742.054	1814098.434
805N-059	6313529.742	1814351.366
805C-060	6313507.048	1814055.654
805S-061	6313451.262	1813973.627
805S-062	6313139.901	1813734.946
805N-063	6313300.158	1814746.731
805C-064	6313181.31	1814676.305
805S-065	6313094.843	1814630.842
805N-066	6313076.738	1815189.962
805N-067	6313019.76	1815523.775
805C-068	6312857.37	1815393.282
805S-069	6312765.989	1815308.476
805N-070	6312752.457	1815990.856
805N-071	6312595.444	1816027.541
805C-072	6312513.269	1815980.584
805S-073	6312429.627	1815923.354
805N-074	6312287.077	1816454.183
805N-075	6311959.99	1816690.066
805S-076	6311955.653	1816438.416
805S-077	6311829.456	1816417.872
805N-078	6311827.988	1816847.823
805C-079	6311842.663	1816624.777
805N-080	6311208.479	1817106.93
805C-081	6311394.369	1816901.384
805S-082	6311346.678	1816803.801
805S-083	6311034.853	1816876.438
805N-084	6310801.534	1817306.389
805C-085	6310760.447	1817209.54

Copyright 2011 Kleinfelder

Table A-1 (Continued)
Sample Location Coordinates
I-805 HOV ADL Study
Caltrans EA-11-081610

Sample Location Name	-Coordinate (Latitude in decimal degrees)	Y-Coordinate (Longitude in decimal degrees)
805S-086	6310732.566	1817137.637
805N-087	6310281.337	1817657.834
805C-088	6310203.565	1817544.844
805S-089	6310150.738	1817468.538
805N-090	6309761.874	1818089.253
805C-091	6309684.101	1818005.611
805S-092	6309616.6	1817935.175
805N-093	6309374.514	1818651.898
805C-094	6309239.476	1818552.955
805S-095	6309155.833	1818486.921
805N-096	6309125.017	1818969.7
805N-097	6308669.284	1819549.584
805C-098	6308710.961	1819281.23
805S-099	6308427.51	1819436.091
805S-100	6308611.761	1819106.677
805N-101	6308184.732	1820231.184
805S-102	6307921.402	1820039.349
805N-103	6307674.723	1820908.144
805S-104	6307575.092	1820524.984
805S-105	6307297.208	1820955.022
805N-106	6307336.612	1821291.556
805N-107	6307143.301	1821601.557
805N-108	6307108.712	1821525.586
805S-109	6306831.825	1821522.672
805N-110	6306740.538	1822134.809
805S-111	6306579.184	1821983.735
805N-112	6306504.575	1822742.762
805S-113	6306299.785	1822652.79
805N-114	6306260.389	1823439.915
805S-115	6306090.842	1823351.527
805N-116	6306047.567	1824090.975
805S-117	6305872.418	1824023.109
805N-118	6305830.77	1824758.209
805S-119	6305662.31	1824703.473
805N-120	6305605.136	1825418.92
805S-121	6305439.979	1825365.257
805N-122	6305368.697	1826100.255
805S-123	6305237.263	1826041.114
805N-124	6305256.748	1826545.961
805S-125	6305034.572	1826394.651
805N-126	6305172.465	1826729.486
805S-127	6304965.219	1826667.626
805N-128	6305102	1826996.935

Copyright 2011 Kleinfelder

Table A-1 (Continued)
Sample Location Coordinates
I-805 HOV ADL Study
Caltrans EA-11-081610

Sample Location Name	-Coordinate (Latitude in decimal degrees)	Y-Coordinate (Longitude in decimal degrees)
805S-129	6304859.928	1826688.197
805N-130	6304881.344	1827338.843
805S-131	6304721.664	1827248.612
805N-132	6304783.963	1827593.803
805S-133	6304518.639	1827308.644
805N-134	6304621.321	1828029.52
805S-135	6304452.984	1827848.59
805N-136	6304497.155	1828276.781
805S-137	6304323.344	1828061.439
805N-138	6304335.029	1828624.011
805S-139	6304163.149	1828554.469
805N-140	6304029.543	1829294.439
805S-141	6303876.178	1829167.913
805N-142	6303566.238	1829902.631
805S-143	6303449.66	1829738.755
805N-144	6303055.85	1830385.962
805S-145	6302921.139	1830186.371
805N-146	6302753.068	1830761.445
805S-147	6302570.519	1830480.265
805N-148	6302552.646	1830838.757
805S-149	6302431.426	1830714.459
805N-150	6302268.072	1831283.642
805S-151	6302004.696	1831341.548
805S-152	6301922.899	1831295.383
805N-153	6302052.617	1831939.882
805S-154	6301588.405	1831752.22
805N-155	6301863.263	1832173.661
805S-156	6301729.09	1832049.485
805N-157	6301859.093	1832572.355
805S-158	6301643.83	1832445.152
805S-159	6301449.385	1832398.789
805N-160	6301815.672	1832863.609
805N-161	6301881.21	1833182.01
805N-162	6301859.733	1833596.158
805S-163	6301636.327	1833445.677
805N-164	6301837.153	1834008.633
805S-165	6301644.316	1834064.225
805N-166	6301830.877	1834412.65
805S-167	6301667.064	1834790.567
805N-168	6301846.255	1835102.127
805S-169	6301682.138	1835461.622
805N-170	6301854.07	1835818.511

Copyright 2011 Kleinfelder

Table A-1 (Continued)
Sample Location Coordinates
I-805 HOV ADL Study
Caltrans EA-11-081610

Sample Location Name	-Coordinate (Latitude in decimal degrees)	Y-Coordinate (Longitude in decimal degrees)
805N-171	6301924.406	1836076.41
805S-172	6301700.373	1836198.847
805N-173	6301868.159	1836513.355
805N-174	6301818.829	1836954.245
805S-175	6301664.844	1836859.388
805S-176	6301485.773	1836885.539
805N-177	6301875.954	1837164.942
805N-178	6301609.198	1837629.217
805S-179	6301478.432	1837470.961
805S-180	6301395.373	1837432.186
805N-181	6301242.684	1838224.911
805S-182	6301101.829	1838132.061
805N-183	6300823.206	1838798.555
805S-184	6300683.917	1838678.553
805N-185	6300517.268	1839258.28
805N-186	6300346.075	1839401.115
805S-187	6300155.437	1839248.646
805S-188	6299991.962	1839452.423
805N-189	6300340.63	1839751.206
805N-190	6299933.649	1840006.603
805S-191	6299755.251	1839881.9
805N-192	6299795.192	1840290.093
805S-193	6299397.47	1840177.955
805N-194	6299591.699	1840529.288
805S-195	6299467.97	1840473.166
805N-196	6299466.841	1841243.495
805S-197	6299268.563	1841196.215
805N-198	6299388.596	1841770.289
805S-199	6299221.874	1841744.239
805N-200	6299466.747	1842590.875
805S-201	6299315.655	1842583.06
805N-202	6299546.309	1843296.654
805S-203	6299344.31	1843291.629
805S-204	6299169.773	1843604.234
805N-205	6299521.453	1844021.039
805S-206	6299352.31	1843997.643
805S-207	6299279.184	1844216.417
805N-208	6299451.808	1844655.976
805S-209	6299259.064	1844591.181
805N-210	6299604.247	1845025.114
805S-211	6298951.298	1844986.901
805N-212	6299156.785	1845317.407

Copyright 2011 Kleinfelder

Table A-1 (Continued)
Sample Location Coordinates
I-805 HOV ADL Study
Caltrans EA-11-081610

Sample Location Name	-Coordinate (Latitude in decimal degrees)	Y-Coordinate (Longitude in decimal degrees)
805S-213	6298961.479	1845242.004
805N-214	6298655.102	1845915.178
805S-215	6298550.235	1845800.453
805N-216	6298110.764	1846368.142
805S-217	6298011.072	1846231.769
805N-218	6297282.797	1846921.894
805S-219	6297439.666	1846613.058
805N-220	6296975.939	1847123.536
805S-221	6296921.955	1846952.008
805N-222	6296934.736	1847394.257
805N-223	6296352.523	1847903.373
805N-224	6296114.96	1848544.405
805S-225	6296005.02	1848432.543
805N-226	6295886.636	1849213.666
805S-227	6295798.649	1849050.624
805S-228	6295503.901	1849310.581
805N-229	6296185.621	1850511.575
805N-230	6295836.687	1850142.241
805N-231	6295665.373	1849865.859
805S-232	6295555.55	1849712.212
805N-233	6295347.789	1850509.711
805S-234	6295235.711	1850354.762
805N-235	6295032.393	1851097.674
805S-236	6294877.169	1850980.983
805N-237	6294612.118	1851679.216
805S-238	6294474.317	1851565.463
805N-239	6294207.085	1852258.582
805S-240	6294067.352	1852152.836

Notes:
Coordinate system is NAD 83 State Plane System (CA Zone VI)

Copyright 2011 Kleinfelder

APPENDI B

Laboratory Analytical Reports and Chain-of-Custody Documentation (on attached CD)

APPENDI□ C

Statistical Data Evaluation

Copyright 2010 Kleinfelder

1. INTRODUCTION

Caltrans is proposing to construct managed and high occupancy vehicle (HOV) lanes along Interstate 805 (I-805) between 0.32 mile south of the Palomar Street Over Crossing (OC) to the Landis Street OC. The construction will result in soil disturbance, excavation, and reuse of excavated soil along the shoulders and median of the project corridor. In the more urbanized highway corridors, including the I-805 corridor where construction is planned, shallow soil is typically contaminated with aerially-deposited lead (ADL) caused by historic emissions from vehicle exhausts. The lead concentrations in shallow soil may exceed State and Federal hazardous waste criteria or may be at concentrations that require special handling and placement.

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

The Caltrans Task Order manager indicated that the project area will be constructed in two phases. The first phase will consist of construction of the Palomar Street Direct Access Ramp and HOV lanes from Palomar Street to State Route (SR) 94. This phase is referred to as the "South" phase for the analysis (Figure 1). The second phase will consist of construction of improvements from SR-94 to the Landis Street OC and is referred to as the "North" phase (Figure 2).

2. OBJECTIVE

Statistically analyze the data set as one sample area, the South and North sub-areas with sample depth intervals as sub-strata for proper soil classification under the Variance.

3. ANALYSIS

Soil samples were collected at depths of 0.5 feet, 1.5 feet, and 3.0 feet below ground surface (bgs) from 240 locations along the project corridor (with the exception of 805S-027 where a sample was collected from 1 feet bgs). The samples were analyzed for concentrations of total lead (TOTAL) and soluble lead extracted and analyzed by the Waste Extraction Test (WET). Select samples were also analyzed soil pH, soluble lead extracted with the Toxicity Characteristic Leaching Procedure (TCLP), and soluble lead extracted with a modified WET using de-ionized water (WET-DI). Lead concentrations that were not detected were substituted with the method reporting limit. Field duplicates were collected at the rate of 5% (of the field samples) for TOTAL and WET, 8% for WET DI, 6% for TCLP, and 4% for pH analyses. The larger of the field and field duplicate concentration was used. Any uncertainty in the difference between the field and field duplicate concentration was biased toward protecting the environment and human health by selecting the higher concentration.

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

The procedures required certain assumptions about the underlying distribution of the data set or subset being analyzed. Goodness-of-fit tests were used to test the assumptions regarding the underlying distribution. Based on the underlying distribution (or lack of), the appropriate procedure was selected to calculate the representative mean concentration. Since the true mean concentration is not known, a value that would not be exceeded 95 percent of the time (95 percent upper confidence limit or 95 UCL) was calculated for the selected α and β values.

The WET-DI and TCLP concentrations were plotted against TOTAL and WET concentrations to evaluate if there were meaningful correlations that could be used to extrapolate soluble lead concentrations not analyzed by the laboratory. The plots showed that there was no correlation between WET-DI, TCLP, TOTAL and WET concentrations. However, there are sufficient data for classification of the soil without extrapolation of soluble lead concentrations.

3.1. Project Corridor Sample Area

The analysis considered the project corridor as one sample area. The sub-strata (depth-intervals) consisted of 0-3 feet (entire data set), 0.5-1, 1.5-2, less than 2 feet (combined 0.5-1 and 1.5-2), and greater than 2 feet (3-3.5). The table below summarizes the results of the parametric procedures for each sub-strata.

			Total Concentrations (mg/kg)					
Depth (ft)	Number of Samples	% of Non Detect	Minimum value	Maximum value	Mean	Median	Standard Deviation	95% UCL
0-3	653	9%	0.5	1180.0	32.2	4.4	95.2	48.4
0.5-1	242	2%	0.5	1180.0	63.6	17.4	128.1	106.2
1.5-2	224	10%	0.5	966.0	18.6	2.7	81.2	42.3
< 2	467	6%	0.5	1180.0	41.9	6.1	110.2	64.1
> 2 (3-3.5)	186	16%	0.5	196.0	7.8	1.9	22.1	14.9

			WET Concentrations (mg/L)					
Depth (ft)	Number of Samples	% of Non Detect	Minimum value	Maximum value	Mean	Median	Standard Deviation	95% UCL
0-3	654	46%	0.1	66.5	1.9	0.1	5.9	2.9
0.5-1	242	17%	0.1	52.5	3.9	0.9	7.5	6.0
1.5-2	224	62%	0.1	66.5	1.1	0.1	5.7	2.8
< 2	467	39%	0.1	66.5	2.5	0.2	6.8	3.9
> 2 (3-3.5)	187	65%	0.1	12.0	0.4	0.1	1.4	0.9

			Soil pH					
Depth (ft)	Number of Samples	% of Non Detect	Minimum value	Maximum value	Mean	Median	Standard Deviation	95% UCL
0-3	167	N/A	4.4	9.0	7.3	7.5	0.9	7.4
0.5-1	59	N/A	5.4	8.6	7.4	7.6	0.7	7.5
1.5-2	63	N/A	4.5	8.8	7.3	7.5	0.9	7.5
< 2	122	N/A	4.5	8.8	7.3	7.5	0.8	7.4
> 2 (3-3.5)	45	N/A	4.4	9.0	7.2	7.5	0.9	7.4

The representative values of TOTAL, WET, and pH concentrations were compared with Variance criteria to evaluate soil classification. Although not all the samples were analyzed for WET-DI and TCLP, there were sufficient data for comparison with Variance criteria. The maximum possible values of WET-DI and TCLP did not exceed Variance criteria as shown in the table below.

Parameter	**0-3**	**0.5-1**	**1.5-2**	**<2**	**>2 (3-3.5)**
TOTAL 95% UCL	48.4	106.2	42.3	64.1	14.9
WET 95% UCL	2.9	6.0	2.8	3.9	0.9
pH (95% UCL)	7.4	7.5	7.5	7.4	7.4
WET DI (maximum)	0.9	0.7	0.9	0.9	0.1
TCLP (maximum)	2.4	1.4	2.4	2.4	0.3
Soil Classification	X	Y1	X	X	X

The Variance defines non-hazardous soil that has no restrictions for reuse within the project (but requires notification and lead compliance plan for worker safety) as soil type "X." Soil that is California hazardous (non-RCRA) but has total concentrations below 1,411 mg/kg and WET-DI concentrations below 1.5 mg/kg is defined as "Y1." Soil with Y1 classification can be reused within the project below a minimum cover of 1 foot of clean soil. If soil classified as Y1 is removed from the project site, it would have to be disposed of as hazardous waste at a Class 1 landfill facility.

If soil from the surface to a depth of 3 feet within the project area were to be treated as one stockpile, then the soil would be classified as X. If soil from various depth intervals were managed separately, then soil shallower than 1 foot bgs would be classified as Y1 with all other depth strata classified as X.

3.1. Phase 1 (South) Sub-Area

The analysis was repeated for the Phase 1 (South) sub-area. The approximate Phase 1 sub-area corridor length is 45,687 feet, which represents approximately 79% of the total project corridor length. Of the 240 locations sampled for the entire project, 199 were sampled in the South sub-area. The data set for the sub-area were analyzed for TOTAL and WET lead concentrations and soil pH data for the sub-strata corresponding to depth intervals 0.5-1 feet, 1.5-2 feet, less than 2 feet, and greater than 2 feet.

			TOTAL Concentrations (mg/kg)					
Depth (ft)	Number of Samples	% of Non Detect	Minimum value	Maximum value	Mean	Median	Standard Deviation	95% UCL
0-3	562	8%	0.5	1180.0	29.4	4.2	89.4	45.8
0.5-1	199	2%	0.5	1180.0	57.2	15.5	116.6	100.2
1.5-2	189	10%	0.5	966.0	19.9	2.7	87.8	47.7
< 2	389	6%	0.5	1180.0	38.9	5.6	105.0	62.1
> 2 (3-3.5)	173	14%	0.5	196.0	7.9	2.3	22.5	15.3

			WET Concentrations (mg/L)					
Depth (ft)	Number of Samples	% of Non Detect	Minimum value	Maximum value	Mean	Median	Standard Deviation	95% UCL
0-3	563	48%	0.1	66.5	1.8	0.1	5.7	2.8
0.5-1	199	19%	0.1	52.5	3.5	0.7	7.0	5.7
1.5-2	189	63%	0.1	66.5	1.2	0.1	6.2	3.2
< 2	389	41%	0.1	66.5	2.4	0.2	6.7	3.9
> 2 (3-3.5)	174	64%	0.1	12.0	0.4	0.1	1.3	0.9

			Soil pH					
Depth (ft)	Number of Samples	% of Non Detect	Minimum value	Maximum value	Mean	Median	Standard Deviation	95% UCL
0-3	141	NA	4.4	9.0	7.3	7.5	0.9	7.4
0.5-1	48	NA	5.8	8.6	7.5	7.6	0.7	7.6
1.5-2	54	NA	4.5	8.6	7.3	7.5	0.9	7.5
< 2	102	NA	4.5	8.6	7.4	7.6	0.8	7.5
> 2 (3-3.5)	39	NA	4.4	9.0	7.2	7.5	1.0	7.4

Parameter	0-3	0.5-1	1.5-2	<2	>2 (3-3.5)
TOTAL 95% UCL	45.8	100.2	47.7	62.1	15.3
WET 95% UCL	2.8	5.7	3.2	3.9	0.9
pH (95% UCL)	7.4	7.6	7.5	7.5	7.4
WET DI (maximum)	0.9	0.7	0.9	0.9	0.1
TCLP (maximum)	2.4	1.0	2.4	2.4	0.3
Soil Classification	X	Y1	X	X	X

Similar to results of statistical analysis for the entire project area, if soil from the surface to a depth of 3 feet within the Phase 1 (South) sub-area were to be treated as one stockpile, then the soil would be classified as X. If soil from various depth intervals were managed separately, then soil shallower than 1 foot bgs would be classified as Y1 with all other depth strata classified as X.

3.1. Phase 2 (North) Sub-Area

The analysis was repeated for the Phase 2 (North) sub-area. The approximate Phase 2 sub-area corridor length is 11,842 feet, which represents approximately 21% of the total project corridor length. Of the 240 locations sampled for the entire project, 41 were sampled in the North sub-area. Results are summarized in the table below.

			TOTAL Concentrations (mg/kg)					
Depth (ft)	Number of Samples	% of Non Detect	Minimum value	Maximum value	Mean	Median	Standard Deviation	95% UCL
0-3	91	10%	0.5	816.0	49.6	10.4	124.4	120.1
0.5-1	43	2%	0.5	816.0	93.1	30.2	170.1	251.7
1.5-2	35	11%	0.5	127.0	12.0	2.7	23.5	29.4
< 2	78	6%	0.5	816.0	56.7	11.7	132.9	146.7
> 2 (3-3.5)	13	31%	0.5	63.7	7.0	1.0	17.5	28.1

			WET Concentrations (mg/L)					
Depth (ft)	Number of Samples	% of Non Detect	Minimum value	Maximum value	Mean	Median	Standard Deviation	95% UCL
0-3	91	37%	0.1	41.0	3.0	0.4	7.0	6.2
0.5-1	43	12%	0.1	41.0	5.7	1.8	9.4	11.9
1.5-2	35	54%	0.1	8.5	0.6	0.1	1.4	1.7
< 2	78	31%	0.1	41.0	3.4	0.6	7.5	7.1
> 2 (3-3.5)	13	77%	0.1	6.4	0.6	0.1	1.7	2.7

			Soil pH					
Depth (ft)	Number of Samples	% of Non Detect	Minimum value	Maximum value	Mean	Median	Standard Deviation	95% UCL
0-3	26	NA	5.4	8.8	7.1	7.2	0.8	7.4
0.5-1	11	NA	5.4	7.8	6.9	7.1	0.7	7.3
1.5-2	9	NA	5.8	8.8	7.1	6.9	1.0	7.8
< 2	20	NA	5.4	8.8	7.0	7.1	0.8	7.3
> 2 (3-3.5)	6	NA	6.7	8.2	7.3	7.4	0.6	7.8

Parameter	**0-3**	**0.5-1**	**1.5-2**	**<2**	**>2 (3-3.5)**
TOTAL 95% UCL	120.1	251.7	29.4	146.7	28.1
WET 95% UCL	6.2	11.9	1.7	7.1	2.7
pH (95% UCL)	7.4	7.3	7.8	7.3	7.8
WET DI (maximum)	0.4	0.4	0.1	0.4	0.1
TCLP (max)	1.4	1.4	0.1	1.4	NA
Soil Classification	Y1	Y1	X	Y1	X

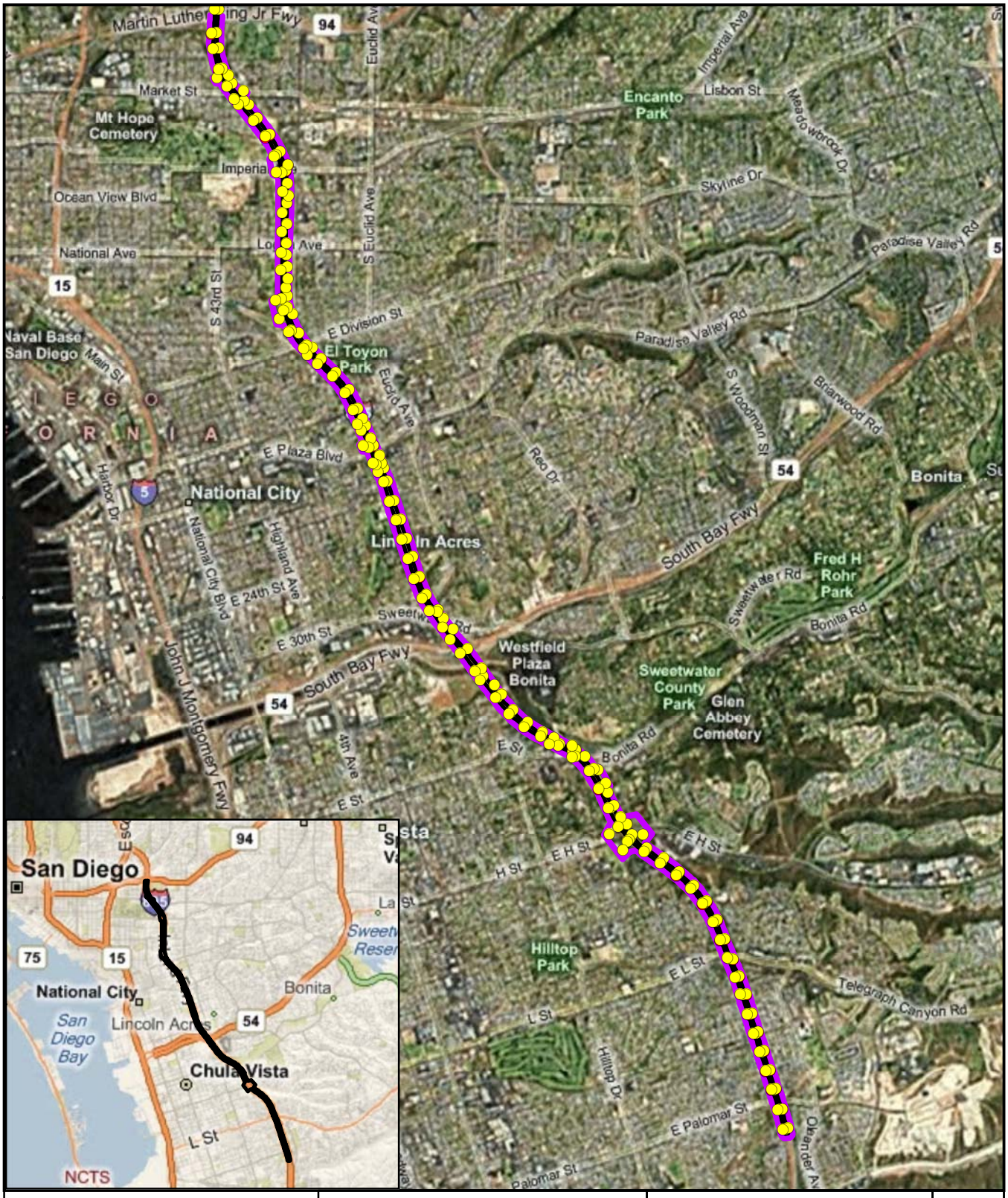
If soil from the surface to a depth of 3 feet within the Phase 2 (North) sub-area were to be treated as one stockpile, then the soil would be classified as Y1. If soil from various depth intervals were managed separately, then soil shallower than 2 feet bgs would be classified as Y1 and soil deeper than 2 feet would be classified as X.

4. SUMMARY

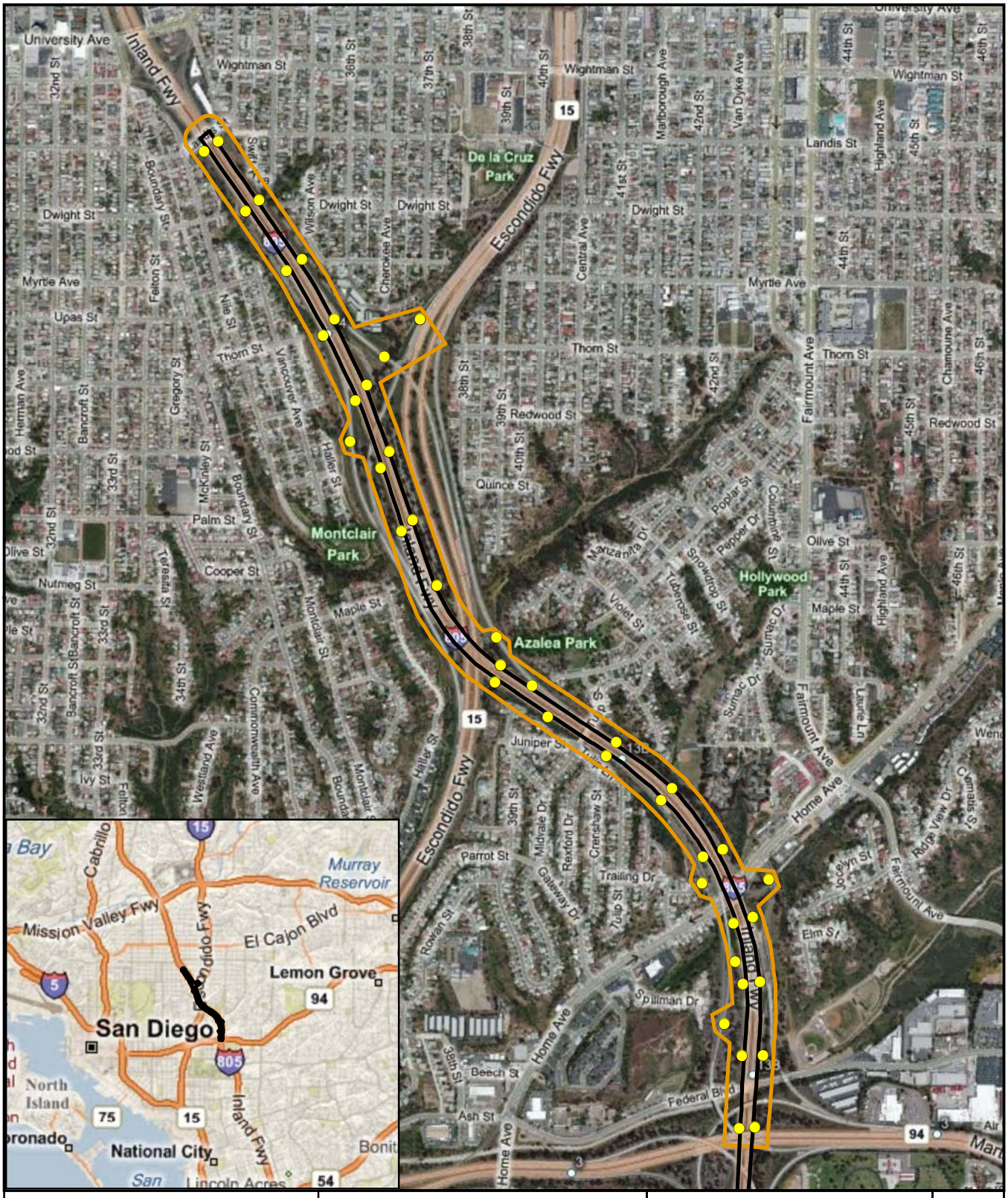
The statistical evaluation indicates that the shallow soil from the surface to 1 foot bgs would be classified as Y1 regardless of whether the entire project area or sub-area is considered. Soil above 1 foot bgs would be classified as Y1 and below 1 foot bgs would be classified as X for the entire project area and for the Phase 1 sub-area. Soil above 2 feet bgs would be classified as Y1 and below 2 feet bgs as X in the Phase 2 sub-area.

If the construction plans call for different sub-areas than those considered in this study, the data set should be re-analyzed using soil sample data from those sub-areas.

FIGURES



N 0 2,500 5,000 Feet	The Bodhi Group	State Route 94 to Palomar Street	Figure
	Project No.	Date	I-805 IMPROVEMENTS SAN DIEGO, CALIFORNIA	1
	9049	04/2011		



N 0 700 1,400 Feet	The Bodhi Group	Landis Street Crossing to State Route 94	Figure
	Project No.	Date	I-805 IMPROVEMENTS SAN DIEGO, CALIFORNIA	2
	9049	04/2011		

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

In Reply Refer To:
FWS-SDG-10B0002-11F0293

APR 19 2011

Ms. Kim Smith, Chief
Environmental Resource Studies
California Department of Transportation - District 11
4050 Taylor Street
San Diego, California 92110

Attention: Susan Scatolini, Associate Environmental Planner

Subject: Formal Section 7 Consultation for the Interstate 805 South Managed Lanes Project, San Diego County, California

Dear Ms. Smith:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the Interstate 805 (I-805) South Managed Lanes Project and its effects on the federally threatened coastal California gnatcatcher (*Polioptila californica californica*, "gnatcatcher"), in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*). The California Department of Transportation (Caltrans) has assumed the Federal Highway Administration's (FHWA) responsibilities under the Act for this consultation in accordance with Sections 6004 and 6005 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) 2005, as described in the National Environmental Policy Act Delegation Pilot Program Memorandum of Understanding between FHWA and Caltrans (effective July 1, 2007) and codified in Renewed 23 U.S.C. 326 and 23 U.S.C. 327.

Based on conservation measures committed to by Caltrans, we concur with your determination that the proposed project is not likely to adversely affect the federally endangered least Bell's vireo (*Vireo bellii pusillus*, "vireo") and light-footed clapper rail (*Rallus longirostris levipes* "rail") (Enclosure). The project will affect habitat types that are used by the vireo and rail, but project activities are not scheduled to commence on the phase of the project adjacent to vireo and rail occupied habitat within the Sweetwater River until approximately 2015-2018. Due to the expected delay between consultation with our agency and initiation of project impacts, Caltrans has agreed to conduct protocol surveys for the vireo and rail within 1 year prior to the commencement of vegetation clearing and construction activities for the project in suitable habitat for these species and to reinitiate consultation if either of the two species are observed within the project impact area.

TAKE PRIDE IN AMERICA

This biological opinion is based on information provided in: 1) *Biological Assessment, I-805 South Managed Lanes, Cities of San Diego, Chula Vista, National City CA* (Caltrans 2010 "BA"); 2) *Interstate 805 Managed Lanes South Project Draft Environmental Impact Report/ Environmental Assessment*; 3) a field meeting on March 3, 2011; and 4) other sources of information including survey reports and email correspondence. A complete project file of this consultation is maintained at the Carlsbad Fish and Wildlife Office (CFWO).

CONSULTATION HISTORY

On November 30, 2010, we received a letter from Caltrans requesting initiation of formal consultation on the proposed action, together with the BA. On March 3, 2011, representatives from Caltrans and the CFWO attended an onsite meeting to discuss the proposed project. On March 8, 2011, representatives from Caltrans and the CFWO met to discuss avoidance and minimization measures. Between March 14, 2011, and April 6, 2011, we received information we had requested regarding the management of the Sage Hills and Mendocino preserves.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Using Federal funds provided through the FHWA, Caltrans proposes to widen the existing I-805 freeway between East Palomar Street and Landis Street in the cities of San Diego, Chula Vista, and National City and portions of unincorporated San Diego County (Figure 1). The project will result in the construction of four buffer-separated managed lanes (two lanes in each direction) and two high occupancy vehicle (HOV) lanes (one in each direction) in the freeway median. The managed lanes will be separated from the general purpose freeway lanes by a 1.2-meter-wide (4-foot-wide) painted buffer. The project also includes the construction of a HOV/transit direct connector ramp to State Route 15 (SR-15). Additional project features include construction of in-line transit stations at the East H Street overcrossing and at the East Plaza Boulevard undercrossing and a transit station on East Palomar Street with park and ride lots and a north-facing direct access ramp (DAR) at the East Palomar Street overcrossing. The project will also modify or replace some existing overcrossing and undercrossing structures and will construct noise and retaining walls at various locations. The project crosses the Sweetwater River and Chollas Creek. The total project length is approximately 18.3 kilometers (km) [11.4 miles (mi)]. Construction is proposed to begin in 2012 and be completed by 2020.

The project will permanently impact several scrub communities occupied by gnatcatchers, including 0.84 hectares (ha) [2.08 acres (ac)] of coastal sage scrub[1] (CSS), 1.24 ha (3.08 ac) of disturbed CSS, 0.02 ha (0.05 ac) of maritime succulent scrub[2], and 0.004 ha (0.01 ac) of

[1] Coastal sage scrub consists of several vegetation alliances and related associations, which includes the *Artemisia californica*, *Artemisia californica-Eriogonum fasciculatum*, and *Encelia californica* Alliances (Sproul et al 2011).
[2] Maritime succulent scrub, called the *Artemisia californica-Eriogonum fasciculatum-Opuntia littoralis/Dudleya (edulis)* Association, is part of the *Artemisia californica-Eriogonum fasciculatum* Alliance (Sproul et al 2011).

CSS/chaparral[3]. The project will temporarily impact other scrub communities occupied by gnatcatchers, including 0.05 ha (0.12 ac) of CSS, 1.23 ha (3.05 ac) of disturbed CSS, 0.004 ha (0.01 ac) of maritime succulent scrub, and 0.01 ha (0.02 ac) of CSS/chaparral. In addition, permanent impacts will occur to 0.32 ha (0.78 ac) of southern mixed chaparral[4] and 1.31 ha (3.25 ac) disturbed southern mixed chaparral, and temporary impacts will occur to 0.59 ha (1.46 ac) of southern mixed chaparral and 0.89 ha (2.21 ac) of disturbed southern mixed chaparral. The project will result in the permanent loss of portions of three gnatcatcher territories (Caltrans 2010).

Conservation Measures

Caltrans has agreed to implement the following conservation measures as part of the proposed action to avoid, minimize, and offset impacts to gnatcatchers and other sensitive resources such as wetlands, aquatic resources, and rare plants:

1. Permanent impacts to 2.11 ha (5.22 ac) and temporary impacts to 1.29 ha (3.2 ac) of gnatcatcher habitat and impacts to other native upland habitats on the site will be offset through the permanent conservation of 7.14 ha (17.65 ac) of CSS and MSS, including 2.05 ha (5.07 ac) at the Sage Hill Preserve and 5.09 ha (12.58 ac) at the Mendocino Preserve.

2. Both the Sage Hill and Mendocino preserves are owned and managed by the County of San Diego and have conservation easements in place in favor of the San Diego Association of Governments (SANDAG). These preserve lands were purchased with funding from the SANDAG's TransNet Environmental Mitigation Program (EMP), with approval from the CFWO, for use, in part, to offset the impacts of transportation infrastructure improvement projects funded by the TransNet Extension Ordinance, including the I-805 South Managed Lanes Project. An approved Memorandum of Agreement (MOA) among the SANDAG, Caltrans, CFWO, and California Department of Fish and Game outlines the roles and commitments of the organizations with regard to implementation of the EMP. Caltrans, under the EMP MOA, will ensure that perpetual management, maintenance, and monitoring plans are prepared and implemented for the Sage Hill and Mendocino preserves. Caltrans, under the EMP MOA, will ensure that non-wasting endowments for amounts approved by the CFWO based on Property Analysis Records (PAR) (Center for Natural Lands Management ©1998) or similar cost estimation methods are established to secure the ongoing funding for the perpetual management, maintenance and monitoring of the Sage Hill and Mendocino preserves. Caltrans, under the EMP MOA, will ensure that draft management plans including: 1) a description of perpetual management, maintenance, and monitoring actions and the PAR or other cost estimation results for the non-wasting endowment; 2) proposed land manager's name, qualifications, business

[3] CSS/chaparral likely refers to the *Adenostoma fasciculatum-(Eriogonum fasciculatum, Artemisia californica, Salvia mellifera)* Association (Sproul et al 2011).
[4] While southern maritime chaparral consists of several vegetation alliances, the *Adenostoma fasciculatum-Xylococcus bicolor* Alliance dominates this scrub community (Sproul et al 2011).

address, and contact information are submitted to the CFWO for review and approval. Caltrans will ensure that the final management plans are submitted to the CFWO and will coordinate with the CFWO to determine a mutually satisfactory solution for the establishment of endowments for perpetual management. Caltrans anticipates that the management plans will not be prepared prior to initiating project impacts; however, annual reports will be provided on their status until the final management plans have been provided and the endowments have been established, which will occur no later than December 1, 2014.

3. The clearing and grubbing of native upland habitats will occur from September 1 to February 14 to avoid the gnatcatcher breeding season [or sooner than September 1 if a biologist[5] approved by the CFWO ("Project Biologist") demonstrates to the satisfaction of the CFWO that all nesting is complete]. Caltrans will submit the biologist's name, address, telephone number, and work schedule on the project to the CFWO at least 5 working days prior to initiating project impacts.

4. The Project Biologist will be on site during: a) initial clearing and grubbing; and b) weekly during project construction within 152.4 meters (m) [500 feet (ft)] of offsite gnatcatcher and wetland habitat to ensure compliance with all conservation measures. The Project Biologist will be familiar with the habitats, plants, and wildlife in the project area to ensure that issues relating to biological resources are appropriately and lawfully managed[6]. The Project Biologist will perform the following duties:

   a. Perform a minimum of three focused surveys, on separate days, to determine the presence of gnatcatchers in the project impact footprint. Surveys will begin a maximum of 30 days prior to performing vegetation clearing/grubbing and one survey will be conducted the day immediately prior to the initiation of remaining work. If any gnatcatchers are found within the project impact footprint, the Project Biologist will direct construction personnel to begin vegetation clearing/grubbing in an area away from the gnatcatchers. In addition, the Project Biologist will walk ahead of clearing/ grubbing equipment to flush birds towards areas of coastal sage scrub to be avoided. It will be the responsibility of the Project Biologist to ensure that gnatcatchers will not be injured or killed by vegetation clearing/grubbing. The Project Biologist will also record the number and location of gnatcatchers disturbed by vegetation clearing/grubbing. Caltrans will notify the CFWO at least 7 days prior to vegetation clearing/grubbing to allow the CFWO to coordinate with the Project Biologist on bird flushing activities;

   b. Oversee installation of and inspect the construction fencing and erosion control measures within or up-slope of adjacent native habitat areas a minimum of once per week to ensure that any breaks in the fence or erosion control measures are repaired immediately;

[5] The designated project biologist for this measure should be experienced in gnatcatcher biology and ecology.
[6] The designated project biologist for this measure should be experienced in gnatcatcher biology and ecology.

c. Periodically monitor the work area to ensure that work activities do not generate excessive amounts of dust;

d. Train all contractors and construction personnel on the biological resources associated with the projects and ensure that training is implemented by construction personnel. At a minimum, training will include: 1) the purpose for resource protection; 2) a description of the sensitive resources and their habitats; 3) the conservation measures that should be implemented during project construction to conserve the sensitive resources, including strictly limiting activities, vehicles, equipment, and construction materials to the fenced project footprint to avoid sensitive resource areas in the field (i.e., avoided areas delineated on maps or on the project site by fencing); 4) environmentally responsible construction practices; 5) the protocol to resolve conflicts that may arise at any time during the construction process; and 6) the general provisions of the Act, the need to adhere to the provisions of the Act, and the penalties associated with violating the Act;

e. Halt work, if necessary, and confer with the CFWO to ensure the proper implementation of species and habitat protection measures. The Project Biologist will report any non-compliance issue to the CFWO within 24 hours of its occurrence;

f. Submit monthly email reports (including photographs of impact areas) to Caltrans and the CFWO during clearing of gnatcatcher habitat and project construction. The monthly reports will document that authorized impacts were not exceeded and general compliance with all conditions. The reports will also outline the location of construction activities, the type of construction that occurred, and equipment used. These reports will specify numbers, locations, and sex of gnatcatchers (if observed), observed gnatcatcher behavior (especially in relation to construction activities), and remedial measures employed to avoid and minimize impacts to gnatcatchers. Raw field notes should be available upon request by the CFWO; and

g. Submit a final report to the CFWO within 120 days of project completion that includes: photographs of habitat areas that were to be avoided and other relevant summary information documenting that authorized impacts were not exceeded and that general compliance with all conservation measures was achieved. As-built construction drawings with an overlay of habitat that was impacted and avoided will be provided as well once they have been completed.

5. All native or sensitive habitats outside and adjacent to the permanent and temporary construction limits will be designated as Environmentally Sensitive Areas (ESAs) on project maps. ESAs will be temporarily fenced during construction with orange plastic snow fence, or in areas of permanent flowing water, with stakes and flagging. No personnel, equipment or debris will be allowed within the ESAs. Fencing and flagging will be installed in a manner that does not impact habitats to be avoided and such that it is

clearly visible to personnel on foot and operating heavy equipment. Caltrans will submit to the CFWO for approval, at least 5 days prior to initiating project impacts (except for impacts resulting from clearing to install temporary fencing), the final plans for initial clearing and grubbing of habitat and project construction. These final plans will include photographs that show the fenced and flagged limits of impact and all areas to be impacted or avoided. If work occurs beyond the fenced or demarcated limits of impact, all work will cease until the problem has been remedied to the satisfaction of the CFWO. Temporary construction fencing will be removed upon project completion.

6. All pile driving for the project that will occur near habitats that support gnatcatchers will be conducted between September 1 and February 14 (or sooner than September 1 if the Project Biologist demonstrates to the satisfaction of the CFWO that all nesting is complete) to avoid the gnatcatcher breeding season and to minimize construction noise impacts to nesting gnatcatchers.

7. Erosion and sediment control devices used for the proposed project, including fiber rolls and bonded fiber matrix, will be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard.

8. Appropriate best management practices (BMPs) will be used to control erosion and sedimentation. No sediment or debris will be allowed to enter creeks, rivers, or other drainages. All debris from the expansion of bridges will be contained so that it does not fall into rivers and creeks.

9. The project will construct detention basins in some of the loop ramps, and bioswales will be placed on many of the slopes to treat runoff from the freeway.

10. Caltrans will ensure that project landscaping does not include alien plant species listed on the California Invasive Plant Council's (Cal-IPC) "Invasive Plant Inventory" list. A copy of the complete list can be obtained from Cal-IPC's web site at http://www.cal-ipc.org.

11. Several invasive weed species currently grow within the right-of-way along I-805. Special care will be taken during transport, use, and disposal of soils containing invasive weed seeds. All heavy equipment will be washed and cleaned of debris prior to entering a new area to minimize the spread of invasive weeds.

12. Cut slopes adjacent to native habitats will be revegetated with native upland habitats with similar composition to those within the project study area. Fill slopes and areas adjacent to wetlands and drainages will be revegetated with appropriate native upland and wetland species. The revegetated areas will have temporary irrigation and will be planted with native container plants and seeds selected by the Project Biologist. At least 3 years of plant establishment/maintenance on these slopes is needed to control invasive weeds. Bioswales

will be planted with appropriate species as determined by the Project Biologist and storm water pollution prevention professional.

13. Duff from areas with coastal sage scrub and chaparral will be saved to aid in revegetating slopes with native species.

14. Rare plants will be salvaged where practicable for use in revegetation efforts.

15. All temporary impact areas will be revegetated and restored to pre-existing conditions. Prior to initiating project impacts, a restoration plan will be developed for the temporary impact areas. The plan will be submitted to the CFWO for review and approval. This plan will include a detailed description of restoration methods, slope stabilization, and erosion control, criteria for restoration to be considered successful, and monitoring protocol(s). Following the completion of construction activities, the restoration plan will be implemented for a minimum of 5 years, unless success criteria are met earlier and all artificial water has been off for at least 2 years.

16. Landscaping will not use plants that require intensive irrigation, fertilizers, or pesticides adjacent to preserve areas, and water runoff from landscaped areas will be directed away from adjacent native habitats and contained and/or treated within the development footprint.

17. Caltrans will submit a draft list of species to be included in the landscaping to the CFWO for approval. Caltrans will submit to the CFWO the final list of species to be included in the landscaping within 30 days of receiving approval of the draft list of species.

18. Contractors and construction personnel will strictly limit their activities, vehicles, equipment, and construction materials to the fenced project footprint.

19. The project site will be kept as clean of debris as possible. All food-related trash items will be enclosed in sealed containers and regularly removed from the site.

20. Pets of project personnel will not be allowed on the project site.

21. All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities will occur within the fenced project impacts limits.

22. Impacts from fugitive dust will be avoided and minimized through watering and other appropriate measures.

23. If night work is necessary, night lighting will be of the lowest illumination necessary for human safety, selectively placed, shielded and directed away from natural habitats.

24. Cut and fill will be balanced within the project or the construction contractor will identify the source or disposal location. All spoils and material disposal will be disposed of properly.

Action Area

According to 50 CFR § 402.02 pursuant to section 7 of the Act, the "action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area. For this project, we have defined the action area to be the 18.3-km (11.4-mi) project site, which includes 3.74 ha (9.25 ac) of permanent and 2.78 ha (6.87 ac) of temporary impacts to sensitive native upland habitats and 0.43 ha (1.06 ac) of permanent and 1.07 ha (2.64 ac) of temporary impacts to wetland habitats. The action area also includes the surrounding habitat within about 150 m (500 ft), which may be exposed to project-related effects such as increased noise, light, and dust levels and human activity during project construction and operation of the facilities. In addition, the action area includes the Sage Hill and Mendocino preserves (Figure 2), which are located in the Elfin Forest Community in unincorporated San Diego County, California, approximately 48 km (30 mi) north of the project site.

STATUS OF THE SPECIES

The status of the gnatcatcher was described in detail in a biological opinion for the Caltrans-sponsored State Route 76 Melrose Drive to South Mission Highway Improvement Project, San Diego County, California (FWS-SDG-08B0136-08F0900, dated October 1, 2008); new information since that time is provided in the 5-year review for gnatcatcher (Service 2010). Please refer to these documents for detailed information on the life history requirements of the species, threats to the species, and conservation needs of the species.

Summary of Species' Distribution and Numbers Rangewide

The gnatcatcher occurs in CSS and associated habitats from southern Ventura County to Baja California, Mexico. In 1993, the Service estimated that about 2,562 gnatcatcher pairs remained in the United States, with the highest densities occurring in Orange and San Diego counties (Service 1993). In a recent study using more rigorous sampling techniques, Winchell and Doherty (2008) estimated there were 1,324 (95 percent confidence interval: 976–1,673) gnatcatcher pairs over a 44,923-ha (111,006-ac) area on public and quasi-public lands in Orange and San Diego counties. Their sampling frame covered only a portion of the U.S. range, focusing on the coast, and was limited to 1 year. Although it is not valid to extrapolate beyond the sampling frame, especially in light of known differences in population densities across the range of the gnatcatcher (Atwood 1992), it is likely there are more gnatcatchers in the U.S. portion of the range than was suggested by earlier estimates; Winchell and Doherty (2008) estimated nearly as many gnatcatchers in the portion of the U.S. range sampled in their study as

was originally estimated for the entire U.S. range. We are not aware of any recent estimates of gnatcatcher populations in Baja California.

ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR §402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area that have undergone section 7 consultation and the impacts of State and private actions that are contemporaneous with the consultation in progress. The proposed project area contains areas of native upland habitat, including habitats that are suitable for the gnatcatcher. Fifteen gnatcatcher territories were documented within the Biological Study Area for the project during various biological surveys for the project (Caltrans 2010). Protocol surveys were conducted by John Konecny and Jim Rocks in 2006 (Caltrans 2010), and URS in 2007 (URS 2007). Portions of three gnatcatcher territories are located within the permanent impact area of the proposed project.

The Sage Hill Preserve consists of 10 parcels totaling 95 ha (234 ac). The preserve is located within the Pre-approved Mitigation Area of the proposed North County Multiple Species Conservation Program (MSCP) and is also identified by the adjacent northwestern San Diego County Multiple Habitat Conservation Program (MHCP) as a Core Gnatcatcher Conservation area. A 2001 Biological Technical Report for the Quail Ridge project, which was proposed for this site before it was acquired for conservation, documented the following plant communities: approximately 65 ha (160 ac) of CSS supporting between 7 and11 pairs of gnatcatchers, coast live oak riparian forest, freshwater marsh, southern willow scrub, native grassland, and southern mixed chaparral, along with creek and riparian habitats (Helix Environmental Planning, Inc. 2001).

The Mendocino Preserve is a single parcel of 15.96 ha (39.44 ac) and is located within unincorporated San Diego County. The County of San Diego contributed half of the funding for the acquisition of the Mendocino Preserve; thus, half of the conservation acreage is reserved for the County. On the 7.98 ha (19.72 ac) of the Mendocino Preserve that is allocated to SANDAG, part of which will be conserved to offset the impacts of the I-805 South Managed Lanes Project, 7.47 ha (18.47 ac) of CSS are occupied by gnatcatchers (SANDAG 2010). The site also includes native and nonnative grassland, southern willow scrub, and mulefat scrub.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species, together with the effects of other activities that are interrelated and interdependent with that action, which will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are

those that are caused by the proposed action, are later in time, and still reasonably certain to occur.

Habitat Loss

Construction activities are not anticipated to result in the death or injury of any gnatcatchers or nests. A Project Biologist will be present to ensure that gnatcatchers are not directly killed or injured during vegetation removal and other construction activities. The clearing and grubbing of native habitats will be conducted outside of the breeding season (February 15 to August 31).

The project will result in a total of 2.12 ha (5.22 ac) of permanent impacts and 1.29 ha (3.2 ac) of temporary impacts to gnatcatcher habitat throughout the 18.3 km- (11.4 mi-) long project area. Permanent impacts consist of 0.84 ha (2.08 ac) of CSS, 1.24 ha (3.08 ac) of disturbed CSS, 0.02 ha (0.05 ac) of maritime succulent scrub, and 0.004 ha (0.01 ac) of CSS/chaparral. Temporary impacts consist of 0.05 ha (0.12 ac) of CSS, 1.23 ha (3.05 ac) of disturbed CSS, 0.004 ha (0.01 ac) of maritime succulent scrub, and 0.01 ha (0.02 ac) of CSS/chaparral.

Portions of three gnatcatcher territories are located within the permanent and temporary impact areas of the proposed project (Caltrans 2010). The project will result in the permanent loss of part of a gnatcatcher territory in Rice Canyon south of H Street and east of I-805, and part of a gnatcatcher territory located north of H Street and east of I-805 (Figure 3a). A small portion of a third gnatcatcher territory located east of I-805 and west of the Sweetwater River will also be permanently impacted (Figure 3b). Temporary impacts will also occur to small portions of these gnatcatcher territories.

At Rice Canyon, Caltrans estimates that permanent impacts will occur to approximately 5 percent, and temporary impacts will occur to approximately 10 percent of the pair's use area. North of H Street and east of I-805, Caltrans estimates that approximately 40 percent of the pair's use area will be permanently impacted, and 40 percent will be temporarily impacted. East of I-805 and west of the Sweetwater River, the pair's use area is farther from the project impact area, and Caltrans estimates that approximately 2 percent of the use area will be permanently impacted and 5 percent will be temporarily impacted.

Although habitat removal will be conducted outside the gnatcatcher nesting season, gnatcatchers are non-migratory territorial birds, and removal of a substantial portion of a gnatcatcher pair's breeding territory will force the pair to expand their existing territory or establish a new territory, particularly during the breeding season, when territorial boundaries are better defined (Preston et al. 1998). Because gnatcatchers are distributed throughout much of the suitable habitat in the project area (Caltrans 2010), it is likely that the gnatcatchers affected by habitat loss within their primary use areas will be forced to compete with resident gnatcatchers when attempting to expand an existing territory or establish a new territory.

The pair at Rice Canyon and the pair east of I-805 and west of the Sweetwater River will each experience the loss of only 15 and 7 percent of their use areas, respectively, over the short term, and these pairs may be able to survive project construction impacts within the remaining and/or adjacent habitat. However, even if these birds survive and successfully establish territories, they are expected to experience reduced productivity (e.g., delayed initiation or prevention of nest building, fewer nesting attempts per season, overall reduction in reproductive output) due to the overall reduced availability of foraging and breeding habitat and increased territorial interactions in the project area.

The pair located North of H Street and east of the I-805 will lose approximately 80 percent of its use area over the short term. Because these displaced birds likely will be less able to find suitable habitat to forage and shelter in, we anticipate they will be more vulnerable to predation and otherwise may die or be injured.

Following construction, all temporarily impacted habitats, including CSS, will be restored and are expected to be re-occupied by gnatcatchers. Since restored CSS usually takes a minimum of 4 to 5 years of growth before it is suitable for occupation by gnatcatchers (O'Connell and Erickson 1998, Miner et al. 1998), a temporal loss of CSS available to gnatcatchers will occur in the project area. This temporal loss likely will reduce the number and reproductive fitness of gnatcatchers in the project area. However, because large numbers of gnatcatcher pairs will be breeding in the intact habitat adjacent to the impact area, we do not anticipate that the temporary impacts will increase the risk of gnatcatcher extirpation in the area, and we expect that the temporarily impacted habitat will be re-occupied as soon as it is mature enough to support gnatcatcher breeding.

Overall, the loss of habitat for three gnatcatcher pairs over the short-term, and the permanent loss of habitat for one of these pairs will reduce the number of gnatcatchers that can be supported in the general project area. Impacts to three gnatcatcher pairs represent less than 1 percent of the rangewide estimate of gnatcatcher pairs, and gnatcatchers will continue to occupy the general project area; thus, the project is not expected to result in an appreciable reduction in the numbers, reproduction, or distribution of the species rangewide.

Caltrans will offset the permanent loss of gnatcatcher habitat [2.12 ha (5.22 ac)], and impacts to other native habitats on the site, through the preservation of 7.13 ha (17.65 ac) of gnatcatcher occupied CSS and maritime succulent scrub at the Sage Hill and Mendocino preserves.

Although conservation of gnatcatcher and upland habitat off the project site will not avoid or minimize impacts to the individual gnatcatchers impacted by the project, the offsite conservation will permanently protect a total of 7.13 ha (17.65 ac) of CSS and maritime succulent scrub and contribute to the conservation and recovery of the species.

Indirect Effects

Indirect effects include lighting associated with the project that will impact the adjacent gnatcatcher habitat. Light that alters natural light patterns in ecosystems can lead to increased predation, disorientation, and disruption of inter-specific interactions (Longcore and Rich 2004). If night work is necessary, night lighting will be of the lowest illumination necessary for human safety, selectively placed, shielded and directed away from natural habitats. This will minimize the impact of lighting on gnatcatcher behavior in adjacent habitat to the point where such effects are insignificant.

Noise and vibrations associated with the use of heavy equipment during construction and operations of the proposed facilities have the potential to disrupt gnatcatcher behaviors in adjacent habitat by masking intraspecific communication and startling birds (e.g., see Dooling and Popper 2007 for a discussion of observed effects of highway noise on birds). However, gnatcatchers that occupy habitats adjacent to the existing I-805 freeway are subjected to existing noise and vibration and continue to occupy the habitat. Ambient noise measurements taken along the project area range from 54 dB(A) L_{eq} to 80 dB(A) L_{eq} with the majority of measurements in the 60 dB(A) L_{eq} to 70 dB(A) L_{eq} range. Once construction is complete, project operations are anticipated to result in a minimal increase in existing noise levels of 1 dB(A) or less. Pile driving for the project that will occur near habitats that support gnatcatchers will be conducted outside of the gnatcatcher breeding season to minimize construction noise impacts to nesting gnatcatchers.

Additional indirect effects include an increase of erosion and sedimentation, introduction of invasive species, wildfire, and human encroachment. I-805 is an existing facility, so with the proposed conservation measures, any increase in habitat degradation associated with these factors is likely to be insignificant.

Effect on Recovery

The project is not anticipated to impede recovery of the gnatcatcher. As described above, the project will result in impacts to gnatcatchers and their habitats. However, the impacts are small relative to the amount of habitat and gnatcatcher territories rangewide (roughly 2,562 pairs). Furthermore, because substantial areas of occupied habitat will remain adjacent to the impact areas, and habitat restoration will be initiated immediately following construction, little risk exists that the project will extirpate any gnatcatcher populations in the project area. Permanent impacts to gnatcatchers and their habitat will be offset through the conservation of a total of 7.13 ha (17.65 ac) of CSS and maritime succulent scrub that will support the recovery of the species.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future

Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. We are unaware of any future non-Federal actions that are reasonably certain to occur within the action area and may affect gnatcatchers.

CONCLUSION

After reviewing the current status of the gnatcatcher, the environmental baseline for the action area, effects of the proposed action, and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of the gnatcatcher. We reached this conclusion by considering the following:

- Adverse effects to the gnatcatcher will be avoided and minimized by implementation of the conservation measures identified in the "Project Description" of this biological opinion.

- The project will permanently impact only 2.12 ha (5.22 ac) of CSS and maritime succulent scrub out of many thousands of hectares (acres) of gnatcatcher habitat rangewide.

- The project will result in the temporary impact to only 1.29 ha (3.2 ac) of coastal sage scrub, but this scrub community will be restored, and within 4 to 5 years will again be suitable for habitat for gnatcatcher breeding and foraging.

- Permanent and temporary project-related habitat loss will impact up to three gnatcatcher pairs, which represents less than 1 percent of the roughly 2,562 pairs rangewide.

- Impacts to occupied gnatcatcher habitat will be offset by conserving 7.13 ha (17.65 ac) of occupied CSS and maritime succulent scrub at the Sage Hill and Mendocino preserves.

- With the proposed conservation measures, the project is not expected to a have a long-term effect on the gnatcatcher or its habitat in the project area or rangewide and is not anticipated to impede recovery of the species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Harass is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose

of, the carrying out of an otherwise lawful activity. Under the terms of Section 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the proposed action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be undertaken by Caltrans for the exemption in section 7(o)(2) to apply. If Caltrans fails to implement the terms and conditions, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of the incidental take, Caltrans must report the progress of the action and its impact on the species to the CFWO as specified in the incidental take statement [50 CFR §402.14(i)(3)].
AMOUNT OR EXTENT OF TAKE

The take threshold for gnatcatchers is based on the number of gnatcatcher pairs and the amount of occupied habitat impacted. If the take threshold is exceeded, it will trigger reinitiation of consultation. Take of gnatcatcher is authorized as follows:

- Take in the form of harm of up to 3 gnatcatcher pairs is authorized due to the permanent removal of 2.12 ha (5.22 ac) of CSS and maritime succulent scrub and the temporary removal of 1.29 ha (3.2 ac) of CSS and maritime succulent scrub. The take threshold will be met if more than the specified amount of habitat or more than three gnatcatcher territories are impacted.

EFFECT OF TAKE

In the accompanying biological opinion, we determined that this level of anticipated take is not likely to result in jeopardy to the gnatcatcher.

REASONABLE AND PRUDENT MEASURES

Caltrans will implement conservation measures as part of the proposed action to minimize the incidental take of gnatcatchers. In addition to these conservation measures, the following reasonable and prudent measure is necessary to monitor and report the effects of the incidental take on gnatcatchers:

1. Caltrans will monitor and report on compliance with established take thresholds for gnatcatchers associated with the proposed action.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, Caltrans must comply with the following terms and conditions which implement the reasonable and prudent measures described above.

1.1 Prior to initiating the proposed project, the Project Biologist will conduct a single-pass survey of the project site to verify that no more than three gnatcatcher territories (total) will be substantially impacted by the project. Three preconstruction surveys will be conducted within all suitable gnatcatcher habitat within the footprint for the project, within 30 days prior to initiation of vegetation removal activities. Prior to initiating the project, Caltrans will provide to the CFWO a map showing the distribution of gnatcatchers relative to the project footprint, an estimate of the number of gnatcatchers territories that will be impacted by the project, and the cumulative total of gnatcatcher territories impacted by the project, or confirm in writing that maps, distribution information, and the number of territories that will be impacted by the project as shown in the BA remain correct.

1.2 Caltrans will notify the CFWO within 30 days of completing removal of gnatcatcher occupied habitat. The purpose of this notification is to ensure that impacts to gnatcatcher-occupied habitat from the proposed project do not exceed the take thresholds.

DISPOSITION OF SICK, INJURED, OR DEAD SPECIMENS

Upon locating dead, injured, or sick individuals of threatened or endangered species, initial notification must be made to our Division of Law Enforcement in either San Diego, California, at (619) 557-5063 or in Torrance, California, at (310) 328-6307 within 3 working days. Notification should also be sent by telephone and writing to this office in Carlsbad, California, at 6010 Hidden Valley Road, Suite 101, Carlsbad, California 92011, (760) 431-9440. Written notification must be made within 5 calendar days and include the collection date and time, the location of the animal, and any other pertinent information. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. The remains of intact specimens shall be placed with educational or research institutions holding the appropriate State and Federal permits. Remains shall be placed with the San Diego Natural History Museum, San Diego. Arrangements regarding proper disposition of potential museum specimens shall be made with the institution by the authorized biologist prior to implementation of the action.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. We have not identified any conservation recommendations that would provide further benefit to the gnatcatcher in the action area of the project.

REINITIATION NOTICE

This concludes formal consultation regarding the I-805 South Managed Lanes Project as outlined in materials submitted to us. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; and (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions regarding this biological opinion, please contact Sally Brown of this office at (760) 431-9440, extension 278.

Sincerely,

Jim A. Bartel
Field Supervisor

Enclosure

LITERATURE CITED

Atwood, J. L. 1992. A maximum estimate of the California gnatcatcher's population size in the United States. Western Birds 23:1–9.

Caltrans. 2010a. Biological assessment, I-805 South Managed Lanes, cities of San Diego, Chula Vista, National City, CA. 30+pp.

Caltrans. 2010b. Interstate 805 Managed Lanes South project draft environmental impact report/ environmental assessment.

Dooling, R. J. and A. N. Popper. 2007. The effects of highway noise on birds. Prepared by Environmental BioAcoustics LLC for the California Department of Transportation, Sacramento, California. 74 pp.

Helix Environmental Planning, Inc. 2001. Quail Ridge biological technical report. 40+pp.

Longcore, T. and C. Rich. 2004. Ecological light pollution. Front Ecological Environment 2(4):191-198.

Miner, K., A. Wolf, and R. Hirsch. 1998. Use of restored coastal sage scrub habitat by California gnatcatchers in a park setting. Western Birds 29:439-446.

O'Connell, M. and R. Erickson. 1998. An example of the California gnatcatcher nesting in restored coastal sage scrub. Western Birds 29:434-438.

Preston, K., P. Mock, M. Grishaver, E. Bailey, and D. King. 1998. California gnatcatcher territorial behavior. Western Birds 29:242-257.

San Diego Association of Governments (SANDAG). 2010. Request for Letter of Concurrence and Commitment on Zamudio, Mendocino, and Pardee Carmel Valley TransNet Mitigation Sites. 3+pp.

Sproul, F., T. Keeler-Wolf, P. Gordon-Reedy, J. Dunn, A. Klein, and K. Harper. 2011. Vegetation classification manual for western San Diego County. SANDAG, San Diego, California. 310 pp. + appendices.

URS. 2007. 45-day report for California gnatcatcher surveys along I-805 at Sweetwater River and Otay River San Diego County, California. 7 pp.

U.S. Fish and Wildlife Service (Service). 1993. Endangered and threatened wildlife and plants; Determination of threatened status for the coastal California gnatcatcher; Final Rule. Federal Register 58:16742-16757.

U.S. Fish and Wildlife Service (Service). 2010. Coastal California gnatcatcher (*Polioptila californica californica*) 5-year review: Summary and evaluation. Prepared by the Carlsbad Fish and Wildlife Office, Carlsbad, California. 51 pp.

Winchell, C. S. and P. F. Doherty. 2008. Using California gnatcatcher to test underlying models of habitat conservation plans. Journal of Wildlife Management 72:1322–1327.

ENCLOSURE

The following information supports the U.S. Fish and Wildlife Service's (Service) concurrence with Caltrans' "not likely to adversely affect" determination for the federally endangered least Bell's vireo (*Vireo bellii pusillus*, "vireo") and light-footed clapper rail (*Rallus longirostris levipes* "rail") in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.), for the I-805 South Managed Lanes Project, San Diego County, California.

One vagrant male vireo was observed in 2006 east of I-805 and west of Plaza Bonita Road (URS 2006). A second singing male was observed in 2010 west of I-805 approximately 457+ meters (m) [1500+ feet (ft)] from the I-805 Sweetwater Bridges on three occasions (Caltrans 2010) (Figure 3b). The closest suitable habitat for vireo is approximately 73 m (240 ft) from the project impact area (Caltrans 2010). Although no breeding vireo have been observed close to the project impact area in several years, there is potential for project construction to affect vireo in the adjacent habitat (i.e., effects associated with noise, light, and contaminant run-off). However, Caltrans will implement measures (below) to avoid and minimize such impacts to an insignificant level.

Rail pairs have consistently been found approximately 122 m (400 ft) to the east and between 30.5 m (100 ft) and 213 m (700 ft) west of the project's Sweetwater Bridge temporary impact area, within patches of freshwater marsh habitat that are outside of the project impact area (Konecny 2006, Caltrans 2010) (Figure 3b). The project will temporarily remove 0.18 hectare (ha) [0.45 acres (ac)] of freshwater marsh habitat; however, this impact will occur within a very small habitat fragment that is not occupied by rails and is far-removed from the occupied Sweetwater River habitat. While the project will not result in the removal of any rail habitat, there is potential for construction to affect rails in the adjacent habitat (i.e., effects from noise, light, contaminant run-off, and loss of connectivity). However, Caltrans will implement the conservation measures identified below to avoid and minimize such impacts to an insignificant level.

Caltrans has agreed to remove native wetland vegetation during the non-breeding season to ensure that no potential exists for the project to affect vireo and rail breeding. Since project activities are not scheduled to commence on the phase of the project adjacent to vireo and rail occupied habitat within the Sweetwater River until approximately 2015-2018, Caltrans has agreed to conduct protocol surveys for the vireo and rail within 1 year prior to the commencement of vegetation clearing and construction activities for the project in suitable habitat for these species and to reinitiate consultation should they be observed within the project impact area.

The conservation measures identified below have been incorporated into the project to minimize the effects of the project on vireos and rails in the adjacent habitat. In addition, measures in the biological opinion to minimize impacts to the federally threatened coastal California gnatcatcher

(*Polioptila californica californica*) (i.e., fencing and flagging, biological monitoring, restoration of temporary impact areas) will also minimize project impacts on vireos and rails in the adjacent habitat. The numbering below is a continuation of the numbering of the conservation measures in the associated biological opinion for ease of reference by Caltrans.

25. Permanent impacts to 0.43 ha (1.06 ac) and temporary impacts to 1.07 ha (2.64 ac) of wetland communities (southern willow scrub, freshwater marsh, disturbed wetland, unvegetated channel) will be offset through the purchase of a total of 1.42 ha (3.52 ac) of wetland credits at the Rancho Jamul Mitigation Bank.

26. The clearing and grubbing of native wetland habitats will occur from September 16 to March 14 to avoid impacts to nesting birds.

27. Fueling of construction equipment will only occur at a designated area at a distance of greater than 30 m (100 ft) from drainages and associated plant communities to preclude adverse water quality impacts.

28. To minimize noise impacts to vireo and rail breeding during construction, all pile driving at the Sweetwater River will be completed between September 16 and March 14. In addition, should construction occur within or adjacent to the Sweetwater River riparian corridor during the March 15 to September 15 nesting season, all construction equipment, fixed or mobile, will be equipped with properly operating and maintained mufflers.

29. No night work will occur at the Sweetwater River during the March 15 to September 15 nesting season. If night work is necessary at the Sweetwater River outside of the nesting season, night lighting will be of the lowest illumination necessary for human safety, selectively placed, shielded and directed away from natural habitats;

30. At the Sweetwater River, tall equipment that is not in active use will be stored under the bridge or will be fitted with bird control spikes to ensure that raptors will not be able to use it as a perch to prey on listed bird species.

31. Caltrans will coordinate with the Service's Carlsbad Fish and Wildlife Office regarding the design of the Sweetwater River bridge supports to ensure that the undercrossing maintains the maximum feasible amount of light and openness (e.g., openings in bridge bents) for rail movement between occupied habitat east and west of the bridge.

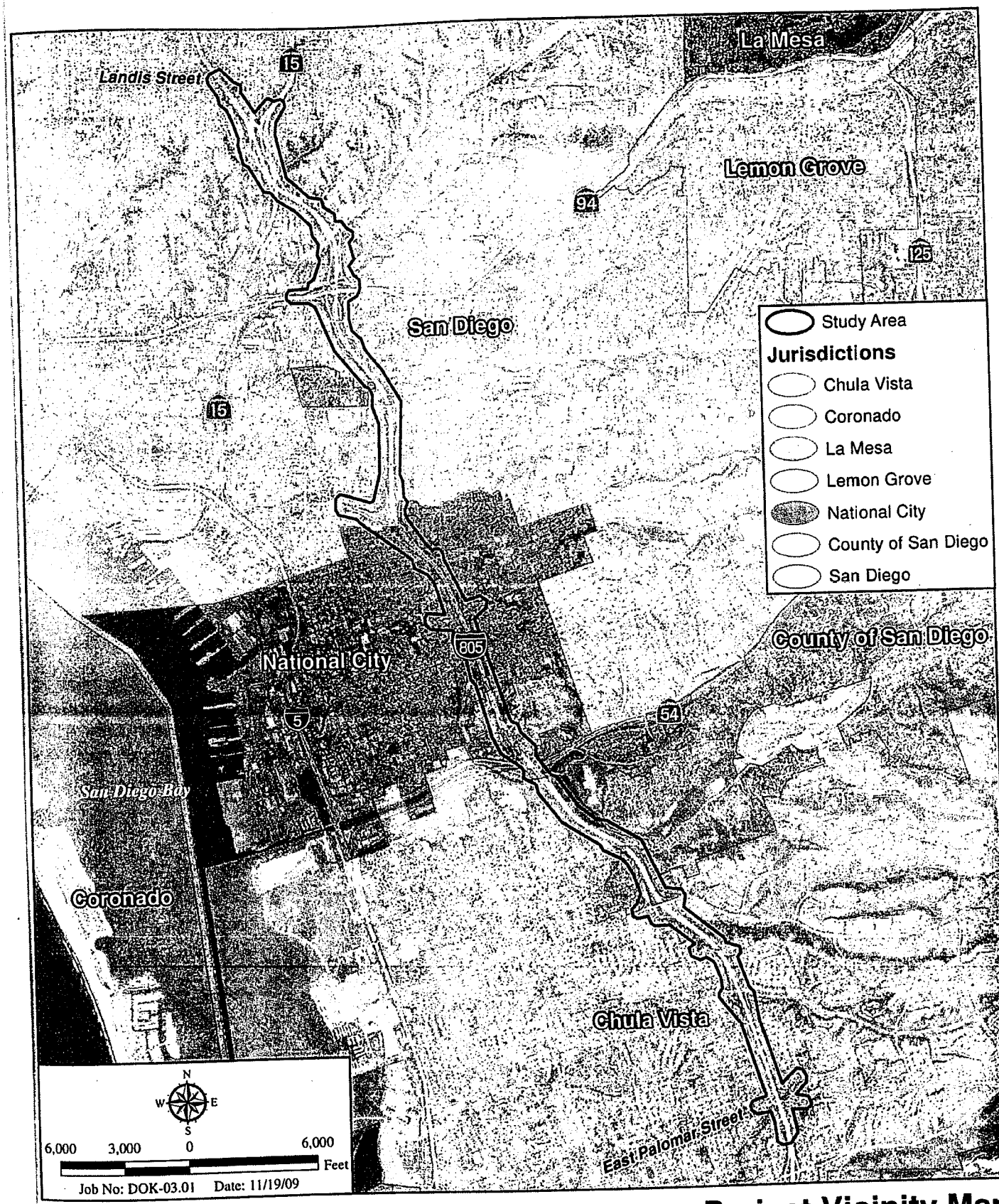
With incorporation of these proposed conservation measures, potential impacts to vireo and rail will be minimized to the point where such effects are insignificant. Based on the current survey information and the conservation measures proposed by Caltrans, the Service concurs with Caltrans' determination that the project, as proposed, is not likely to adversely affect vireo and rail.

LITERATURE CITED (ENCLOSURE)

Caltrans. 2010. Biological Assessment, I-805 South Managed Lanes, Cities of San Diego, Chula Vista, National City, California. 30+pp.

Konecny Biological Services. 2006. Results of focused surveys for the light-footed clapper rail and California black rail for the SANDAG Interstate-805 project, San Diego County, California. 9 pp.

URS. 2006. 45-day report for southwestern willow flycatcher surveys along I-805 at Los Penasquitos, Sweetwater River, and Otay River, San Diego County, California. 11+ pp.



Project Vicinity Map

I-805 MANAGED LANES SOUTH PROJECT

Figure 1

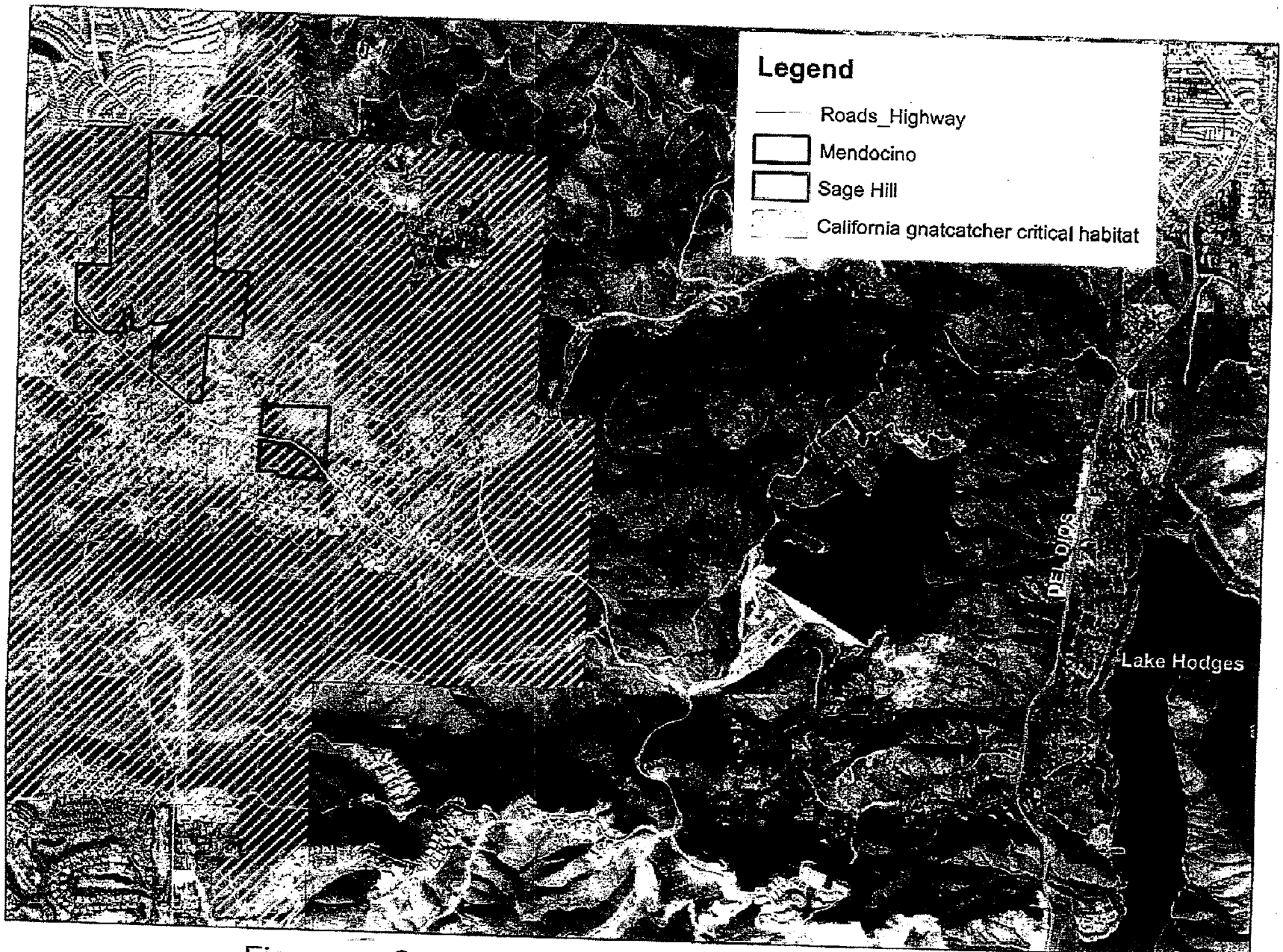


Figure 2 Sage Hill and Mendocino Preserves

N

N

Figure 3a Threatened and Endangered Species and Impact Areas

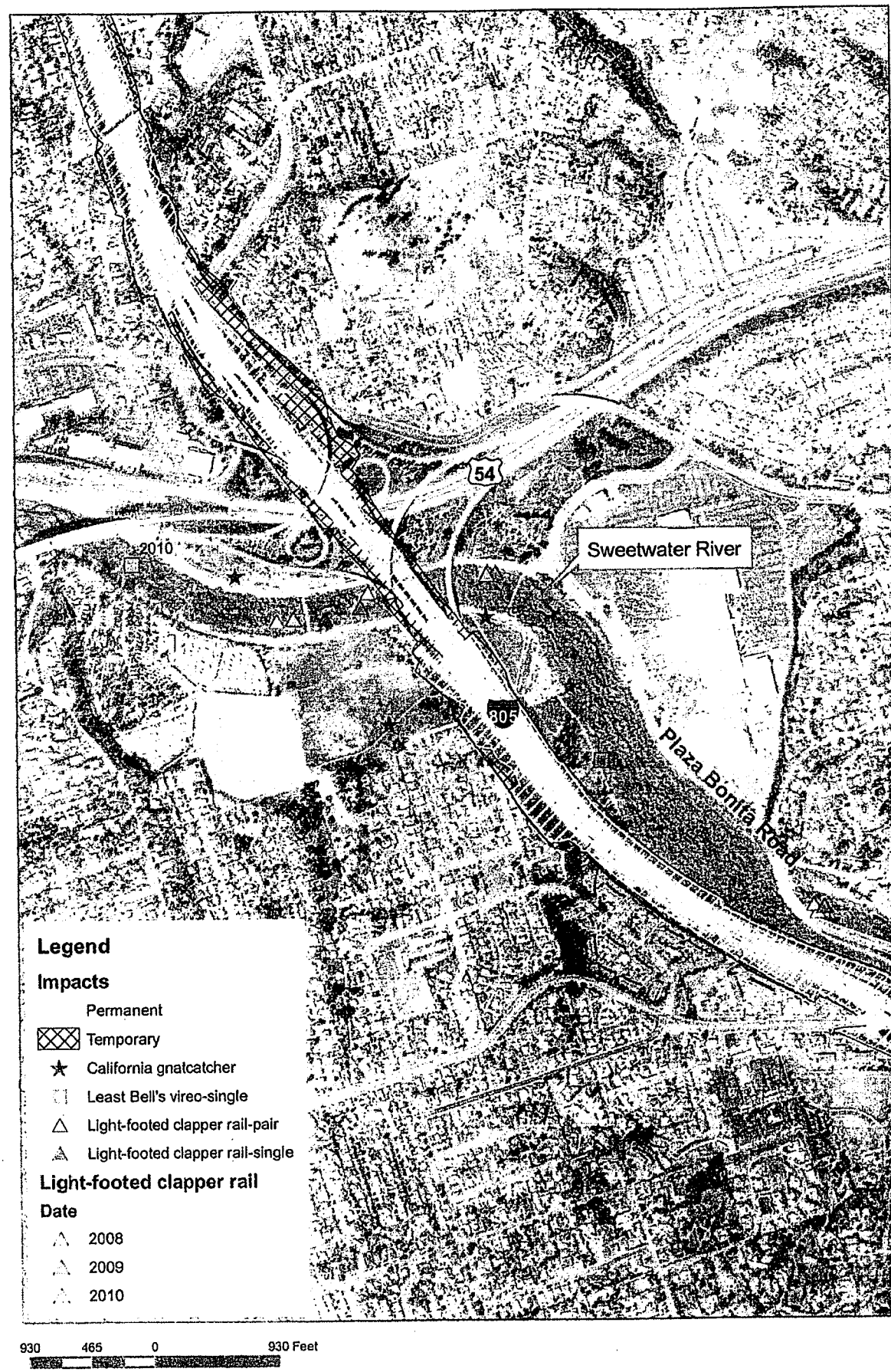


Figure 3b Threatened and Endangered Species and Impact Areas