FOR CONTRACT NO.: 04-3A7774

INFORMATION HANDOUT
MATERIALS INFORMATION

USFWS BIOLOGICAL OPINION

SUITABLE HABITATS FOR LISTED SPECIES

GEOTECHNICAL DESIGN AND MATERIALS REPORT

LIMITED SITE INVESTIGATION REPORT

UNDERGROUND CLASSIFICATION

STORM WATER INFORMATION HANDOUT

NON-STORM WATER INFORMATION HANDOUT

ROUTE: 04-ALA-80-2.3/8.0
04-CC-80-0.0/13.1

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In Reply Refer To:
81420-2011-I-0244-2

JUN 30 2011

Mr. James Richards
Office of Biological Sciences and Permits
California Department of Transportation
P.O. Box 23660
Oakland, California 94623-0660

Subject: Informal Consultation on the Proposed Interstate 80 Integrated Corridor Mobility Project, Alameda and Contra Costa Counties, California (Caltrans EA 04-3A7761 and 04-3A7771)

Dear Mr. Richards:

This letter responds to your December 17, 2010, letter requesting informal consultation and written concurrence for the proposed Interstate 80 Integrated Corridor Mobility (I-80 ICM) Project from the Carquinez Bridge south to Powell Street in Alameda and Contra Costa counties, California. The U.S. Fish and Wildlife Service (Service) received your letter on December 21, 2010, and was assigned the Service File Number 81420-2011-I-0244. The proposed action involves the incorporation of Intelligent Transportation System equipment – active traffic management gantries, variable advisory speed signs, changeable message signs, closed-circuit television cameras, system detection stations, adaptive ramp metering, variable message signs, and conduit and pull boxes for electrical and communications cables – in multiple locations along I-80 and the addition of High Occupancy Vehicle (HOV) bypass lanes at three on-ramps. The consultation concerns the possible effects of the proposed action on the threatened California red-legged frog (*Rana draytonii*), threatened Alameda whipsnake (*Masticophis lateralis euryxanthus*), endangered salt marsh harvest mouse (*Reithrodontomys raviventris*), and endangered California clapper rail (*Rallus longirostris obsoletus*). This letter is issued under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act).

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) legislation (23 U.S.C. 327) allows the Secretary of the U.S. Department of Transportation acting through the Federal Highway Administration (FHWA) to establish a Surface Transportation Project Delivery Pilot Program, whereby a State may assume the FHWA responsibilities under the National Environmental Policy Act (NEPA) for environmental review, agency consultation and other action pertaining to the review or approval of a specific project. Caltrans assumed these responsibilities for the FHWA on July 1, 2007 through a Memorandum of Understanding (MOU) within the State of California (http://www.dot.ca.gov/ser/downloads/MOUs/nepa_delegation/sec6005mou.pdf).

TAKE PRIDE® IN AMERICA

The Service issued a notification of data deficiencies letter on May 6, 2011. Caltrans provided a response to the notification on June 10, 2011, addressing the deficiencies and providing the requested information for the Service to fully evaluate the effects of the proposed action on listed species. The action area is defined in 50 CFR §402.02, as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the purposes of the proposed action the Service considers the action area to comprise 52.14 acres, encompassing the entire 24.70-acre project footprint including all construction access, staging areas, vehicle parking, turnouts, and construction work zones as specified by Caltrans and submitted to the Service in the December 15, 2011, biological assessment, and associated email and phone correspondence. The action area extends approximately 19.5 miles from post-mile (PM) Ala 1.99 to PM CC 3.49 and includes approximately 3.11 acres of California red-legged frog habitat, 4.43 acres of Alameda whipsnake habitat, and 2.63 acres of salt marsh harvest mouse and California clapper rail habitat.

The proposed action has been designed to minimize disturbance to sensitive habitats and is confined to several small, discrete locations throughout the I-80 ICM corridor with finite areas of disturbance. The majority of work will occur on existing pavement or within the shoulder of the mainline. As a result of the August 9, 2010, field visit attended by the Service, Caltrans and the biological consultant, an evaluation of noise levels on California clapper rails was incorporated into the biological assessment and conservation measures were evaluated, refined and incorporated into the project design to ensure the project did not result in take of listed species. The Service has reviewed the submitted project description provided in the December 15, 2011 biological assessment, supporting documentation, and evaluation of project effects, and concurs with your determination that the project effects on California red-legged frog, Alameda whipsnake, salt marsh harvest mouse, and California clapper rail will be insignificant and/or discountable.

The Service concurs that the proposed action is not likely to adversely affect the California red-legged frog and Alameda whipsnake because of the following: (1) construction activities within or adjacent to identified California red-legged frog and Alameda whipsnake habitat will be restricted to the dry season from April 15 and October 15 to avoid interfering with California red-legged frog breeding activities and when frogs are more likely to remain close to aquatic sources, and which corresponds to the seasonal active period for whipsnakes when they are not confined to subterranean hibernacula; (2) the project – drilling for gantry foundations and posts for the project devices, installation of electric cabinets and their footings, ramp metering and widening for HOV lanes, and trenching for electrical and communication conduits – has been designed to occur predominately within paved roadways, thereby minimizing disturbance to California red-legged frog and Alameda whipsnake habitat; (3) the potential for harming California red-legged frogs and Alameda whipsnakes would be minimized by conducting preconstruction surveys prior to vegetation clearing or ground disturbing activities, clearing vegetation within sensitive habitat using hand tools, employing Service-approved biological monitors within identified California red-legged frog and Alameda whipsnake habitat, incorporating environmental awareness training and stop work protocols if listed species are identified within the active construction areas, incorporating environmental sensitive area and wildlife exclusion fencing to prevent workers from entering or disturbing vegetated habitats and minimizes the potential for frogs and snakes to enter the work site, and restricting the use of erosion control devices that use plastic or synthetic mono-filament netting to minimize the potential for frogs and snakes to become entangled or trapped; and (4) the degradation of water

quality or spills within sensitive habitat would be avoided with the implementation of best management practices and spill prevention measures.

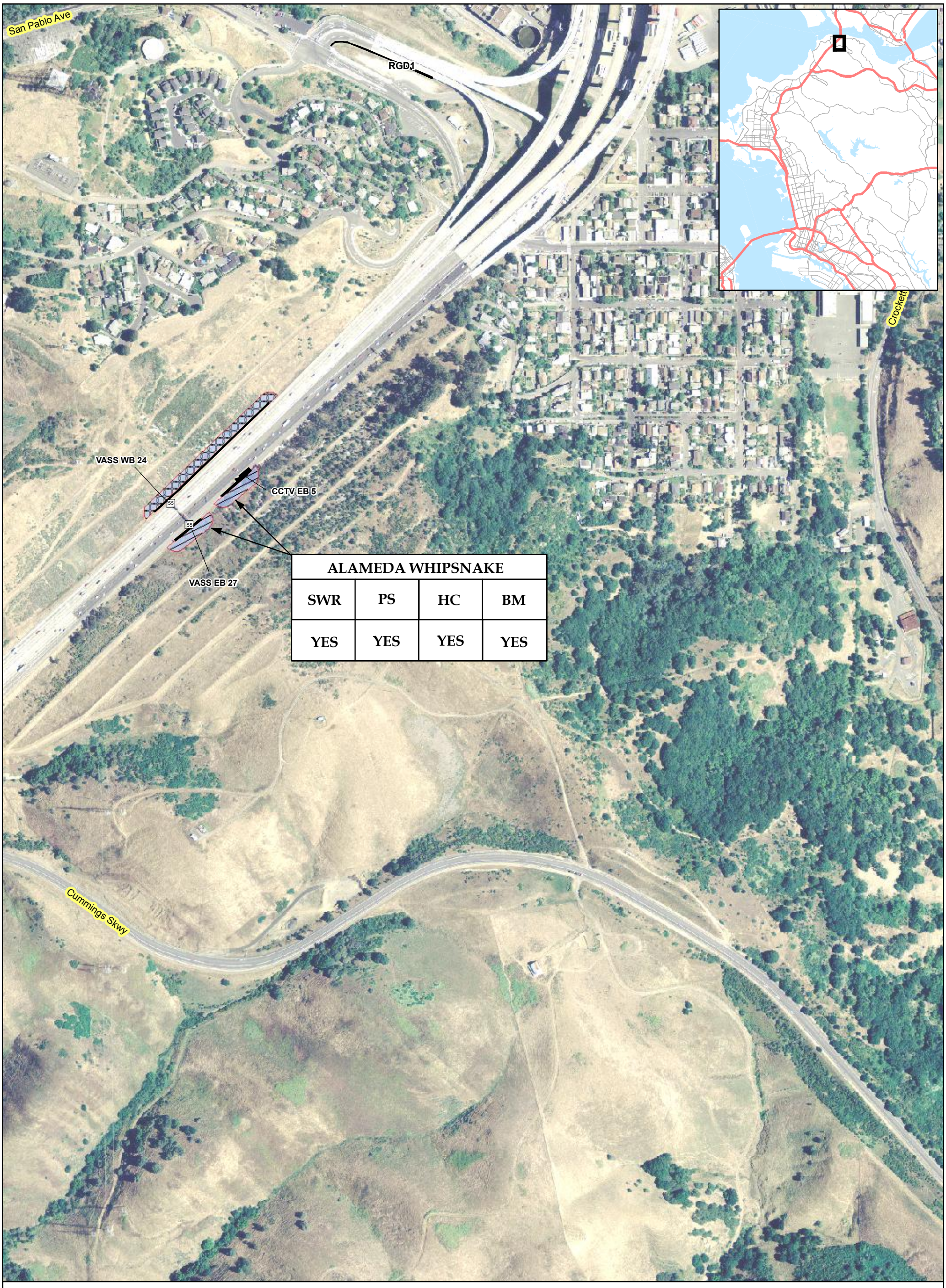
The Service concurs that the proposed action is not likely to adversely affect the salt marsh harvest mouse and California clapper rail because of the following: (1) no pile driving will occur at any of the gantry locations within the southern portion of the action area adjacent to salt marsh habitat; (2) staging areas and directional drilling in the vicinity of salt marsh habitat will be restricted to the east side of the frontage road (immediately west of I-80) away from salt marsh habitat, which will prevent workers from opportunistically parking adjacent to such habitat; (3) installation of anti-predator perching devices on project structures near suitable salt marsh harvest mouse and California clapper rail habitat that could provide predatory bird perches, such as close-circuit television and variable advisory speed signs; (4) directing night-lighting away from salt marsh habitat by placing lights on the west side of the freeway pointing eastward; (5) restricting work adjacent to suitable California clapper rail habitat (i.e., ATM 1, ATM 8 and RGD 85) to the non-breeding season from September 1 to January 31; (6) preventing the degradation of water quality or spills within sensitive habitat by implementing best management practices and spill prevention measures; and (7) requiring Service-approved biological monitors to be present during work conducted adjacent to potential salt marsh harvest mouse and California clapper rail habitat, conducting preconstruction California clapper rail surveys each morning prior to the start of daily work, and incorporating environmental awareness training and stop work protocols if listed species are identified within the active construction areas.

This concludes informal consultation on the proposed I-80 ICM Project in Contra Costa and Alameda counties, California. Therefore, unless new information reveals effects of the proposed action that may affect listed species in a manner or to an extent not considered, or a new species is listed, no further action pursuant to the Act is necessary. If you have questions concerning this letter in reference to the proposed I-80 ICM Project, please contact Jerry Roe or Ryan Olah Coast Bay/Forest Foothills Division Chief, at the letterhead address (916) 414-6600.

Sincerely,

for Eric Tattersall
Deputy Assistant Field Supervisor

cc:
Frances Malamud-Roam, California Department of Transportation, Oakland, California
Marcia Grefsrud, California Department of Fish and Game, Yountville, California
Liam Davis, California Department of Fish and Game, Yountville, California



ALAMEDA WHIPSNAKE			
SWR	PS	HC	BM
YES	YES	YES	YES

ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

0 87.5 175 350 525 700 Feet

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

1

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS

SOURCE: ©2004, Aerial Express Maps

ALAMEDA WHIPSNAKE			
SWR	PS	HC	BM
YES	YES	YES	YES

ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

0 87.5 175 350 525 700 Feet

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

2

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS

SOURCE: ©2004, Aerial Express Maps

ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

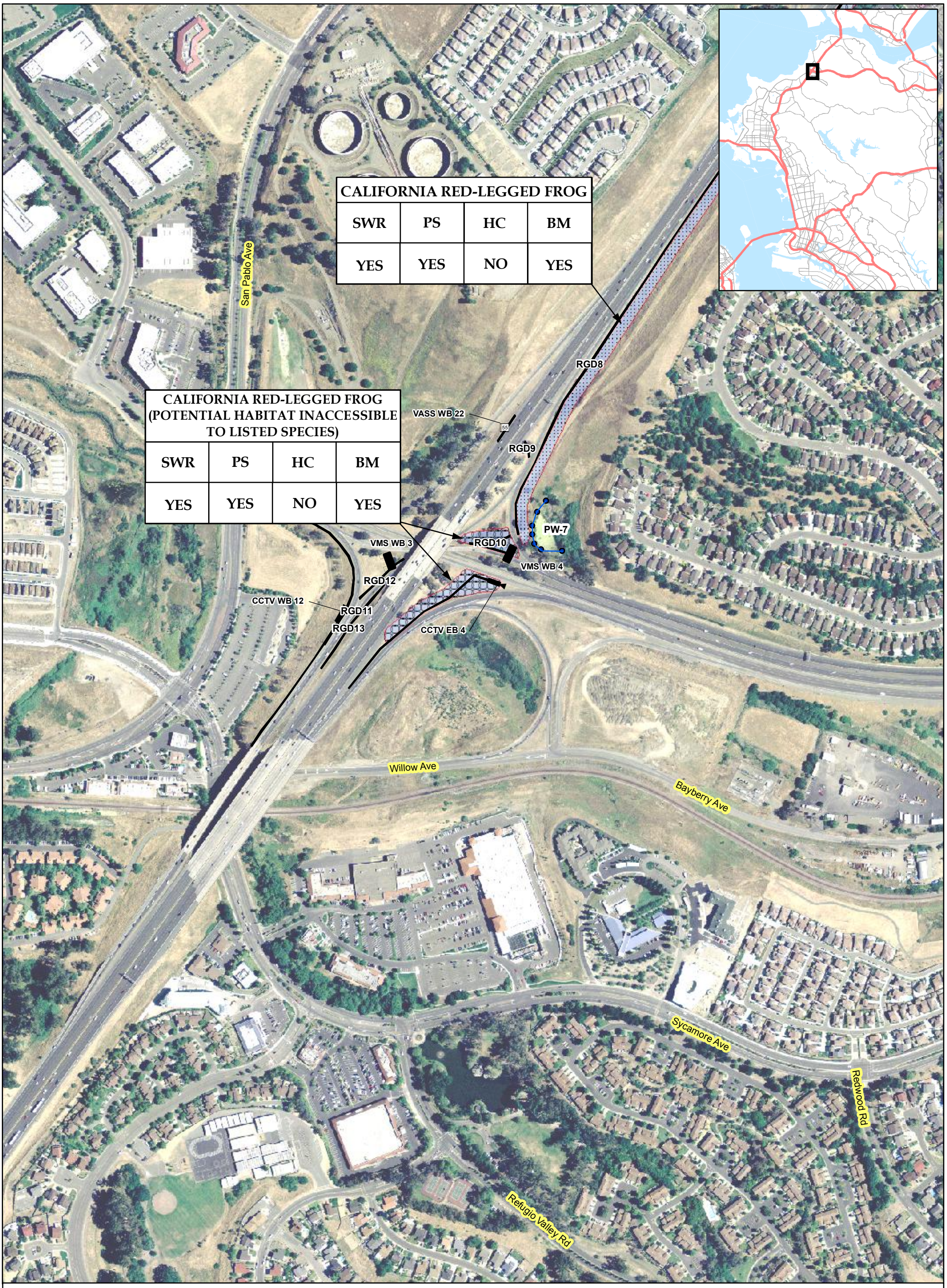
0 87.5 175 350 525 700 Feet

SOURCE: ©2004, Aerial Express Maps

3

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS



ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

55 VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

N

0 87.5 175 350 525 700 Feet

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

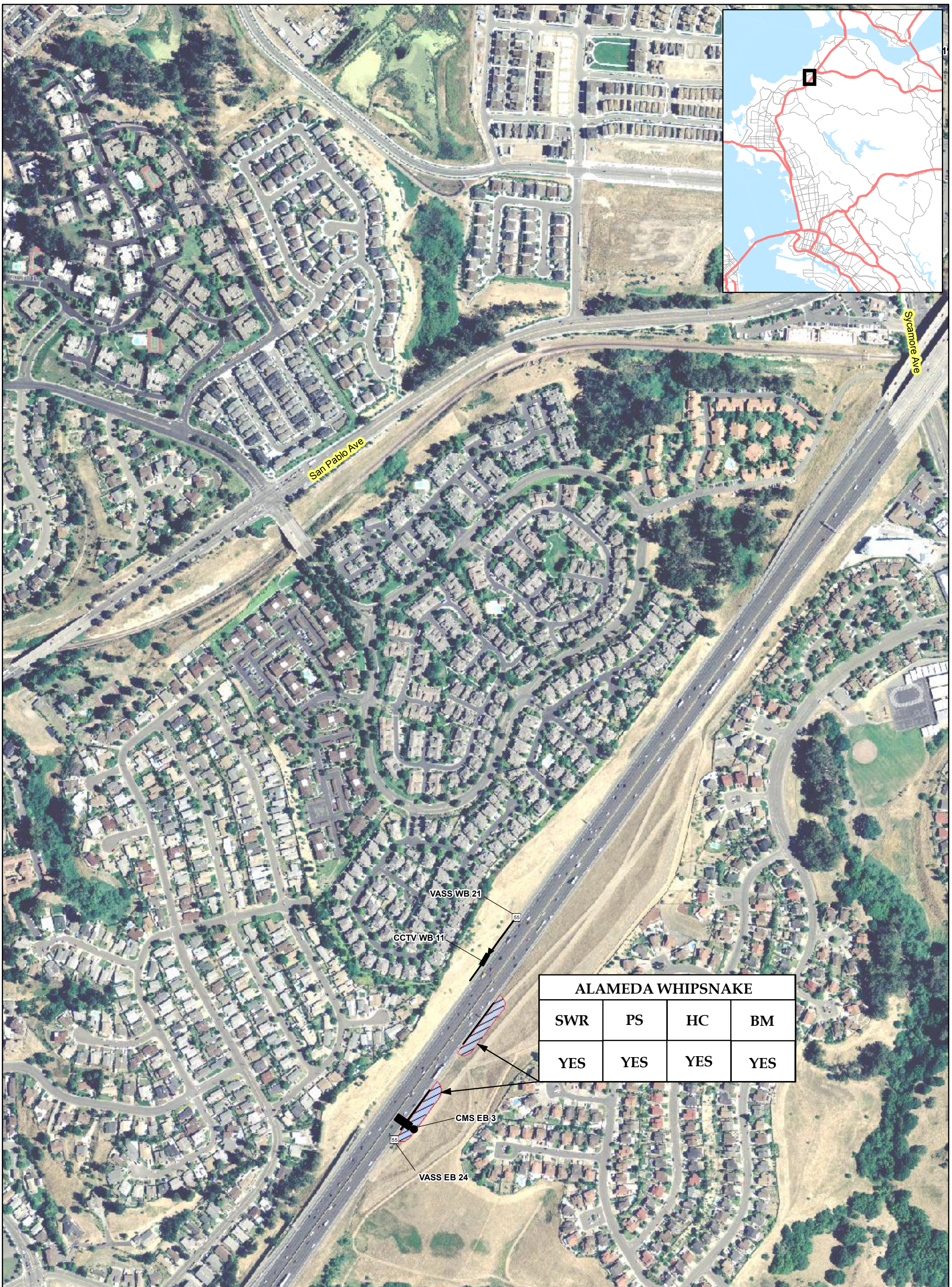
CONDUIT RUNS (NOT TO SCALE)

4

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS

SOURCE: ©2004, Aerial Express Maps



ALAMEDA WHIPSNAKE			
SWR	PS	HC	BM
YES	YES	YES	YES

ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

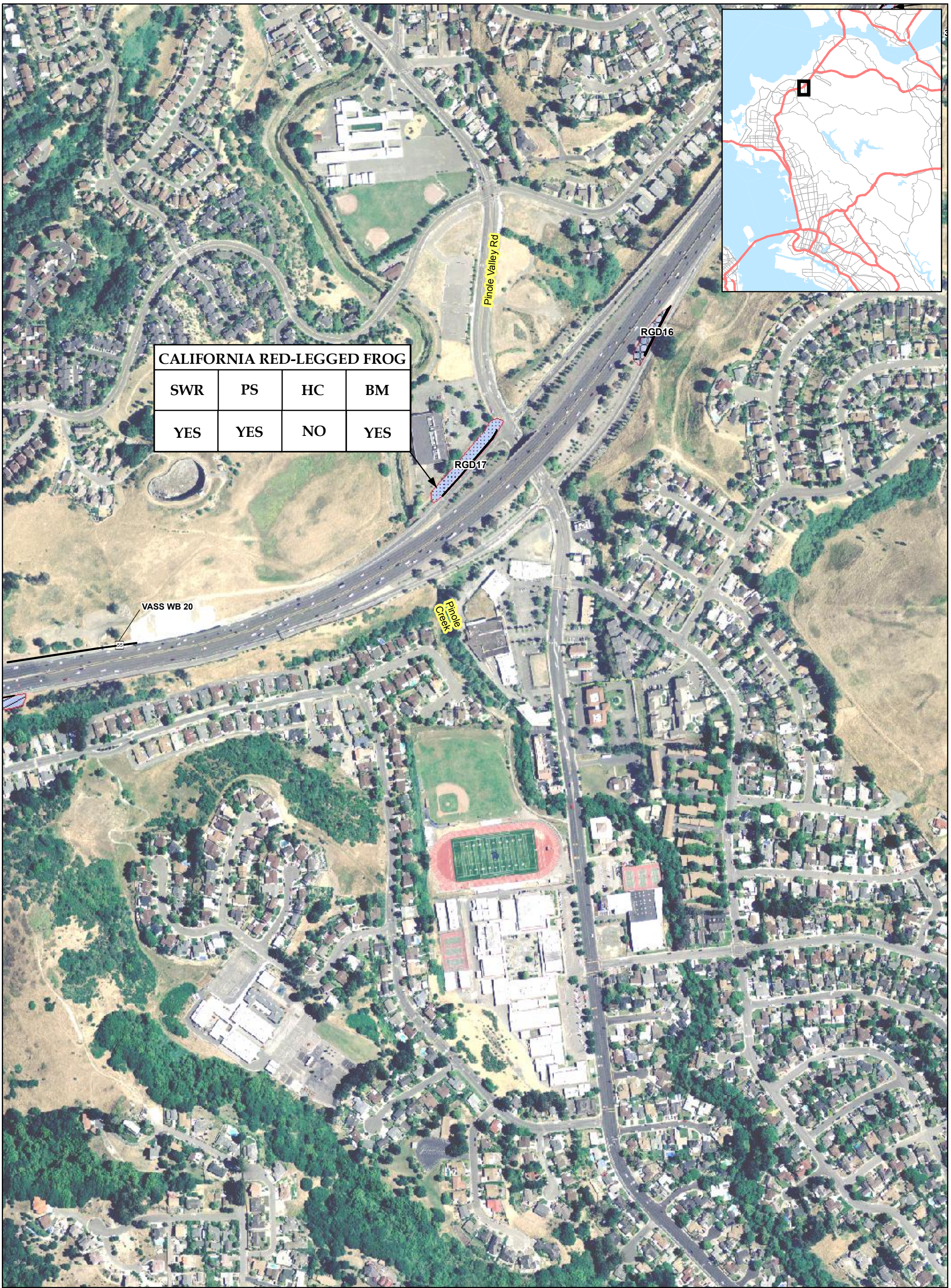
N

0 87.5 175 350 525 700 Feet

SOURCE: ©2004, Aerial Express Maps

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS



ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

0 87.5 175 350 525 700 Feet

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

6

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS

SOURCE: ©2004, Aerial Express Maps

ALAMEDA WHIPSNAKE			
SWR	PS	HC	BM
YES	YES	YES	YES

ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

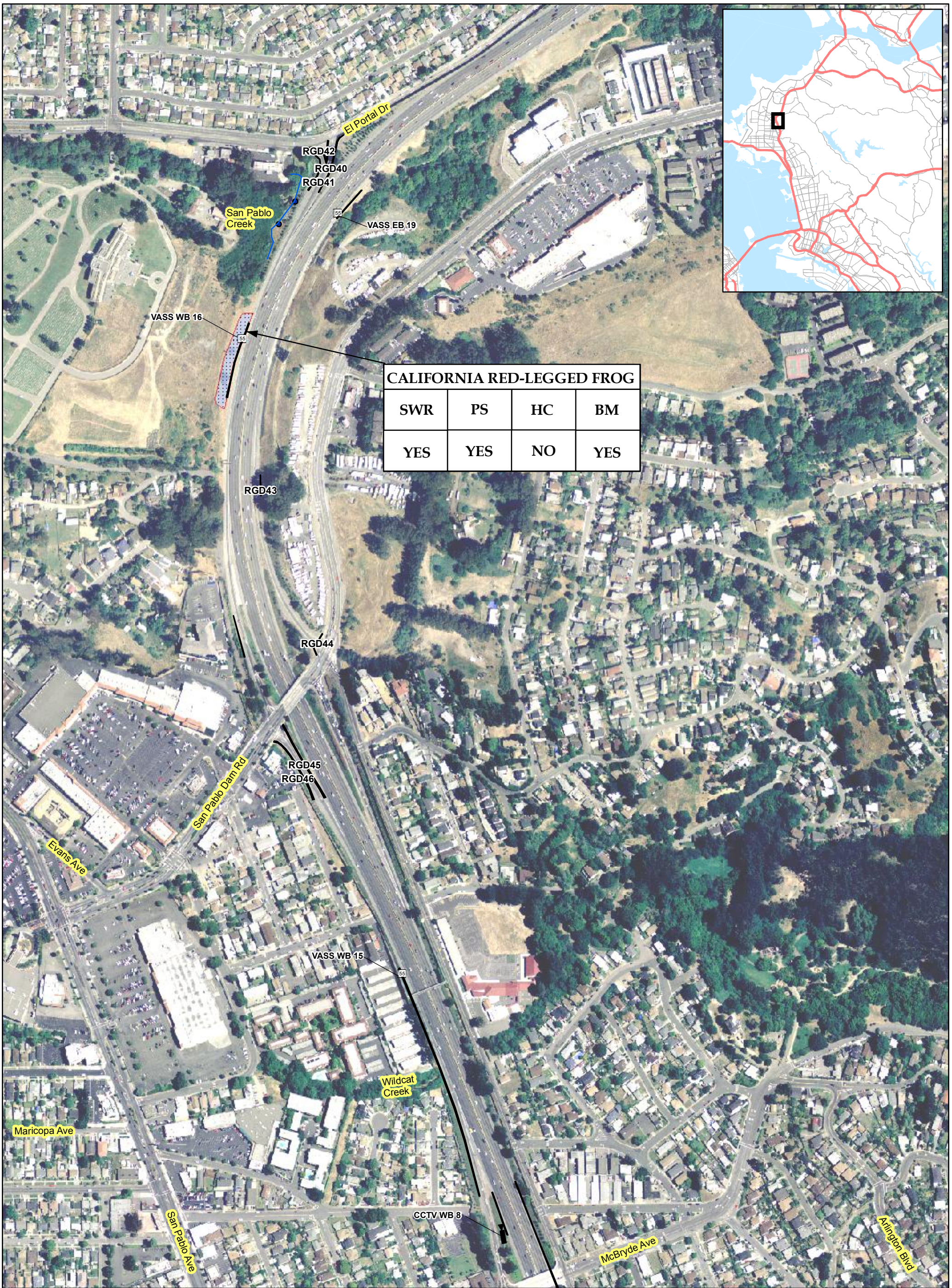
N

0 87.5 175 350 525 700 Feet

SOURCE: ©2004, Aerial Express Maps

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS



CALIFORNIA RED-LEGGED FROG			
SWR	PS	HC	BM
YES	YES	NO	YES

ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

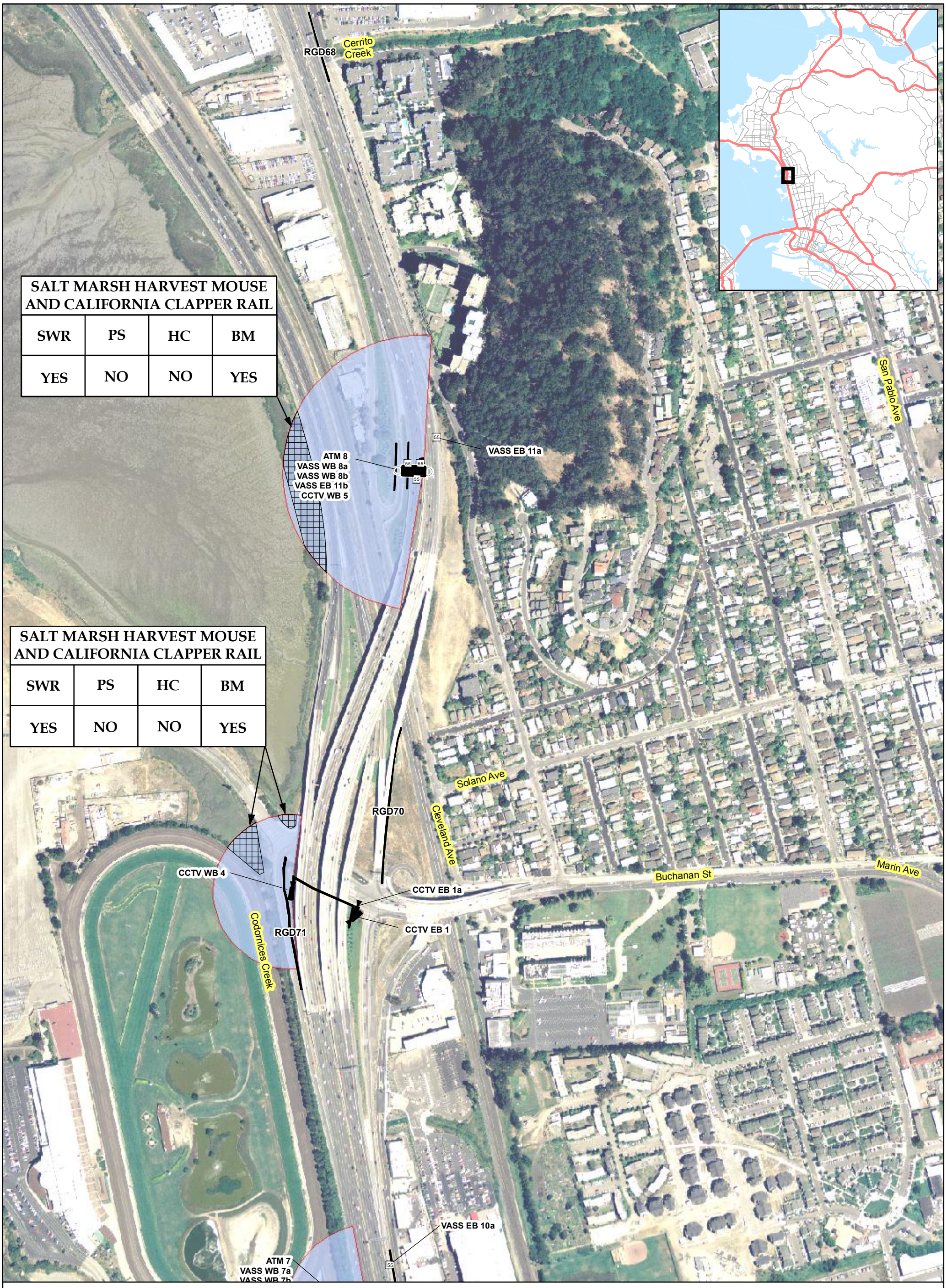
N

0 87.5 175 350 525 700 Feet

SOURCE: ©2004, Aerial Express Maps

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS



ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

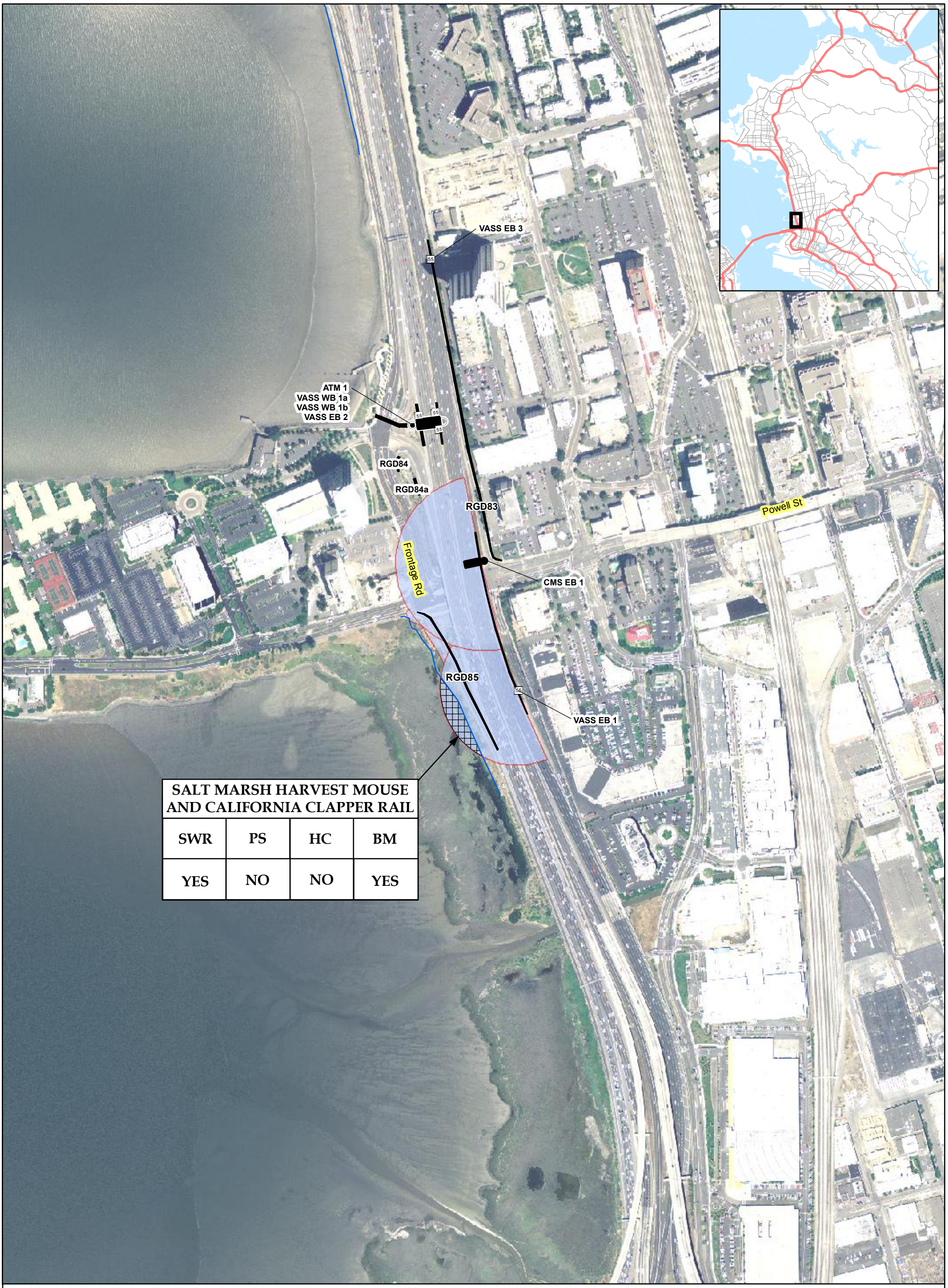
SWR = SEASONAL WORK RESTRICTIONS

0 87.5 175 350 525 700 Feet

SOURCE: ©2004, Aerial Express Maps

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS



ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

0 87.5 175 350 525 700 Feet

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

SOURCE: ©2004, Aerial Express Maps

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS

GEOTECHNICAL DESIGN & MATERIALS REPORT
(FINAL)
I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
04-ALA-80 (PM 2.3/8.0)
04-CC-80 (PM 0.0/13.1)
ALAMEDA COUNTY AND
CONTRA COSTA COUNTY, CALIFORNIA

For

Kimley-Horn and Associates, Inc.
555 12th Street, Suite 1230
Oakland, CA 94607

PARIKH CONSULTANTS, INC.
2360 Qume Drive, Suite A
San Jose, CA 95131
(408) 452-9000

September 30, 2011

Job No. 2011-114-SGN

"Approved as to impact on State facilities and conformance with applicable State standards and practices, and the technical oversight were performed as described in the California Department of Transportation A&E Consultant Services Manual."

Caltrans_____

Title_____

Date_____

Caltrans_____

Title_____

Date_____

TABLE OF CONTENTS **page**

1. INTRODUCTION 1
2. EXISTING FACILITIES AND PROPOSED IMPROVEMENTS 1
3. PERTINENT REPORTS AND INVESTIGATION 3
4. PHYSICAL SETTING 3
   4.1 Climate 3
   4.2 Topography and drainage 4
   4.3 Man-Made and Natural Features of Engineering and Construction Significance 4
   4.4 Regional Geology 4
5. EXPLORATION 6
   5.1 Drilling and Sampling 6
   5.2 Geologic Mapping 8
   5.3 Geophysical Studies 8
   5.4 Instrumentation 8
   5.5 Exploration Notes 8
6. GEOTECHNICAL TESTING 8
   6.1 In-Situ Testing 8
   6.2 Laboratory Testing 8
7. GEOTECHNICAL CONDITIONS 9
   7.1 Site Geology 9
      7.1.1 Lithology 9
      7.1.2 Structure 10
      7.1.3 Existing Slope Stability 10
   7.2 Subsurface Soil Conditions 10
   7.3 Water 12
      7.3.1 Surface Water 12
      7.3.1.1 Scour 12
      7.3.1.2 Erosion 12
      7.3.2 Groundwater 12
   7.4 Project Site Seismicity 14
      7.4.1 Ground Motions 14
      7.4.2 Ground Rupture 14
8. GEOTECHNICAL ANALYSIS AND DESIGN 14
   8.1 Dynamic Analysis 14
      8.1.1 Parameter Selection 14
      8.1.2 Analysis 15
      8.1.3 Liquefaction Potential 15
   8.2 Cuts and Excavations 20
      8.2.1 Stability 21
      8.2.2 Rippability 21
      8.2.3 Grading Factor 21
   8.3 Embankments 21
   8.4 Earth Retaining Systems 21

8.5 Minor Structures 21
8.5.1 Active Traffic Management Gantries 21
8.5.2 Information Display Board 27
8.5.3 Lateral Pile Capacity 29
8.6 Corrosion Investigation 38
9. STRUCTURAL PAVEMENT 38
10. MATERIAL SOURCES 39
11. MATERIAL DISPOSAL 39
12. CONSTRUCTION CONSIDERATIONS 39
12.1 Construction Advisories 39
12.2 Construction Consideration that Influence Specifications 40
12.3 Hazardous Waste Considerations 41
12.4 Differing Site Conditions 41
13. RECOMMENDATIONS AND SPECIFICATIONS 42
13.1 Summary of Recommendations 42
13.2 Recommended Materials Specifications 43
13.2.1 Standard Specifications 43
14. INVESTIGATION LIMITATIONS 43
REFERENCES 45

Appendix A

Log of Test Borings
As-Built Log of Test Borings

Appendix B

Laboratory Tests.....Plate B-1
Summary of Laboratory Tests.....Plates B-2A thru B-2C
Plasticity Chart.....Plate B-3
Grain Size Distribution.....Plates B-4A thru B-4D
Corrosion Test Results.....Plates B-5A thru B-5M

Appendix C

Liquefaction Analyses

Appendix D

Calculations of Pile Compressive Capacities

Appendix E

Caltrans Review Comments of September 13, 2011

LIST OF TABLES

1 Summary of Boring Program 7

2 Subsurface Condition 10

3 Groundwater Condition 13

4 Earthquake Data 14

5A ATM Foundation Design Recommendations 22

5B IDB Foundation Design Recommendations 27

6 Summary of Corrosion Test Results 38

7 Sources of Asphalt and Aggregate Material 39

LIST OF FIGURES

Location Map ..... Plate 1

Geologic Map ..... Plates 2A thru 2E

Fault Map ..... Plate 3

Core Sample A-11-017 ..... Plate 4

GEOTECHNICAL DESIGN & MATERIALS REPORT
(FINAL)
I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
ON ROUTE 80 BETWEEN THE BAY BRIDGE AND THE CARQUINEZ BRIDGE
ALAMEDA COUNTY AND CONTRA COSTA COUNTY, CALIFORNIA
EA 3A7720 PM ALA 2.3 / PM ALA 8.0 | PM CC 0.0 / PM CC 13.1

1. INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed I-80 Integrated Corridor Mobility (ICM) Project in the Counties of Alameda and Contra Costa, California. The general location of the project site and its limits are shown on Plate 1, Project Location Map.

This report addresses recommendations for the design of 11 Active Traffic Management (ATM) Gantry Structures and 6 Information Display Board (IDB) Structures. The investigation included review of readily available soils and geologic literature pertaining to the site including as-built information and "Log of Test Borings" (LOTB) from previous projects, site reconnaissance, obtaining representative samples and logging soil materials encountered in exploratory borings, laboratory testing of the representative samples, performing engineering analyses, and preparation of this report.

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.

The geotechnical recommendations presented in this report are intended for design input and are not intended to be used as specifications. These recommendations should not be used directly for bidding purposes or for construction cost estimates.

2. EXISTING FACILITIES AND PROPOSED IMPROVEMENTS

According to the Metropolitan Transportation Commission's (MTC) State of the System 2005 Report, the segment of I-80 between the Zampa/Carquinez Bridges and the San Francisco Bay Bridge (SFOBB) is the most congested corridor in the Bay Area. I-80's lane configuration varies between 6 and 10 mixed flow lanes between the Carquinez Bridge and the SFOBB toll plaza, including eastbound and westbound HOV lanes between the I-80/SR 4 interchange and the SFOBB toll plaza. SR 123 San Pablo Avenue parallels I-80 between Oakland and Hercules. Between Hercules and Crockett, San Pablo Avenue is a county operated and maintained arterial. The I-80

corridor is served by interregional and intercity rail, Express, Transbay, Local and Rapid Bus service. There is no ferry service along this corridor in either Alameda or Contra Costa Counties.

Man-made and native embankments exist along the alignment within the project limit. Some of the existing roadway profile traverses across hilly terrain resulting in cut slopes and retaining walls. There are approximately 8 creek bridges, 33 grade separation structures, and 5 pedestrian crossing structures along the alignment.

Proposed Improvements

The following information is obtained from the project description provided by Kimley-Horn & Associates, Inc.

The proposed Interstate 80 Integrated Corridor Mobility Project (I-80 ICM Project) includes the implementation of traffic operations strategies, such as adaptive ramp metering and active traffic management, along a 19.5-mile section of I-80 from the Bay Bridge Toll Plaza (ALA-80-1.99) to the Carquinez Bridge (CC-80- 13.49). The implementation of active traffic management will be done by monitoring traffic operations through the use of closed-circuit television cameras and traffic congestion detection devices. Information from the cameras and detection devices will be transferred through cabling so that ramp metering signals and devices installed to manage traffic congestion, such as variable advisory speed signs, lane use signs, and information display boards, would be adjusted accordingly to improve traffic flow.

The proposed strategies are known collectively as an Intelligent Transportation System (ITS). All ITS equipment would be controlled via software communication links by the Department's Transportation Management Center (TMC), currently located at the Department's District Office in Oakland. The TMC is an existing facility that currently monitors freeway traffic. The information gathered through vehicle detection devices will alert the TMC operator about any traffic incidents and/or congestion. The operator then can monitor the freeway and ramps via closed-circuit television cameras, activate incident response strategies, and display real-time traveler information to the motorists on the freeway. During any major incidents on the freeway, the TMC operator would also coordinate the emergency response with local authorities to ensure a coordinated and efficient response.

For the purpose of this report, the proposed I-80 ICM Project includes two major components that require installation of sign structures. These are part of the Active Traffic Management System and include:

a. Sign Bridge Structures, also known as Active Traffic Management (ATM) gantries
   - 11 gantries with Lane Use Signs (LUS) and Full Color Graphic Variable Message Signs (Type 2) mounted on the gantries to be used for Lane Management;

b. Full Color Graphic Information Display Board (IDB)
   - 6 locations

Other devices, such as Closed-circuit television (CCTV) cameras, ramp metering lights, vehicle detection stations, conduits, pull boxes, service enclosures and controller cabinets will be installed at various locations along the I-80 corridor are not part of this study.

3. PERTINENT REPORTS AND INVESTIGATION

The following as-built LOTB was also reviewed to supplement the subsurface information obtained for the project.

- Caltrans as-built Log of Test Borings – Retaining Wall "B" at Gilman Street Undercrossing (1992) (Br. No. 33-RWB)
- Caltrans as-built Log of Test Borings – University Avenue Overcrossing (1952) (Br. No. 33-23)
- Caltrans as-built Log of Test Borings - Powell St UC (Widen) (1987) (Br. No. 33-20)
- Caltrans as-built Log of Test Borings – Cutting Blvd Undercrossing (1989) (Br. No. 28-80)
- Caltrans as-built Log of Test Borings – Cutting Blvd Undercrossing (Widen) (1975) (Br. No. 28-80S)

4. PHYSICAL SETTING

4.1 Climate

The climate in the project area is characterized by moderate climatic conditions, which consists of mild winters, mild summers, small daily and seasonal temperature ranges. Based on the statistical

data from "Western Regional Climate Center", the average total annual precipitation varies along the project vicinity and is approximately 17.7 inches to 23.38 inches. Most of the rainfall is recorded in January with an average total precipitation of 3.55 inches to 5.01 inches. July is the month with the least average rainfall precipitation of 0.03 to 0.04 inch. Extreme temperature ranges from location and the average minimum temperature is approximately 40.8º F to 42.7º F in January to average maximum temperature of 70.0º F to 78.7º F in September.

4.2 Topography and drainage

Based on the plans provided by the designer, the topography within the project site along Route 80 gradually grades downward from approximate Elev. 115 ft at the most northern part (SS56-1) of the project to approximate Elev. 30 ft at the most southern part of the project (SS3-1). Grade differences may vary within the project limits due to roadway crossing and bridge embankments. The elevations are based on topographic maps provided by the designer. In general, the site is influenced by hills and valleys on the east side. It appears that surface water runoff is collected through local drainage systems.

There are many creeks flowing across the I-80 corridor within the project limits. The main drainage systems within the project limits are Temescal Creek, Strawberry Creek, Wildcat Creek, San Pablo Creek, Pinole Creek, Rodeo Creek, and Canada del Cierbo Creek.

4.3 Man-Made and Natural Features of Engineering and Construction Significance

The subject was considered and was determined to be not significant for the project.

4.4 Regional Geology

The project area is located within the Coast Ranges Belt which is the natural topographic barrier between the Great Valley of Central California (to the east) and the Pacific Ocean (to the west). Individual ranges of hills within the belt are separated by long, linear valleys of various widths. The long axes of the ranges and valleys trend about 30 degrees west of north, roughly parallel with the ocean coastline. San Francisco Bay is a mixed fresh water and salt water estuary that occupies the widest valley in the belt.

The Franciscan Complex is the underlying “basement” bedrock in the region. It was formed 70 to 140 million years ago by accretion of sedimentary and volcanic rocks that were brought together by the convergent movement of tectonic plates. Sediments on the sea floor were pulled down and mixed with the rock material in the earth’s mantle. The main rock types that compose the Franciscan Complex are predominately marine sedimentary rocks such as sandstone and shale with lesser amounts of marine basaltic rocks and chert as well as serpentinite, a hydro-thermally altered ultramafic (low silica, high iron and magnesium) oceanic crust. The resulting "mélange" zones contain exotic blocks of other Franciscan rocks in a sheared shale or clay matrix often separate more coherent thrust sheets. Some of the sedimentary rocks (graywacke sandstone, radiolarian cherts) and volcanics (basalts) have been metamorphosed. Eventually, the Franciscan Complex rocks were uplifted and exposed at the earth's surface by erosion. Subsequently, they were buried by Cretaceous- and Tertiary-age marine and non-marine sediments that eventually became rock units themselves. The active subduction process ended in the Bay Area about 25 million years ago with the formation of the strike-slip San Andreas fault.

The San Andreas Fault system contains a number of seismically active faults that branch off from one another and form parallel, linear features in the topography of the region. Off-set drainages, linear valley, side-hill benches, and other distinctive topographic clues reveal the locations where the ground surface has been recently ruptured by fault displacements. The active Hayward Fault crosses Highway 80 approximately 5500 feet southwest of IDB SS37-1. (See Plate 3)

San Francisco Bay is thought to represent a down-warping of the earth's crust between the San Andreas Fault to the west and the Hayward Fault to the east. During the last ice age, when sea level was several hundred feet lower than it is today, the area that is now the San Francisco Bay was a large linear valley with small hills, similar to most of the valleys of the Coast Ranges. As the great ice sheets melted, sea level rose nearly 400 feet over the last 5,000 years, and the valley filled with salt water from the Pacific Ocean and fresh water from the Sacramento Delta.

In recent time, sediments washed from the hillsides have accumulated to form the lowlands adjacent to the San Francisco Bay. Gravels and sands were deposited in the high energy environments at the heads of these alluvial fans; silts and clays were deposited in the low energy environments of the floodplains and tidal marshlands at the margins of the bay. Some of these young alluvial sediments

were deposited directly upon the eroded surface of Franciscan basement bedrock.

The site is situated on historic fill placed over the young estuary deposits (Bay Mud) and alluvial sediments that overly the Franciscan rocks at unknown depth.

5. EXPLORATION

5.1 Drilling and Sampling

Based on the plans, discussions with the design team, and readily available geotechnical data in the area, 16 borings were drilled at selected locations to depths ranging from 35 ft to 81.5 ft below the existing ground surface.

- Sixteen Borings, namely A-11-001 thru A-11-018 (with the exception of A-11-001 and A-11-014) were drilled at 14 of the 17 sign locations.

As-built Caltrans Log of Test Borings for Retaining Wall "B" at Gilman Street, Powell Street UC and Cutting Boulevard UC were used for Sign Structures SS13-2, SS3-1 and SS26-1, respectively.

Selected samples were obtained from 2.5-inch I.D. (Modified California, MC) and 1.4-inch I.D. (Standard Penetration Test, SPT) samplers at various depths. The samplers were driven into subsurface soils under the impact of a 140-pound hammer having a free fall of 30 inches. The blow counts are presented on the Log of Test Boring (LOTB) in Appendix A. When correlating standard penetration data, the blow counts for the Modified California Sampler may be converted to equivalent SPT blow counts by multiplying a conversion factor of 0.65. Rock cores for A-11-017 were obtained by HQ diamond core barrels with an I.D. of 2.4-inch I.D. and advanced by hydraulic pressure. The samples were sealed and transported to our laboratory for further evaluation and testing. The field investigation was conducted under the supervision of our field engineer who logged the test borings and prepared the samples for subsequent laboratory testing and evaluation. Table 1 below summarizes the boring program.

TABLE 1 – BORING PROGRAM

Boring No.	Reference Sign Structure
A-11-002	ATM (SS3-2)
A-11-003	ATM (SS6-2)
A-11-004	ATM (SS8-1)
A-11-005 & As-built LOTB (University Ave. OC, Br. No. 33-23)	ATM (SS9-2)
A-11-006	ATM (SS12-1)
A-11-007	IDB (SS13-1)
As-built LOTB (Retaining Wall "B", Br. No 33-RWB)	ATM (SS13-2)
A-11-009	ATM (SS16-1)
A-11-011	ATM (SS21-1)
A-11-012	ATM (SS23-1)
A-11-013	ATM (SS25-1)
As-built LOTB (Powell Street UC, Br. No 33-20)	IDB (SS3-1)
As-built LOTB (Cutting Blvd. UC, Br. No 28-80/80S)	IDB (SS26-1)
A-11-015	IDB (SS37-1)
A-11-016	IDB (SS50-1)
A-11-017	IDB (SS56-1)
A-11-018	ATM (SS18-1)

The approximate locations of these explorations are shown on the Log of Test Borings in Appendix A.

Due to limitations inherent in geotechnical investigations, it is neither uncommon to encounter unforeseen variations in the soil conditions during construction nor is it practical to determine all such variations during an acceptable program of drilling and sampling for a project of this scope. Such variations, when encountered, generally require additional engineering services to attain a properly constructed project. We, therefore recommend that a contingency fund be provided to accommodate any additional charges resulting from technical services that may be required during construction.

5.2 Geologic Mapping

The subject was considered and was determined to be not significant for the project.

5.3 Geophysical Studies

The subject was considered and was determined to be not applicable to the project.

5.4 Instrumentation

The subject was considered and was determined to be not applicable to the project.

5.5 Exploration Notes

The exploratory borings mainly encountered undivided surficial deposits. Drilling was conducted mainly using hollow stem augers for this project and was switched to rotary wash drilling in some borings due to the presence of shallow groundwater. Rock coring was also utilized where rock was encountered.

6. GEOTECHNICAL TESTING

6.1 In-Situ Testing

In-situ testing consists of recording blow counts during sampling (using both Modified California sampler and Standard Penetration Test sampler). Based on our previous experience, when correlating standard penetration data in similar soils, the blow counts for the Modified California Sampler may be converted to equivalent SPT blow counts by multiplying a conversion factor of 0.65. The in-situ test results are presented on the LOTB attached in Appendix A.

6.2 Laboratory Testing

Laboratory tests performed for the study include the following: Laboratory determination of Moisture-Density (California Test Method 226), Atterberg Limits (California Test Method 204), Grain Size Analysis (California Test Method 202), Unconfined Compression Test (California Test Method 221), and Corrosion Test (California Test Method 643). The laboratory test results are attached in Appendix B. Moisture-Density test and Unit Weight test results are summarized on the Lab Summary sheet in Appendix B.

7. GEOTECHNICAL CONDITIONS

7.1 Site Geology

General geologic conditions at the site were evaluated by reference to the Geologic Map of the San Francisco Bay Region (USGS Map 2918). The map shows the project site situated on Artificial Fill (af), Holocene Alluvium (Qha), Late Pleistocene Alluvium (Qpa), and Miocene Sedimentary Rocks (Tms), which are described as:

af Artificial fill. Material deposited by humans. Fill may be engineered and/or non-engineered material; each may occur within the same area on the map. Much of the mapped artificial fill overlies estuarine sediment and forms new land, levees, or dikes near sea level (Goldman, 1969). The thickness of the fill overlying estuarine sediment is typically 5-20 feet thick.

Qha Holocene alluvium, undifferentiated. Alluvium deposited in fan, terrace, or basin environments. The surface is generally planar and smooth with little to no dissection. This unit is mapped where separate types of alluvial deposits could not be delineated either due to complex interfingering of depositional environments or the small size of the area. Typically, undifferentiated alluvium is mapped in relatively flat, smooth valley bottoms of small- to medium-sized drainages. Deposits probably are intercalated sand, silt, and gravel that are poorly to moderately sorted. Soils are entisols, inceptisols, vertisols, and mollisols.

Qpa Late Pleistocene alluvium, undifferentiated. This unit is mapped on gently sloping to level alluvial fan or terrace surfaces where a late Pleistocene age is indicated by slight dissection, the development of alfisols, and lack of historical flooding.

Tms Miocene Marine Sedmentary Rocks (Sandstone, Siltstone, and Shale).

The portion of the published geologic map that includes the sign locations are shown on Plates 2A thru 2E.

7.1.1 Lithology

The site consists of native alluvial and roadway fill. The subject was considered and was determined to be not applicable for the project. Detailed description of subsoil conditions are presented in Section 7.2.

7.1.2 Structure

The site consists of roadway fill, native alluvial, and embankments. The subject was considered and was determined to be not applicable for the project.

7.1.3 Existing Slope Stability

The slopes at some of the sign structures consist of man-made embankment slope or cut slope. These existing slopes typically have gradients of 2H:1V or flatter, covered with vegetations, and generally appear to be in good condition.

7.2 Subsurface Soil Conditions

Based on the borings drilled by Parikh Consultants, Inc. and Caltrans as-built Log of Test Borings (LOTBs), the subsoils predominantly consist of alluvial soil (of varying thicknesses). Sedimentary rock was encountered in borings located in the northern portion of the project. The subsurface conditions for each site are summarized in the following table.

TABLE 2 – SUBSURFACE CONDITIONS

SIGN TYPE	NO.	REFERENCE BORING NO./ AS-BUILT LOTB	SUBSURFACE CONDITIONS
ATM	SS3-2	A-11-002	The subsurface conditions generally consist of alternating layers of loose to medium dense silty/clayey sand and gravel and soft lean clay in the upper 45 feet. Stiff to very stiff lean clay is encountered at depths greater than 45', up to the maximum depth explored.
	SS6-2	A-11-003	The subsurface conditions generally consist of loose to medium dense silty sand in the upper 20', underlain by medium stiff to very stiff lean clay, interbedded with a 6-foot layer of very dense poorly graded sand with silt layer was encountered at a depth of 33 feet.
	SS8-1	A-11-004	The subsurface conditions generally consist of loose to dense silty/clayey/poorly-graded sand in the upper 33', underlain by stiff to hard lean clay, up to the maximum depth explored.
	SS9-2	A-11-005 & As-built LOTB (University Ave. OC, Br. No. 33-23)	The subsurface conditions generally consist of loose to dense poorly-graded sand/silty sand/clayey and poorly-graded gravel in the upper 32 feet, underlain by medium stiff to hard lean clay with sand to the maximum depth explored.
	SS12-1	A-11-006	Based on Boring A-11-006, the subsurface conditions generally consist of alternating layers of loose to medium dense sand, varying from silty sand, clayey sand, and poorly-graded sand up to 28'. Stiff to very stiff lean clay

SIGN TYPE	NO.	REFERENCE BORING NO./ AS-BUILT LOTB	SUBSURFACE CONDITIONS
			is encountered at a depth of 28', and is interbedded by a dense 5' silty sand layer.
	SS13-2	As-built LOTB (Retaining Wall "B", Br. No 33-RWB)	Boring B92-61 encountered about 12 ½ feet of compacted sand and sandy gravel fill underlain by about 7 feet of Baymud underlain by about 5 feet of soft sandy clay. Below the soft sandy clay layer, about 20 feet of interbedded stiff to very stiff clay and dense sand were encountered followed by about 20 feet of very stiff to hard clay. Dense sand or sandstone was encountered at approximately 65 feet deep.
	SS16-1	A-11-009	The subsurface condition generally consist of dense to very dense clayey gravel/sand and very stiff sandy lean clay in the upper 20 feet, underlain by moderately weathered claystone to the maximum depth explored.
	SS18-1	A-11-018	The subsurface conditions consist of stiff to very stiff lean clay with sand in the upper about 34 feet followed by about 8 feet of dense to very dense clayey sand with gravel underlain by hard lean clay to the maximum depth explored.
	SS21-1	A-11-011	The subsurface conditions consist of stiff to very stiff lean clay with sand in the upper 40 feet, underlain by hard lean clay with sand, up to the maximum depth explored.
	SS23-1	A-11-012	The subsurface conditions generally consist of stiff to very stiff lean clay in the upper 25 feet, underlain by alternating layers of very stiff lean clay and dense to very dense silty sand with gravel/clayey gravel with sand to the maximum depth explored.
	SS25-1	A-11-013	The subsurface conditions generally consist of stiff to hard lean clay grading to sandy lean clay to the maximum depth explored.
IDB	SS3-1	As-built LOTB (Powell Street UC, Br. No 33-20)	Based on the as-built LOTB (B-5, B-6, B-7 (1987)), the subsurface conditions generally consists of fill in the upper 20', underlain by alternating layers of loose to dense silty/clayey sand and stiff to very stiff lean clay to the maximum depth explored. Based on the existing topography, it is assumed that 20' thick fill have been placed after the as-built borings were drilled.
	SS13-1	A-11-007	The subsurface conditions generally consists of loose to medium dense poorly-graded sand with silt in the upper 30 feet, underlain by medium stiff to very stiff lean clay with sand, interbedded with a layer of very dense clayey sand to the maximum depth explored.
	SS26-1	As-built LOTB (Cutting Boulevard. UC, Br, No. 28-80/80S)	Based on the as-built LOTB (Borings B-1 (1975) & B-3 (1989)), the subsurface conditions generally consists of alternating layers of loose to medium dense silty sand and stiff to very silt/clay material. Sandstone was encountered at Elev. 5', which is approximately 65' below grade.
	SS37-1	A-11-015	The subsurface conditions generally consist of stiff to hard lean clay with gravel in the upper 20 feet, underlain by slightly weathered claystone to the maximum depth explored.
	SS50-1	A-11-016	The subsurface conditions generally consist of stiff to hard lean clay with gravel/sandy lean clay interbedded with elastic silt to the maximum depth explored. Gravel up to 3 inches were encountered.
	SS56-1	A-11-017	The subsurface conditions consist of moderately weathered sandstone.

The groundwater elevation varied greatly along the various sign locations. However, majority of the sites that were recently drilled encountered groundwater in the upper 50 feet, with the exception of at locations of A-11-009, A-11-015 and A-11-017. A summary of the groundwater conditions are presented in Section 7.3.2.

Detailed descriptions of the materials encountered in the exploratory borings are presented in the LOTB in Appendix A "Log of Test Borings". It should be noted that these descriptions and related information depict subsurface conditions only at the locations indicated and on the particular date noted on the LOTB. Because of the variability from place to place within soil in general, subsurface soil conditions at other locations may differ from conditions occurring at the locations explored. The abrupt stratum changes shown on the logs may be gradational and relatively minor changes in soil types within a stratum may not be noted due to field limitations. Also, the passage of time may result in a change in the soil conditions at the locations due to environmental changes.

7.3 Water

7.3.1 Surface Water

The terrain along Route 80 generally slopes downward from north to south within the project vicinity. The surface water/drainage generally follows the ground topography and is collected in local storm drainage system.

7.3.1.1 Scour

The subject was considered and was determined to be not applicable for the roadway project.

7.3.1.2 Erosion

The existing slopes have established landscaping to help control erosion. The subject was considered and was determined to be not applicable for the project.

7.3.2 Groundwater

Groundwater was encountered in most of the borings, except A-11-009, A-11-015, and A-11-017 during drilling. The following table shows the groundwater conditions below existing grade and the corresponding elevation.

TABLE 3 – GROUNDWATER CONDITIONS

SIGN TYPE	NO.	BORING NO./ AS-BUILT LOTB	GROUNDWATER DEPTH (BELOW EXISTING GRADE)	GROUNDWATER LEVEL USED FOR DESIGN
ATM	SS3-2	A-11-002	14' (Elev. 3')	10' (Elev. 7')
	SS6-2	A-11-003	9' (Elev. 4')	5' (Elev. 8')
	SS8-1	A-11-004	8.5' (Elev. 5.5')	5' (Elev. 9')
	SS9-2	A-11-005 & As-built LOTB (University Ave. OC, Br. No. 33-23)	4 to 8.5' (Elev. 5 to 9')	0' (Elev. 15')
	SS12-1	A-11-006	7' (Elev. 13')	5' (Elev. 8')
	SS13-2	As-built LOTB (Retaining Wall "B", Br. No 33-RWB)	10' (Elev. 4')	9' (Elev. 5')
	SS16-1	A-11-009	Not encountered	Not encountered
	SS18-1	A-11-018	28 (Elev. -3')	25 (Elev. 0')
	SS21-1	A-11-011	48' (Elev. -15')	45' (Elev. -12')
	SS23-1	A-11-012	23' (Elev. 27')	20' (Elev. 30')
	SS25-1	A-11-013	33' (Elev. 31')	30' (Elev. 34')
IDB	SS3-1	As-built LOTB (Powell Street UC, Br. No 33-20)	Not noted	23' (Elev. 5')
	SS13-1	A-11-007	17.5' (Elev. 4.5')	15' (Elev. 7')
	SS26-1	As-built LOTB (Cutting Boulevard. UC, Br, No. 28-80/80S)	36.5' (Elev. 37.5')	35' (Elev. 39')
	SS37-1	A-11-015	Not encountered	Not encountered
	SS50-1	A-11-016	17' (Elev. 129')	15' (Elev. 131')
	SS56-1	A-11-017	Not encountered	Not encountered

Note that the groundwater conditions shown for the as-built logs are based on the grade at time of drilling. Groundwater information was not noted on the as-built Log of Test Borings at Powell Street. Due to the proximity of the bay, shallow groundwater was assumed for design.

It is anticipated that groundwater level will vary with the passage of time due to seasonal groundwater fluctuations, surface and subsurface flow, ground surface run-off, and other factors that were not existent at the time of our investigation.

7.4 Project Site Seismicity

7.4.1 Ground Motions

The project is located in a seismically active part of northern California. Many faults that exist in the San Francisco Bay Area are capable of producing earthquakes that may cause strong ground shaking at the site. The attached Fault Map (Plate 3) presents the locations of the fault systems relative to the beginning and end of the project limits.

Maximum credible earthquake magnitudes for some of the major faults in the area are determined by Caltrans' recently developed online ARS tool. These maximum credible earthquake magnitudes represent the largest earthquakes that could occur on the given fault based on the current understanding of the regional tectonic structure. The following summarizes the distances from the closest sign structure to the Hayward fault zone (Northern section) and San Andreas fault zone (Peninsula section).

TABLE 4 - EARTHQUAKE DATA

Fault	Estimated Closest Distance to the Project Area (mi)	Closest Sign Structure to Fault	Maximum Earthquake Magnitude
Hayward fault zone (Northern section) (ID 353)	1.1	SS37-1	7.3
San Andreas fault zone (Peninsula section) (ID 309)	15.5	SS3-1	7.9

7.4.2 Ground Rupture

No active faults pass through any of the sign structures. Therefore, the potential for ground surface rupture due to faulting within the project area is considered relatively low.

8. GEOTECHNICAL ANALYSIS AND DESIGN

8.1 Dynamic Analysis

8.1.1 Parameter Selection

Caltrans recently updated the 1996 Seismic Hazard map with the new Caltrans Deterministic PGA Map (2008) and the Caltrans ARS Online (V1.0.4) design spectrum for the development of response spectra for design. The structural designer should conform to Caltrans new seismic design criteria. The new design methods incorporate both deterministic and probabilistic seismic hazards to produce

the Design Response Spectrum. The probabilistic response spectrum to be used for design of structures is based on data from the 2008 USGS National Seismic Hazard Map for the 5% in 50 years probability of exceedance (or 975 year return period) or the Caltrans ARS Online data.

For sites with shear wave velocities greater than 300 m/s, it is acceptable to use ARS Online for generating probabilistic spectrum.

8.1.2 Analysis

An average peak ground acceleration of 0.75g was used for liquefaction analysis, which was obtained by the probabilistic response spectrum from the 2008 USGS National Seismic Hazard Map for the 5% in 50 years probability of exceedance (or 975 year return period) or the Caltrans ARS Online data.

8.1.3 Liquefaction Potential

Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary but essentially total loss of shear strength under the reversing, cyclic shear stresses associated with earthquake shaking. Submerged cohesionless sands and silts of low relative density are the types of soils, which usually are susceptible to liquefaction. Clays are generally not susceptible to liquefaction.

Based on Caltrans latest Guidelines on Foundation Loading and Deformation Due to Liquefaction Induced Lateral Spreading, residual shear strengths were estimated using the equation by Kramer and Wang (2007). The soil strengths in the liquefiable layer are modeled as soft clay with shear strength equal to the residual strength of the liquefied soil.

In general, liquefaction hazards are most severe in the upper 50 feet of the surface as mentioned in Special Publication 117A (CGS, 2008). In our opinion, the impact due to the potential liquefiable soils below 50 feet is considered insignificant, especially when the layer is relatively thin and discontinuous.

Based on our analysis, potentially liquefiable soils were identified at various locations and depths. We have reviewed and compared the available data from the boring at each location. In general,

liquefaction potential is considered moderate to high within the project limit. Calculations of liquefaction potential are attached in Appendix C. Detail discussions regarding the liquefaction potential at each location are summarized as follows:

Active Traffic Management Gantry SS3-2 (Based on Boring A-11-002)

Boring A-11-002 encountered about 6 feet of submerged loose poorly-graded sand at a depth of 14 feet (Elev. 3 feet) and 12 feet of submerged medium dense clayey sand at a depth of 25 feet (Elev. -8 feet), which may be subject to liquefaction under the design earthquake loading. Groundwater was assumed 10 feet below grade for design purpose.

In our opinion, the impact due to the potential liquefaction is considered high and may result in post-liquefaction settlement on the order of 5 inches. We have considered liquefaction for foundation design by considering downdrag forces for vertical demand and residual shear strength for lateral pile analyses.

Active Traffic Management Gantry SS6-2 (Based on Boring A-11-003)

Boring A-11-003 encountered about 15 feet of submerged loose silty sand and poorly-graded sand at a depth of 5 feet (Elev. 9.5 feet), which may be subject to liquefaction under the design earthquake loading. Groundwater was assumed 5 feet below grade for design purpose.

In our opinion, the impact due to the potential liquefaction is considered high and may result in post-liquefaction settlement on the order of 4 inches. We have considered liquefaction for foundation design by considering downdrag forces for vertical demand and residual shear strength for lateral pile analyses.

Active Traffic Management Gantry SS8-1 (Based on Boring A-11-004)

Boring A-11-004 encountered about 12 feet of submerged loose poorly-graded sand at a depth of 5 feet (Elev. 9 feet) and 8 feet of submerged loose clayey sand at a depth of 25 feet (Elev. -11 feet), which may be subject to liquefaction under the design earthquake loading. Groundwater was assumed 5 feet below grade for design purpose.

In our opinion, the impact due to the potential liquefaction is considered high and may result in post-

liquefaction settlement on the order of 5.5 inches. We have considered liquefaction for foundation design by considering downdrag forces for vertical demand and residual shear strength for lateral pile analyses.

Active Traffic Management Gantry SS9-2 (Based on Boring A-11-005)

Boring A-11-005 encountered about 17 feet of submerged loose poorly-graded sand and silty sand at grade and 4 feet of submerged loose poorly-graded gravel at a depth of 28 feet (Elev. -15 feet), which may be subject to liquefaction under the design earthquake loading. Groundwater was assumed at grade for design purpose.

In our opinion, the impact due to the potential liquefaction is considered high and may result in post-liquefaction settlement on the order of 6.5 inches. We have considered liquefaction for foundation design by considering downdrag forces for vertical demand and residual shear strength for lateral pile analyses.

Active Traffic Management Gantry SS12-1 (Based on Boring A-11-006)

Boring A-11-006 encountered about 23 feet of submerged loose to medium dense poorly-graded sand, silty sand and clayey sand which may be subject to liquefaction under design earthquake loading. Groundwater was assumed 5 feet below grade for design purpose.

In our opinion, the impact due to the potential liquefaction is considered high and may result in post-liquefaction settlement on the order of 6 inches. We have considered liquefaction for foundation design by considering downdrag forces for vertical demand and residual shear strength for lateral pile analyses.

Active Traffic Management Gantry SS13-2 (Based on As-built LOTB, RW "B", B92-61)

Boring B92-61 encountered about 12 ½ feet of compacted sand and sandy gravel fill below the grade. The sandy gravel layer at elevation about 5 feet, about 3 feet thick, may be subject to liquefaction during earthquake. Groundwater was assumed at 9 feet (Elev. 5 feet) below grade for design purpose.

In our opinion, the impact due to the potential liquefaction is considered moderate and may result in post-liquefaction settlement on the order of 0.5 inch. We have considered liquefaction for foundation

design by considering downdrag forces for vertical demand and residual shear strength for lateral pile analyses.

Active Traffic Management Gantry SS16-1 (Based on Boring A-11-009)

Based on the boring, the area is underlain by dense clayey sand with gravel and sandy lean clay underlain by claystone. Groundwater was not encountered up to the maximum depth explored (35.5 feet below grade). Based on the Guidelines for Evaluation and Mitigating Seismic Hazards in California (Special Publication 117), liquefaction hazards are most severe in the upper 50 feet of the surface. In our opinion, the liquefaction potential at the location is relatively low.

Active Traffic Management Gantry SS18-1 (Based on Boring A-11-018)

Based on the boring, the area is mostly underlain by lean clay to the maximum depth drilled, approximately 55 ½ feet below the existing grade. Dense to very dense sandy layer was encountered from 34 to 42 feet. Groundwater was encountered at about 27 feet (Elev. -2 feet). We have analyzed the liquefaction potential at the gantry location. In our opinion, the liquefaction potential is relatively low due to predominately clayey soils and dense sand.

Active Traffic Management Gantry SS21-1 (Based on Boring A-11-011)

Based on the boring, the area is underlain by lean clay with sand grading to sandy lean clay. Groundwater was encountered at a depth of 48 feet and it appears that there is no significant stratum of sand layer that may be subject to liquefaction. In our opinion, the liquefaction potential is relatively low.

Active Traffic Management Gantry SS23-1 (Based on Boring A-11-012)

Based on the boring, the area is underlain by lean clay with sand grading to sandy lean clay interbedded with well-graded sand with silt underlain by clayey gravel. Approximately 5 feet of submerged medium dense well-graded sand at a depth of 23 feet (Elev. 27 feet) that may be subject to liquefaction under the design earthquake loading. Groundwater was assumed 20 feet below grade for design purpose.

In our opinion, the impact due to the potential liquefaction is considered moderate to high and may result in post-liquefaction settlement on the order of 0.75 inch. We have considered liquefaction for foundation design by considering downdrag forces for vertical demand and residual shear strength

for lateral pile analyses.

Active Traffic Management Gantry SS25-1 (Based on Boring A-11-013)

Based on the boring, the area is underlain by lean clay with sand grading to sandy lean clay. Groundwater was encountered at a depth of 33 feet and it appears that there is no significant stratum of sand layer that may be subject to liquefaction. In our opinion, the liquefaction potential is relatively low.

Information Display Board SS3-1 (Based on As-built LOTB, Powell Street UC)

Based on the as-built LOTB, the area is underlain by loose sand in the upper 25 feet underlain by alternating layers of stiff clay and dense clayey sand. It is assumed that the borings were drilled on the city street and that, currently, fill is overlying the native soils shown in the as-built log. The submerged sand layer in the upper 25 feet may be subject to liquefaction under the design earthquake loading.

In our opinion, the impact due to the potential liquefaction is considered high and may result in post-liquefaction settlement on the order of 7.5 inches. We have considered liquefaction for foundation design by considering downdrag forces for vertical demand and residual shear strength for lateral pile analyses.

Information Display Board SS13-1 (Based on Boring A-11-007)

Based on the boring, the area is underlain by loose to medium dense poorly graded sand in the upper 28 feet underlain by medium stiff to stiff sandy lean clay and dense clayey sand. Approximately 12 feet of submerged loose poorly-graded sand may be subject to liquefaction under the design earthquake loading.

In our opinion, the impact due to the potential liquefaction is considered high and may result in post-liquefaction settlement on the order of 5 inches. We have considered liquefaction for foundation design by considering downdrag forces for vertical demand and residual shear strength for lateral pile analyses.

Information Display Board SS26-1 (Based on As-built LOTB, Cutting Blvd. UC)

Based on the as-built LOTB, the area is underlain by alternating layers of loose to medium dense silty sand and stiff to very stiff silty clay underlain by sandstone. It is assumed that the borings were drilled on the city street and that, currently, fill is overlying the native soils shown in the as-built log. Approximately 7 feet of loose silty sand was encountered at a depth of 10 feet (Elev. 40 feet) that may be subject to liquefaction under the design earthquake loading.

In our opinion, the impact due to the potential liquefaction is considered moderate to high and may result in post-liquefaction settlement on the order of 2 inches. We have considered liquefaction for foundation design by considering downdrag forces for vertical demand and residual shear strength for lateral pile analyses.

Information Display Board SS37-1 (Based on Boring A-11-015)

Based on the boring, the area is underlain by very stiff lean clay with sand grading to sandy lean clay underlain by claystone. Groundwater was not encountered up to the maximum depth explored (36.5 feet below grade) and it appears that there is no significant stratum of sand layer that may be subject to liquefaction. In our opinion, the liquefaction potential is relatively low.

Information Display Board SS50-1 (Based on Boring A-11-016)

Based on the boring, the area is underlain by stiff to hard lean clay with sand and elastic silt underlain by weathered claystone. Groundwater was encountered at a depth of 17 feet below grade, however, it appears that there is no significant stratum of sand layer that may be subject to liquefaction. In our opinion, the liquefaction potential is relatively low.

Information Display Board SS56-1 (Based on Boring A-11-017)

Based on the boring, the area is underlain by sandstone. Groundwater was not encountered up to the maximum depth explored (35 feet below grade). In our opinion, the liquefaction potential is relatively low.

8.2 Cuts and Excavations

Based on the plans and profiles provided to us, no major unsupported cuts and excavations are planned for the project.

8.2.1 Stability

The subject was considered and was determined to be not applicable for the project.

8.2.2 Rippability

Based on the investigation, rippability does not appear to be a concern for construction.

8.2.3 Grading Factor

The on-site native soil meeting the project specifications may be used as engineered fill. For preliminary estimate, a grading factor of 0.9 may be assumed for the import materials based on our previous experience.

8.3 Embankments

The subject was considered and was determined to be not applicable for the project.

8.4 Earth Retaining Systems

This subject is not applicable to the proposed project.

8.5 Minor Structures

There are no minor structures that are part of the investigation and report.

8.5.1 Active Traffic Management Gantries

Eleven Active Traffic Management Gantries are proposed along Route 80 between the Bay Bridge and the Carquinez Bridge. With the exception of SS8-1, SS13-2 and SS25-1, the ATM structures will be supported on 5 feet diameter Cast-In-Drilled-Hole (CIDH) concrete piles in the shoulders and 3.5 feet diameter CIDH concrete piles in the medians. The structure of SS8-1 will be supported on 3.5 feet diameter CIDH concrete piles in both the shoulder and median. For SS13-2, the foundation of the existing sign structure in the shoulder will be utilized and a new 3.5 feet diameter CIDH pile will be installed in the median. The structure of SS25-1 will be supported on 5 feet diameter CIDH concrete piles in both the shoulder and median. Based on the load demands and subsoil information,

the specified pile tip and recommended design tip elevations are shown in the following table.

TABLE 5A – FOUNDATION DESIGN RECOMMENDATIONS

Sign Structures	Median 3.5' Diameter CIDH Pile			Shoulder 5' Diameter CIDH Pile		
	Pile Tip Elev. (ft)	**Design Pile Tip Elev. (ft)**	**Length of Pile (ft)**	**Pile Tip Elev. (ft)**	**Design Pile Tip Elev. (ft)**	**Length of Pile (ft)**
SS3-2	a) -32 b) -35.29	-35	52	a) -35 b) -35.09	-35	43
SS6-2	a) -21.5 b) -33.93	-34	48	a) -20 b) -22.06	-22	28
SS8-1	a) -39 b) -40.51	-40.5	55	a) -39 b) -40.11 **(3.5' shaft)**	-40.5 **(3.5' shaft)**	54 **(3.5' shaft)**
SS9-2	a) -34 b) -35.91	-36	50	a) -30 b) -30.0	-30	45
SS12-1	a) -9.5 b) -22.25	-22.5'	47	a) -11.5 b) -22.06	-22	34
SS13-2	a) -28.5 b) -37.49	-37.5	55	--	--	--
SS16-1	a) 27.5 b) 4.19	4	50	a) 30.5 b) 4.76	5	38
SS18-1	a) 10.5 b) -25.13	-25	49	a) 4.5 b) -33.22 **(3.5' shaft)**	-33.5 **(3.5' shaft)**	52 **(3.5' shaft)**
SS21-1	a) 17 b) -15.12	-15	47	a) 20 b) 0.17	0	28
SS23-1	a) 6 b) 4.98	5	49	a) 9 b) 2.57	2.5	44
SS25-1	a) 55 b) 28.73 **(5' shaft)**	28.5 **(5' shaft)**	29 **(5' shaft)**	a) 55 b) 28.10	28	28
Note: a) Vertical compression; b) Lateral						

Potential liquefaction-induced ground settlement (more than 0.6 inches) tends to cause downdrag load on the foundation piles at some of the sign locations. The foundation design needs to consider

the impact of liquefaction and additional downdrag load due to liquefaction. The evaluation of downdrag load due to liquefaction was performed in accordance with NAVFAC DM 7.2. The design and specified pile tip elevations presented in the Pile Data above have included these additional loads. The pile compressive capacities were calculated based on the axial load demands provided by the designer and subsurface soil conditions. The structural engineer performed pile lateral capacity analyses. Based on the calculations, the deeper pile tip elevations were chosen for design. The compressive capacity calculations are attached in Appendix D. Discussion per sign structure is summarized in the following paragraphs:

Active Traffic Management Gantry SS3-2 (Sta. 204+30 "AM1" Line)

The proposed ATM structure will be built along westbound Route 80 at Sta. 204+30. SS3-2 will be supported on 5 feet and 3.5 feet diameter CIDH concrete piles in the shoulder and median, respectively. The structure span is 111.75 feet long and will be supported on post type V1-S.

Liquefaction potential is considered high and the post-liquefaction settlement is on the order of 5 inches. The vertical capacity within and above the liquefiable sand layers were neglected and downdrag force have been considered for the foundation design. In order to meet the lateral and vertical compression demand, the recommended pile tip is at Elev. -35 feet for the CIDH piles. Torsion has been considered and does not appear to be a concern.

Active Traffic Management Gantry SS6-2 (Sta. 237+75 "AM1" Line)

The proposed ATM structure will be built along westbound Route 80 at Sta. 237+75. SS6-2 will be supported on 5 feet and 3.5 feet diameter CIDH concrete piles in the shoulder and median, respectively. The structure span is 94.21 feet long and will be supported on post type V1-S.

Liquefaction potential is considered high and the post-liquefaction settlement is estimated to be on the order of 4 inches. The vertical capacity within and above the liquefiable sand layers were neglected and downdrag force have been considered for the foundation design. In order to meet the lateral and vertical compression demand, the recommended pile tips are at Elev. -22 feet and -34 feet for the 5 feet and 3.5 feet diameter CIDH piles, respectively. Torsion has been considered and does not appear to be a concern.

Active Traffic Management Gantry SS8-1 (Sta. 283+77 "AM1" Line)

The proposed ATM structure will be built along westbound Route 80 at Sta. 283+77. SS8-1 will be supported on 3.5 feet diameter CIDH concrete piles in the shoulder and median. The structure span is 74.72 feet long and will be supported on post type V-S.

Liquefaction potential is considered high and the post-liquefaction settlement is estimated to be on the order of 5.5 inches. The vertical capacity within and above the liquefiable sand layers were neglected and downdrag force have been considered for the foundation design. In order to meet the lateral and vertical compression demand, the recommended pile tip is at Elev. -40.5 feet for the 3.5 feet diameter CIDH pile. Torsion has been considered and does not appear to be a concern.

Active Traffic Management Gantry SS9-2 (Sta. 303+83 "AM1" Line)

The proposed ATM structure will be built along westbound Route 80 at Sta. 204+30. SS9-2 will be supported on 5 feet and 3.5 feet diameter CIDH concrete piles in the shoulder and median, respectively. The structure span is 138.31 feet long and will be supported on post type V1-S.

Liquefaction potential is considered high and the post-liquefaction settlement is estimated to be on the order of 6.5 inches. The vertical capacity within and above the liquefiable sand layers were neglected and downdrag force have been considered for the foundation design. In order to meet the lateral and vertical compression demand, the recommended pile tips are at Elev. -30 feet and -36 feet for the 5 feet and 3.5 feet diameter CIDH piles, respectively. Torsion has been considered and does not appear to be a concern.

Active Traffic Management Gantry SS12-1 (Sta. 340+51 "AM1" Line)

The proposed ATM structure will be built along the westbound of Route 80 at Sta. 340+51. SS12-1 will be supported on 5 feet and 3.5 feet diameter CIDH concrete piles in the shoulder and median, respectively. The structure span is 85.75 feet long and will be supported on post type V-S.

Liquefaction potential is considered high and the post-liquefaction settlement is estimated to be on the order of 6 inches. The vertical capacity within and above the liquefiable sand layers were neglected and downdrag force have been considered for the foundation design. In order to meet the lateral and vertical compression demand, the recommended pile tip is at Elev. -22 feet for the 5 feet

and 3.5 feet diameter CIDH piles. Torsion has been considered and does not appear to be a concern.

Active Traffic Management Gantry SS13-2 (Sta. 357+89 "AM1" Line)

The proposed ATM structure will be built along the westbound of Route 80 at Sta. 357+89. SS13-2 will be supported on existing sign foundation in the shoulder and a new 3.5 feet diameter CIDH concrete pile in the median. The structure span is 101.31 feet long and will be supported on post type V1-S.

Liquefaction potential is considered moderate and the post-liquefaction settlement is estimated to be on the order of 0.5 inch. The vertical capacity within and above the liquefiable sand layers were neglected and downdrag force have been considered for the foundation design. In order to meet the lateral and vertical compression demand, the recommended pile tip is at Elev. -37.5 feet for the 3.5 feet diameter CIDH pile. Torsion has been considered and does not appear to be a concern.

Active Traffic Management Gantry SS16-1 (Sta. 400+30 "WB3" Line)

The proposed ATM structure will be built along the westbound of Route 80 at Sta. 400+30. SS16-1 will be supported on 5 feet and 3.5 feet diameter CIDH concrete piles in the shoulder and median, respectively. The structure span is 72.47 feet long and will be supported on post type V-S.

Liquefaction potential is considered relatively low. In order to meet the lateral and vertical compression demand, the recommended pile tips are at Elev. 5 feet and 4 feet for the 5 feet and 3.5 feet diameter CIDH piles in the shoulder and median, respectively. Torsion has been considered and does not appear to be a concern.

Active Traffic Management Gantry SS18-1 (Sta. 428+40 "AM2" Line)

The proposed ATM structure will be built along the westbound of Route 80 at Sta. 428+40. SS18-1 will be supported on 3.5 feet diameter CIDH concrete piles in the shoulder and median. The structure span is 66.72 feet long and will be supported on post type V-S.

Liquefaction potential is considered relatively low. In order to meet the lateral and vertical compression demand, the recommended pile tips are at Elev. -33.5 feet and -25 feet for the 3.5 feet diameter CIDH piles in the shoulder and median, respectively. Torsion has been considered and does

not appear to be a concern.

Active Traffic Management Gantry SS21-1 (Sta. 467+68 "AM2" Line)

The proposed ATM structure will be built along the westbound of Route 80 at Sta. 467+68. SS21-1 will be supported on 5 feet and 3.5 feet diameter CIDH concrete piles in the shoulder and median, respectively. The structure span is 68.3 feet long and will be supported on post type V-S.

Liquefaction potential is considered relatively low. In order to meet the lateral and vertical compression demand, the recommended pile tips are at Elev. 0 feet and -15 feet for the 5 feet and 3.5 feet diameter CIDH piles, respectively. Torsion has been considered and does not appear to be a concern.

Active Traffic Management Gantry SS23-1 (Sta. 495+92 "AM2" Line)

The proposed ATM structure will be built along the westbound of Route 80 at Sta. 495+92. SS23-1 will be supported on 5 feet and 3.5 feet diameter CIDH concrete piles in the shoulder and median, respectively. The structure span is 80.09 feet long and will be supported on post type V-S.

Liquefaction potential is considered high and the post-liquefaction settlement is estimated to be on the order of 0.75 inch. The vertical capacity within and above the liquefiable sand layers were neglected and downdrag force have been considered for the foundation design. In order to meet the lateral and vertical compression demand, the recommended pile tips are at Elev. 2.5 feet and 5 feet for the 5 feet and 3.5 feet diameter CIDH piles, respectively. Torsion has been considered and does not appear to be a concern.

Active Traffic Management Gantry SS25-1 (Sta. 521+83 "WB4" Line)

The proposed ATM structure will be built along the westbound of Route 80 at Sta .521+83. SS25-1 will be supported on 5 feet diameter CIDH concrete piles in the shoulder and median. The structure span is 100.07 feet long and will be supported on post type V1-S.

Liquefaction potential is considered relatively low. In order to meet the lateral and vertical compression demand, the recommended pile tip is at Elev. 28 feet for the 5 feet diameter CIDH piles. Torsion has been considered and does not appear to be a concern.

8.5.2 Information Display Board

Six Information Display Boards are proposed along Route 80 between the Bay Bridge and the Carquinez Bridge. The IDB structures will be supported on 5 feet diameter CIDH concrete piles. The post will be type IV and all structure spans are 21 feet from the centerline of the post. Based on the load demands and subsoil information, the recommended design tip elevations and specified pile tip elevations are shown in the following table. The calculations of pile compressive capacity are included in Appendix D.

TABLE 5B – FOUNDATION DESIGN RECOMMENDATIONS

Sign Structures	Shoulder 5' Diameter CIDH Pile		
	Pile Tip Elev. (ft)	Design Pile Tip Elev. (ft)	Length of Pile (ft)
SS3-1	a) -27 b) -16.6	-27	47
SS13-1	a) -16 b) -20.6	-20.5	37
SS26-1	a) 11.5 b) 23.4	11.5	49
SS37-1	a) 182 b) 164.4	164	34
SS50-1	a) 136 b) 111.4	111	35
SS56-1	a) 125 b) 89.4	89	35
Note: a) Vertical compression; b) Lateral			

Discussion per sign structure is summarized in the following paragraphs:

<u>Information Display Board SS3-1 (Sta. 198+66 "AM1" Line)</u>

The proposed IDB structure will be built along the eastbound of Route 80 at Sta. 198+66. SS3-1 will be supported on 5 feet diameter CIDH concrete pile.

Liquefaction potential is considered high and the post-liquefaction settlement is estimated to be on

the order of 7.5 inches. The vertical capacity within and above the liquefiable sand layers were neglected and downdrag force have been considered for the foundation design. In order to meet lateral and vertical compression demand, the recommended pile tip is Elev. -27 feet. Torsion has been considered and does not appear to be a concern. The design tip elevation for lateral loads was provided by the Structural Engineer.

Information Display Board SS13-1 (Sta. 350+79 "AM1" Line)

The proposed IDB structure will be built along the westbound of Route 80 at Sta. 350+79. SS13-1 will be supported on 5 feet diameter CIDH concrete pile.

Liquefaction potential is considered high and the post-liquefaction settlement is estimated to be on the order of 5 inches. In order to meet lateral and vertical compression demand, the recommended pile tip is Elev. -20.5. Torsion has been considered and does not appear to be a concern. The design tip elevation for lateral loads was provided by the Structural Engineer.

Information Display Board SS26-1 (Sta. 530+33 "AM1" Line)

The proposed IDB structure will be built along the westbound of Route 80 at Sta. 530+33. SS26-1 will be supported on 5 feet diameter CIDH concrete pile.

Liquefaction potential is considered moderate to high and the post-liquefaction settlement is estimated to be on the order of 2 inches. In order to meet lateral and vertical compression demand, the recommended pile tip is Elev. 11.5. Torsion has been considered and does not appear to be a concern. The design tip elevations for lateral loads were provided by the Structural Engineer.

Information Display Board SS37-1 (Sta. 717+93 "AM3" Line)

The proposed IDB structure will be built along the eastbound of Route 80 at Sta. 717+93. SS37-1 will be supported on 5 feet diameter CIDH concrete pile.

Liquefaction potential is considered relatively low. In order to meet lateral and vertical compression demand, the recommended pile tip is Elev. 164. Torsion has been considered and does not appear to be a concern. The design tip elevation for lateral loads was provided by the Structural Engineer.

Information Display Board SS50-1 (Sta. 894+09 "AM4" Line)

The proposed IDB structure will be built along the eastbound of Route 80 at Sta. 894+09. SS54-1 will be supported on 5 feet diameter CIDH concrete pile.

Liquefaction potential is considered relatively low. In order to meet lateral and vertical compression demand, the recommended pile tip is Elev. 111. Torsion has been considered and does not appear to be a concern. The design tip elevation for lateral loads was provided by the Structural Engineer.

Information Display Board SS56-1 (Sta. 1004+49 "AM4" Line)

The proposed IDB structure will be built along the westbound of Route 80 at Sta. 1004+49. SS56-1 will be supported on 5 feet diameter CIDH concrete pile.

Liquefaction potential is considered relatively low. In order to meet lateral and vertical compression demand, the recommended pile tip is Elev. 89. Torsion has been considered and does not appear to be a concern. The design tip elevation for lateral loads was provided by the Structural Engineer.

8.5.3 Lateral Pile Capacity

The structural designer performed the lateral load analyses for the piles using LPILE Program (V. 5). The design tip elevations for lateral loads are shown in Tables 5A and 5B. The recommended geotechnical parameters for LPILE analysis are summarized in the following tables.

SS3-2 (Based on A-11-002)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effective Unit Wt. (pci)
Above 7	Silty Sand, medium dense	SAND (Reese)	ϕ = 33°	25	--	0.072
7 to 5	Sandy Lean Clay, soft	SOFT CLAY (Matlock)	C = 500 psf	--	0.01	0.072
5 to 3	Sandy Lean Clay, soft	SOFT CLAY (Matlock)	C = 500 psf	--	0.01	0.036
3 to -3	Sand (Potentially Liquefiable)	SAND (Reese) (without liquefaction)	ϕ = 32°	20	--	0.036
		SOFT CLAY (Matlock) (with liquefaction)	C = 150 psf	--	0.05	0.036
-3 to -8	Fat Clay, stiff	STIFF CLAY w/o free	C = 850 psf	--	0.01	0.036

		water (Reese)				
-8 to -20	Sand (Potentially Liquefiable)	SAND (Reese) (without liquefaction)	ϕ = 32°	20	--	0.036
		SOFT CLAY (Matlock) (with liquefaction)	C = 500 psf	--	0.05	
-20 to -30	Clayey Sand, medium dense	SAND (Reese)	ϕ = 34°	60	--	0.036
Below -30	Lean Clay, very stiff	STIFF CLAY w/o free water	C = 2,000 psf	--	0.005	0.036

Note: Level ground condition for shoulder and median in longitudinal and transverse directions.

SS6-2 (Based on A-11-003)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effective Unit Wt. (pci)
Above 9.5	Silty Sand, loose	SAND (Reese)	ϕ = 32°	20	--	0.072
9.5 to 5.5	Sand (Potentially Liquefiable)	SAND (Reese) (without liquefaction)	ϕ = 32°	20	--	0.036
		SOFT CLAY (Matlock) (with liquefaction)	C = 100 psf	--	0.05	
5.5 to -5	Sand (Potentially Liquefiable)	SAND (Reese) (without liquefaction)	ϕ = 32°	20	--	0.036
		SOFT CLAY (Matlock) (with liquefaction)	C = 500 psf	--	0.05	
-5 to -13.5	Lean Clay, medium stiff	STIFF CLAY w/o free water	C = 1,500 psf	--	0.007	0.036
-13.5 to -18.5	Lean Clay, stiff	STIFF CLAY w/o free water	C = 2,000 psf	--	0.005	0.036
-18.5 to -24.5	Poorly-graded Sand, dense	SAND (Reese)	ϕ = 38°	125	--	0.036
-24.5 to -34.5	Lean Clay, stiff	STIFF CLAY w/o free water	C = 1,750 psf	--	0.007	0.036
Below -34.5	Lean Clay, very stiff	STIFF CLAY w/o free water	C = 2,500 psf	--	0.005	0.036

Note: Level ground condition for shoulder and median in longitudinal and transverse directions.

SS8-1 (Based on A-11-004)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effective Unit Wt. (pci)
Above 10	Poorly-graded Sand, loose	SAND (Reese)	ϕ = 32°	20	--	0.072
10 to -3	Sand (Potentially Liquefiable)	SAND (Reese) (without liquefaction)	ϕ = 32°	20	--	0.036
		SOFT CLAY (Matlock) (with liquefaction)	C = 200 psf	--	0.05	
-3 to -10	Clayey Sand, dense	SAND (Reese)	ϕ = 34°	125	--	0.036
-10 to -18	Sand (Potentially Liquefiable)	SAND (Reese) (without liquefaction)	ϕ = 32°	20	--	0.036
		SOFT CLAY (Matlock) (with liquefaction)	C = 750 psf	--	0.05	
-18 to -40	Lean Clay, medium stiff	STIFF CLAY w/o free water	C = 1,500 psf	--	0.007	0.036
Below -40	Lean Clay, stiff	STIFF CLAY w/o free water	C = 2,000 psf	--	0.005	0.036

Note: Level ground condition for shoulder and median in longitudinal and transverse directions.

SS9-2 (Based on A-11-005)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effective Unit Wt. (pci)
Above -2	Sand (Potentially Liquefiable)	SAND (Reese) (without liquefaction)	ϕ = 32°	20	--	0.036
		SOFT CLAY (Matlock) (with liquefaction)	C = 150 psf	--	0.05	
-2 to -13	Clayey Gravel, dense	SAND (Reese)	ϕ = 36°	125	--	0.036
-13 to -17	Sand (Potentially Liquefiable)	SAND (Reese) (without liquefaction)	ϕ = 34°	60	--	0.036
		SOFT CLAY (Matlock) (with liquefaction)	C = 750 psf	--	0.05	
Below -17	Lean Clay, very stiff	STIFF CLAY w/o free water	C = 2,500 psf	--	0.005	0.036

Note: Level ground condition for shoulder and median in longitudinal and transverse directions.

SS12-1 (Based on A-11-006)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effective Unit Wt. (pci)
Above 15	Silty Sand, loose	SAND (Reese)	ϕ = 32°	25	--	0.072
15 to 8	Sand (Potentially Liquefiable)	SAND (Reese)	ϕ = 32°	20	--	0.036
		SOFT CLAY (Matlock) (with liquefaction)	C = 100 psf	--	0.05	
8 to -3	Sand (Potentially Liquefiable)	SAND (Reese)	ϕ = 32°	20	--	0.036
		SOFT CLAY (Matlock) (with liquefaction)	C = 300 psf	--	0.05	
		SOFT CLAY (Matlock) (with liquefaction)	C = 300 psf	--	0.05	
-3 to -7	Sand (Potentially Liquefiable)	SAND (Reese)	ϕ = 32°	20	--	0.036
		SOFT CLAY (Matlock) (with liquefaction)	C = 400 psf	--	0.05	
-7 to -13	Lean Clay, stiff	STIFF CLAY w/o free water	C = 1,250 psf	--	0.007	0.036
-13 to -18	Silty Sand, dense	SAND (Reese)	ϕ = 34°	125	--	0.036
-18 to -26	Lean Clay, stiff	STIFF CLAY w/o free water	C = 2,250 psf	--	0.005	0.036
Below -26	Lean Clay, very stiff	STIFF CLAY w/o free water	C = 3,000 psf	--	0.005	0.036

Note: Sloping ground condition for shoulder in transverse direction. Level ground condition for shoulder in longitudinal direction and median in longitudinal and transverse directions.

SS13-2 (Based on As-built LOTB – Retaining Wall "B", B92-61, 1992)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effect Unit Wt. (pci)
Above 5	Sand, dense	SAND (Reese)	ϕ = 34°	225	--	0.072
5 to -5	Baymud and potential liquefiable sand, soft	SOFT CLAY (Matlock)	C = 300 psf	--	0.05	0.022
-5 to -13.5	Sandy Lean Clay, stiff	STIFF CLAY w/o free water (Reese)	C = 1,000 psf	--	0.007	0.036
-13.5 to -30	Gravelly Sand, dense	SAND (Reese)	ϕ = 34°	125	--	0.036
-30 to -50	Sandy Lean Clay, very stiff	STIFF CLAY w/o free water (Reese)	C = 2,000 psf	--	0.005	0.036
Below -50	Silty Sand, very dense	SAND (Reese)	ϕ = 40°	125	--	0.036

Note: Level ground condition for shoulder and median for longitudinal and transverse directions.

SS16-1 (Based on A-11-009)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effective Unit Wt. (pci)
Above 39	Clayey Sand, dense	SAND (Reese)	ϕ = 34°	225	--	0.072
39 to 34	Sandy Lean Clay, very stiff	STIFF CLAY w/o free water (Reese)	C = 2,500 psf	--	0.005	0.072
34 to 24	Clayey Gravel, dense	SAND (Reese)	ϕ = 34°	225	--	0.072
24 to 7	Claystone	SILT	C = 2,000 psf ϕ = 36°	0 (LPILE V.5, use default values)	0 (LPILE V.5, use default values)	0.072
Below 7	Claystone	SILT	C = 2,000 psf ϕ = 36°	0 (LPILE V.5, use default values)	0 (LPILE V.5, use default values)	0.039

Note: Sloping ground condition for shoulder in transverse direction. Level ground condition for shoulder in longitudinal direction and median in longitudinal and transverse directions.

SS18-1 (Based on A-11-018)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effect Unit Wt. (pci)
Above 4	Sandy Lean Clay, stiff to very stiff	STIFF CLAY w/o free water (Reese)	C = 2,000 psf	--	0.007	0.072
4 to -5	Sandy Lean Clay, very stiff	STIFF CLAY w/o free water (Reese)	C = 2,500 psf	--	0.005	0.036
-5 to -13	Clayey Sand, very dense	SAND (Reese)	ϕ = 36°	125	--	0.036
Below -13	Lean Clay, hard	STIFF CLAY w/o free water (Reese)	C = 3,000 psf	--	0.005	0.036

Note: Sloping ground condition for shoulder in transverse direction. Level ground condition for shoulder in longitudinal direction and median in longitudinal and transverse directions.

SS21-1 (Based on A-11-011)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effective Unit Wt. (pci)
Above 28	Lean Clay, medium stiff	STIFF CLAY w/o free water (Reese)	C = 1,000 psf	--	0.007	0.072
28 to -9	Lean Clay, stiff	STIFF CLAY w/o free water (Reese)	C = 1,500 psf	--	0.007	0.072
Below -9	Lean Clay, stiff	STIFF CLAY w/o free water (Reese)	C = 1,500 psf	--	0.007	0.036

Note: Sloping ground condition for shoulder in transverse direction. Level ground condition for shoulder in longitudinal direction and median in longitudinal and transverse directions.

SS23-1 (Based on A-11-012)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effective Unit Wt. (pci)
Above 32	Lean Clay, stiff	STIFF CLAY w/o free water (Reese)	C = 1,500 psf	--	0.007	0.072
32 to 29	Lean Clay, stiff	STIFF CLAY w/o free water (Reese)	C = 1,500 psf	--	0.007	0.036
29 to 24	Sand (Potentially Liquefiable)	SAND (Reese) (without liquefaction)	ϕ = 34°	20	--	0.036
		SOFT CLAY (Matlock) (with liquefaction)	C = 750 psf	--	0.05	0.036
24 to 19	Lean Clay, stiff	STIFF CLAY w/o free water (Reese)	C = 1,500 psf	--	0.007	0.036
Below 19	Clayey Gravel, very dense	SAND (Reese)	ϕ = 38°	125	--	0.036

Note: Sloping ground condition for shoulder in transverse direction. Level ground condition for shoulder in longitudinal direction and median in longitudinal and transverse directions.

SS25-1 (Based on A-11-013)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effective Unit Wt. (pci)
Above 43	Lean Clay, stiff	STIFF CLAY w/o free water (Reese)	C = 2,000 psf	--	0.007	0.072
43 to 36	Lean Clay, very stiff	STIFF CLAY w/o free water (Reese)	C = 2,500 psf	--	0.005	0.072
36 to 33	Lean Clay, stiff	STIFF CLAY w/o free water (Reese)	C = 2,500 psf	--	0.005	0.036
Below 33	Lean Clay, stiff	STIFF CLAY w/o free water (Reese)	C = 1,500 psf	--	0.007	0.036

Note: Sloping ground condition for shoulder in transverse direction. Level ground condition for

shoulder in longitudinal direction and median in longitudinal and transverse directions.

SS3-1 (Based on As-built LOTB – Powell Street UC Widen, 1987)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effective Unit Wt. (pci)
Above 10	Embankment	STIFF CLAY w/o free water (Reese)	C = 1,500 psf	--	0.007	0.072
10 to 5	Sand, loose	SAND (Reese)	ϕ = 32°	25	--	0.072
5 to -14	Sand (Potentially Liquefiable)	SAND (Reese) (without liquefaction)	ϕ = 32°	20	--	0.036
		SOFT CLAY (Matlock) (with liquefaction)	C = 150 psf	--	0.05	0.036
-14 to -24	Lean Clay, stiff	STIFF CLAY w/o free water (Reese)	C = 1,750 psf	--	0.007	0.036
-24 to -32.5	Clayey Sand, dense	SAND (Reese)	ϕ = 38°	125	--	0.036
-32.5 to -57.5	Sandy Clay, stiff	STIFF CLAY w/o free water (Reese)	C = 2,000 psf	--	0.007	0.036
Below -57.5	Silty Sand, dense	SAND (Reese)	ϕ = 38°	125	--	0.039

Note: Sloping ground condition in transverse direction and level ground in longitudinal direction.

For SS3-1, there is an existing retaining wall adjacent to the proposed IDB structure. Based on the shear and moment provided by the designer, the additional load on the retaining wall is 140 psf. The load was verified by the designer and should not impact the existing retaining wall.

SS13-1 (A-11-007)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effective Unit Wt. (pci)
Above 10	Poorly-Graded Sand, medium dense	SAND (Reese)	ϕ = 34°	90	--	0.072
10 to -3	Sand (Potentially Liquefiable)	SAND (Reese) (without liquefaction)	ϕ = 32°	20	--	0.036
		SOFT CLAY (Matlock) (with liquefaction)	C = 200 psf	--	0.05	0.036
-3 to -8	Sandy Lean Clay,	STIFF CLAY w/o free water (Reese)	C = 750 psf	--	0.01	0.036
-8 to -14	Clayey Sand, dense	SAND (Reese)	ϕ = 36°	125	--	0.036
Below -14	Lean Clay, hard	STIFF CLAY w/o free water (Reese)	C = 2,000 psf	--	0.007	0.036

Note: Sloping ground condition in transverse direction and level ground in longitudinal direction.

SS26-1 (Based on as-built LOTB – Cutting Blvd UC, 1975 & 1989)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effective Unit Wt. (pci)
Above 50	Embankment	STIFF CLAY w/o free water (Reese)	C = 1,500 psf	--	0.007	0.072
50 to 40	Silty Clay, very stiff	STIFF CLAY w/o free water (Reese)	C = 2,000 psf	--	0.007	0.072
40 to 32.5	Sand (Potentially Liquefiable)	SAND (Reese) (without liquefaction)	ϕ = 32°	20	--	0.036
		SOFT CLAY (Matlock) (with liquefaction)	C = 400 psf	--	0.05	0.036
32.5 to 12.5	Lean Clay, stiff	STIFF CLAY w/o free water (Reese)	C = 1,500 psf	--	0.007	0.036
12.5 to 5	Silty Sand, medium dense	SAND (Reese)	ϕ = 34°	60	--	0.036
Below 5	Sandstone	SAND (Reese)	ϕ = 40°	125	--	0.039

Note: Sloping ground condition in transverse direction and level ground in longitudinal direction.

SS37-1 (Based on A-11-015)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effective Unit Wt. (pci)
Above 179	Sandy Lean Clay, very stiff	STIFF CLAY w/o free water (Reese)	C = 2,500 psf	--	0.005	0.072
179 to 174	Sandy Lean Clay, stiff	STIFF CLAY w/o free water (Reese)	C = 1,500 psf	--	0.007	0.072
174 to 169	Lean Clay (Weathered Claystone), hard	STIFF CLAY w/o free water (Reese)	C = 3,500 psf	--	0.005	0.072
Below 169	Claystone	SILT	C = 2,000 psf ϕ = 34°	0 (LPILE V.5, use default values)	0 (LPILE V.5, use default values)	0.075

Note: Sloping ground condition in transverse direction and level ground in longitudinal direction.

SS50-1 (Based on A-11-016)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effective Unit Wt. (pci)
Above 138	Lean Clay with Gravel, stiff	STIFF CLAY w/o free water (Reese)	C = 900 psf	--	0.007	0.072
139 to 133	Elastic Silt, very stiff	STIFF CLAY w/o free water (Reese)	C = 1,000 psf	--	0.007	0.072
133 to 131	Lean Clay with Gravel, very stiff	STIFF CLAY w/o free water (Reese)	C = 2,000 psf	--	0.005	0.072
131 to 123	Lean Clay with Gravel, very stiff	STIFF CLAY w/o free water (Reese)	C = 2,000 psf	--	0.005	0.039
123 to 118	Elastic Silt, very stiff	STIFF CLAY w/o free water (Reese)	C = 1,500 psf	--	0.007	0.039
118 to 113	Sandy Lean Clay, very stiff	STIFF CLAY w/o free water (Reese)	C = 1,500 psf	--	0.007	0.039
Below 113	Lean Clay (Weathered Claystone)	STIFF CLAY w/o free water (Reese)	C = 2,250 psf	--	0.005	0.039

Note: Sloping ground condition in transverse direction and level ground in longitudinal direction.

SS56-1 (Based on A-11-017)

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Soil Strength	K (pci)	E_{50} (in/in)	Effective Unit Wt. (pci)
Above and Below 132	Sandstone	SILT	C = 2,000 psf ϕ = 36°	0 (LPILE V.5, use default values)	0 (LPILE V.5, use default values)	0.075

Note: Sloping ground condition in transverse direction and level ground in longitudinal direction.

For structures that have sloping ground condition in the transverse direction, neglect the wedge above the level ground and treat the pile as a cantilever above the level ground.

Note that the K and E_{50} values in the tables above are for standard piles typically less than 2 ft in diameter. For pile size larger than 2 feet in diameter, the K values may be scaled up by multiplying a factor of $\sqrt{(D/2')}$, and the E_{50} values may be scaled down by dividing a factor of $\sqrt{(D/2')}$. This does not apply to E_{50} for the Liquefiable Sand Layer. Residual shear strengths are used for the liquefiable layers.

8.6 Corrosion Investigation

The corrosion investigation for this project was performed in general accordance with the provisions of California Test Method 643. Chemical tests were performed by Sunland Analytical at each location (thirteen soil samples), to evaluate the corrosion potential of the subsurface soil. A summary of the corrosion test results is presented in Table 6.

TABLE 6 - SUMMARY OF CORROSION TEST RESULTS

Sign Structure	Boring No.	Station (ft)	Offset (ft)	Depth (ft)	Min. Resistivity (ohm-cm)	pH	Sulfate (ppm)	Chloride (ppm)
SS3-2	A-11-002	205+05 “AM1” Line	105 Lt.	10	830	7.87	222.8	84.5
SS6-2	A-11-003	237+80 “AM1” Line	95 Lt.	21	780	8.27	62.4	47.5
SS8-1	A-11-004	283+75 “AM1” Line	75 Lt.	25	720	7.83	43.0	99.4
SS9-2	A-11-005	304+30 “AM1” Line	120 Lt.	10	480	7.86	521.4	235.7
SS12-1	A-11-006	340+95 “AM1” Line	90 Lt.	16	720	6.44	898.5	52.4
SS16-1	A-11-009	403+60 “WB3” Line	80 Lt.	15	2680	7.3	30.6	37.0
SS18-1	A-11-018	430+00 “AM2” Line	55 Lt.	13	1050	7.71	94.6	22.3
SS21-1	A-11-011	467+10 “AM2” Line	60 Lt.	10	510	7.81	103.4	24.6
SS23-1	A-11-012	493+80 “AM2” Line	70 Lt.	10	1100	7.61	96.2	21.2
SS25-1	A-11-013	521+90 “WB4” Line	55 Lt.	15	1070	7.63	47.8	74.7
SS13-1	A-11-007	351+80 “AM1” Line	90 Lt.	30	250	8.50	499.7	1013.6
SS37-1	A-11-015	718+10 “AM3” Line	70 Rt.	10	720	7.06	23.3	56.2
SS50-1	A-11-016	894+40 “AM4” Line	65 Rt.	5	860	7.24	30.1	18.1

Due to the high chloride and sulfate concentration in the soil sample collected for A-11-007, the site at SS13-1 is considered corrosive per Caltrans corrosion design guidelines (Caltrans Bridge Design Specifications (September 2003) – Section 8.22.1). No corrosion results were provided for the sites where as-built Log of Test Borings was used. Based on previous experience and the marine environment for SS3-1 and SS13-2, the sites are assumed to be corrosive. Type II modified or Type V cement type may be used for the concrete substructures. Refer to Table 8.22.2 in the Caltrans Bridge Design Specifications for the minimum cementitious material content.

9. STRUCTURAL PAVEMENT

This subject is not applicable to the proposed project.

10. MATERIAL SOURCES

There are several commercial sources of asphalt, concrete, and aggregate products in the area. Table 5 lists available commercial suppliers in the area.

TABLE 7 - SOURCES OF ASPHALT AND AGGREGATE MATERIAL

County	Source	Location	Approx. Haul Dist. (one way, miles)
Alameda County	Right Away Redy Mix	725 Julie Ann Way, Oakland, CA	Varies by sign location
	Central Concrete Supply Co., Inc.	401 Embarcadero, Oakland, CA	
	Hanson Asphalt & Ready Mix	699 Virginia St, Berkley, CA	
Contra Costa County	Sugar City Building Materials	800 San Pablo Ave, Pinole, CA 94564	
	Santos Engineering, Santos Pavers	2775 Giant Rd, Richmond, CA	

11. MATERIAL DISPOSAL

Based on our understanding, the project will require minimal disposal of the excess materials.

12. CONSTRUCTION CONSIDERATIONS

12.1 Construction Advisories

These sections are written primarily for the engineer responsible for the preparation of plans and specifications. Since these sections identify potential construction issues related to the project, it may also be of use to the Agency's representatives involved in monitoring of construction activity. The field investigation performed by us primarily addresses design issues and was not planned specifically to identify construction issues.

The project site is located along the existing Route 80. Therefore, traffic control is required to maintain traffic flow along Route 80 and the respective city streets. Several underground utilities exist at the site. The contractor should verify the utility lines, be aware of the existing conditions and plan the construction activities accordingly.

The materials to be excavated vary in location. Refer to the Section 7.2 and the Log of Test Borings in Appendix A for subsurface conditions. Localized subgrade pumping may be encountered during

earthwork construction depending on the weather, moisture condition of the subsurface soils, and surface drainage conditions. Equipment mobility may also be difficult if the subgrade is wet. In which case, the subgrade soils may require reworking, aeration, or over-excavation and replacing with dry granular fill to facilitate earthwork construction. It is possible that unknown old buried utilities or abandoned structures, concrete rubble etc. are located along the alignment. It might require special equipment and additional efforts to remove these buried objects.

Prospective contractors for the project must evaluate construction-related issues on the basis of their own knowledge and experience in the local area, on the basis of similar projects in other localities, or on the basis of field investigation on the site performed by them, taking into account their proposed construction methods and procedures. In addition, construction activities related to excavation and lateral earth support must conform to safety requirements of OSHA and other applicable municipal and Stage regulatory agencies.

12.2 Construction Consideration that Influence Specifications

The contractor should verify the conditions of the existing utility lines. These locations should not be used for stockpiling of borrow materials. Any conflicts with proposed construction should also be reviewed prior to construction.

Caltrans standard specifications and standard special provisions (SSP) for “Cast-in-Place Concrete Piling” should be used for the construction of CIDH piles. Vertical inspection pipes for acceptance testing should be provided in all CIDH piles that are 24 inches in diameter or larger, except when the holes are dry or when the holes are dewatered without the use of temporary casing to control groundwater. The acceptance test should include Gamma- Gamma Logging and may also include crosshole sonic logging. Gamma-Gamma Logging should be performed in accordance with California Test 233 Standard (CT233) to check the homogeneity of CIDH piles. CT233 defines pile rejection criteria based on the statistical principles of mean and three standard deviations to analyze the homogeneity of a pile. Anomalies detected should be evaluated by the designer for their significance and potential impact on design and to see if mitigation plans are required. Details of the acceptance testing and Gamma-Gamma Logging are contained in Caltrans SSP and CT233.

Due to the presence of granular material and groundwater, localized hard drilling and raveling or

caving is expected which may require additional drilling and cleaning effort and may increase the concrete volume for the piles. It may be necessary to use casing and/or slurry displacement method to help maintain stable shafts. The use of temporary steel casing should be anticipated at all times to maintain the integrity of the piles. Temporary steel casing with a minimum length of 15 feet is required in the freeway median during CIDH pile excavation to prevent damage to the traffic lanes. Permanent casing is generally not expected for this project and therefore not considered in the design. If a permanent casing is proposed, the design should be modified accordingly. It is prudent to make the contractor aware of these conditions so that appropriate steps can be taken to comply with the standards and maintain the integrity of the CIDH piles. It is also recommended that the specifications set certain criteria for qualifications and previous work experience requirements to pre-qualify the potential contractors. The intent is to help select qualified contractors to reduce construction issues.

Sedimentary rock such as sandstone and claystone was encountered in the north portion of the project limit. Hard drilling conditions should be anticipated for drilling into the bedrock. The contractor is encouraged to carefully examine the subsurface conditions at each sign structure location and should make his own interpretation and perform independent study on the constructability of the piles. Special tool or drilling equipment may be expected to drill into the bedrock.

All piles excavations should be observed by the geotechnical engineer or regulatory agency prior to the placement of reinforcement and concrete so that if conditions differ from those anticipated, appropriate recommendations can be made.

12.3 Hazardous Waste Considerations

The project environmental study report should be referred to for further details about any potential hazardous materials within the project site.

12.4 Differing Site Conditions

The soil conditions described in this report are based on available boring data. It should be noted

that these borings depict subsurface conditions only at the locations drilled. Because of the variability from place to place within soils in general, and the nature of geologic depositions, subsurface conditions could change between the explored locations.

Early communication should be made between the Resident Engineer, the Contractor, and the Geotechnical Engineer as soon as conditions that differ from those established in this report are recognized by any of the parties. Additional recommendations could be provided if such conditions arise.

13. RECOMMENDATIONS AND SPECIFICATIONS

13.1 Summary of Recommendations

If the designer has questions or concerns with any of these recommendations, or, if conditions are found to be different during construction, the Geotechnical Engineer who prepared this report should be contacted. Additional fieldwork, analysis or changes in recommendations may be required. These services may be provided under a separate authorization, as necessary. A concise summary of the geotechnical recommendations is presented below:

- The subsoils vary at each location. In general, clayey/silty sand and lean clay were encountered. Claystone and sandstone were encountered in some locations. (Ref.: Section 7.2).
- Seismic design criteria should follow the Caltrans criteria (Ref.: Section 7.4). An average peak ground acceleration was used for analyses.
- Hayward Fault passes Highway 80 approximately 5500 feet southwest of SS37-1.
- Based on investigation, groundwater was encountered in all borings, with the exception of A-11-009, A-11-015, and A-11-017, up to the maximum depth explored. (Ref: Section 7.3.2)
- Based on the borings and as-built Log of Test Borings, liquefiable sands were encountered at most of the sign locations, with the exception of A-11-009, A-11-011, A-11-013, A-11-015, A-11-016, A-11-017 and A-11-018. (Ref: Section 8.1.3)
- Eleven Active Traffic Management Gantries and six Information Board Displays are proposed along the corridor. The design tip elevations were governed by the Caltrans Standard Plans S14 or S36, Structural Plans, or the tip elevations developed by the vertical or lateral capacity analyses. (Ref: Section 8.5)

13.2 Recommended Materials Specifications

13.2.1 Standard Specifications

Unless otherwise stated in the special provisions, all materials specifications should conform to the 2010 Caltrans Standard Specifications, including but not limited to the following: Earthwork, pile foundation excavation, concrete placement, Structure Backfill, Pervious Backfill Material, Reinforcing Geosynthetics, Thermoplastic Pipes, Hot Mix Asphalt, Aggregate Base, Aggregate Subbase, Lean Concrete Base, etc.

14. INVESTIGATION LIMITATIONS

Our services consist of professional opinions and recommendations made in accordance with generally accepted geotechnical engineering principles and practices and are based on our field exploration and the assumption that the soil conditions do not deviate from observed conditions.

No warranty, expressed or implied, of merchantability or fitness, is made or intended in connection with our work or by the furnishing of oral or written reports or findings. The scope of our services did not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in structures, soil, surface water, groundwater or air, below or around this site. Unanticipated soil conditions are commonly encountered and cannot be fully determined by taking soil samples and excavating test borings; different soil conditions may require that additional expenditures be made during construction to attain a properly constructed project. Some contingency fund is thus recommended to accommodate these possible extra costs.

This report has been prepared for the proposed project as described earlier, to assist the engineer in the design of this project. In the event any changes in the design or location of the facilities are planned, or if any variations or undesirable conditions are encountered during construction, our findings and recommendations shall not be considered valid unless the changes or variations are reviewed and our recommendations modified or approved by us in writing.

This report is issued with the understanding that it is the designer's responsibility to ensure that the information and recommendations contained herein are incorporated into the project and that necessary steps are also taken to see that the recommendations are carried out in the field.

The findings in this report are valid as of the present date. However, changes in the soil conditions can occur with the passage of time, whether they are due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards occur, whether they result from legislation or from the broadening of knowledge. Accordingly, the findings in this report might be invalidated, wholly or partially, by changes outside of our control.

Respectfully submitted,
PARIKH CONSULTANTS, INC.

for Lam Tran
Senior Staff Engineer

Peter Haoli Wei, P.E., G.E.
Project Engineer

Y. David Wang, Ph.D., P.E. 52911
Senior Engineer

Gary Parikh, P.E., G.E. 666
Project Manager

T:\Ongoing Projects\2011\2011_114_SGN Kimley Horn ATM and IDB Signs along I 80

REGISTERED PROFESSIONAL ENGINEER
GAURANG R. PARIKH
No. 666
EXP. 12-31-11
GEOTECHNICAL
STATE OF CALIFORNIA

REFERENCES

1. Caltrans ARS Online (V 1.0.4) (http://dap3.dot.ca.gov/shake_stable/)

2. Caltrans as-built Log of Test Borings – Retaining Wall "B" at Gilman Street Undercrossing (1992) (Br. No. 33-RWB)

3. Caltrans as-built Log of Test Borings – University Avenue Overcrossing (1952) (Br. No. 33-23)

4. Caltrans as-built Log of Test Borings - Powell St UC (Widen) (1987) (Br. No. 33-20)

5. Caltrans as-built Log of Test Borings – Cutting Blvd Undercrossing (1989) (Br. No. 28-80)

6. Caltrans as-built Log of Test Borings – Cutting Blvd Undercrossing (Widen) (1975) (Br. No. 28-80S)

7. Caltrans Division of Engineering Services Geotechnical Services; 2009; Geotechnical Services Design Manual Version 1.0

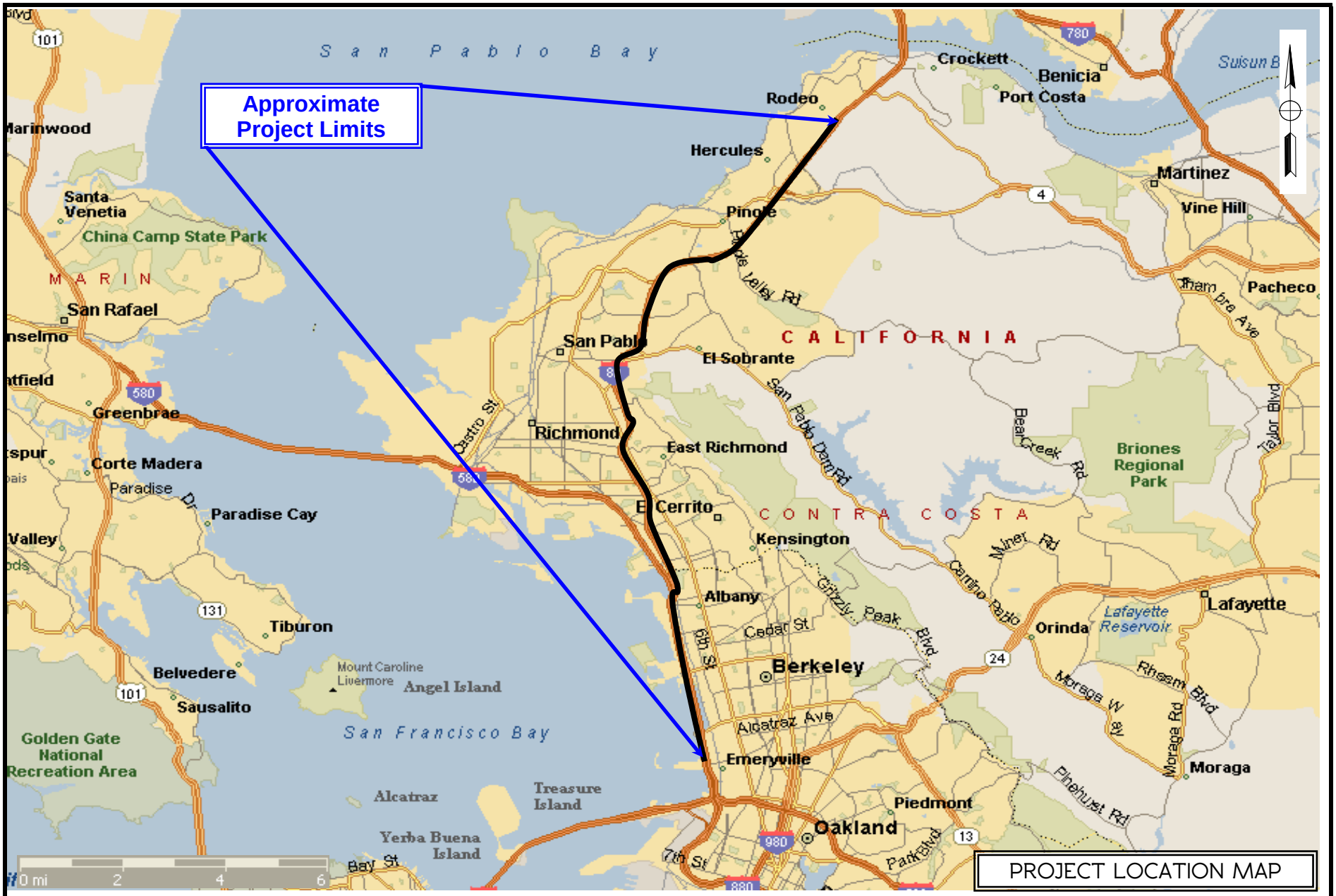
8. Caltrans Seismic Design Criteria (V 1.6), November 2010

9. R.W. Graymer, B.C. Moring, G.J. Saucedo, C.M. Wentworth, E.E. Brabb, and K.L. Knudsen; 2006; Geologic Map of the San Francisco Bay Region (USGS Map 2918)

10. State of California Department of Transportation Standard Specifications 2010

11. Caltrans Guidelines on Foundation Loading and Deformation Due to Liquefaction Induced Lateral Spreading, February 2011

12. Western Regional Climate Center/Educational and Travel Pages/Average Temperatures/Northern California (http://www.wrcc.dri.edu/summary/Climsmcca.html).



PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

JOB NO.: 2011-114-SGN	PLATE NO.: 1

LEGEND:
af - Artificial fill

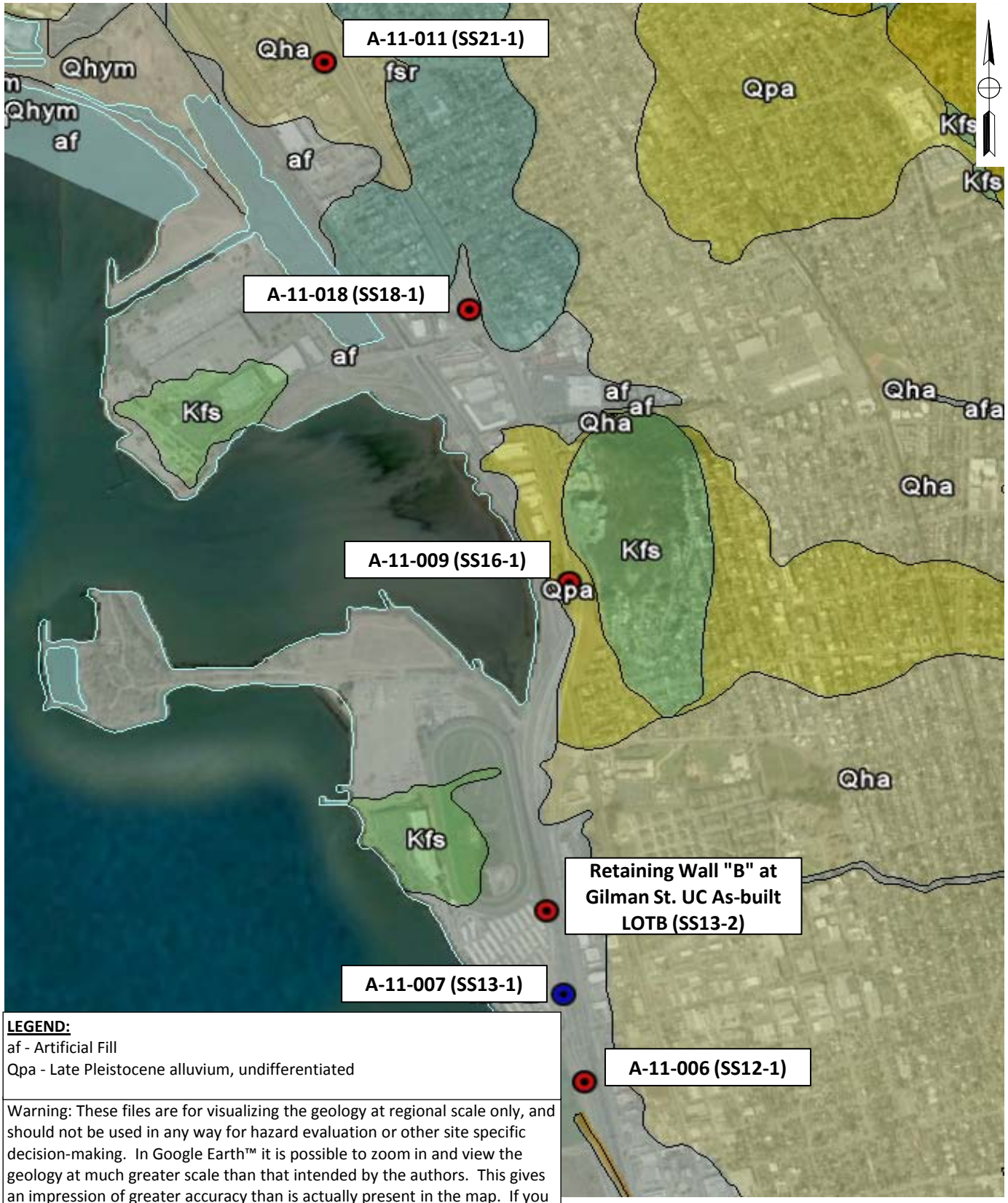
Warning: These files are for visualizing the geology at regional scale only, and should not be used in any way for hazard evaluation or other site specific decision-making. In Google Earth™ it is possible to zoom in and view the geology at much greater scale than that intended by the authors. This gives an impression of greater accuracy than is actually present in the map. If you can see individual buildings in Google Earth™ (closer than an "eye altitude" of about 10 miles) you have gone beyond the accuracy that is present in the map.

GEOLOGIC MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

JOB NO.: 2011-114-SGN | PLATE NO.: 2A



LEGEND:
af - Artificial Fill
Qpa - Late Pleistocene alluvium, undifferentiated

Warning: These files are for visualizing the geology at regional scale only, and should not be used in any way for hazard evaluation or other site specific decision-making. In Google Earth™ it is possible to zoom in and view the geology at much greater scale than that intended by the authors. This gives an impression of greater accuracy than is actually present in the map. If you can see individual buildings in Google Earth™ (closer than an "eye altitude" of about 10 miles) you have gone beyond the accuracy that is present in the

GEOLOGIC MAP

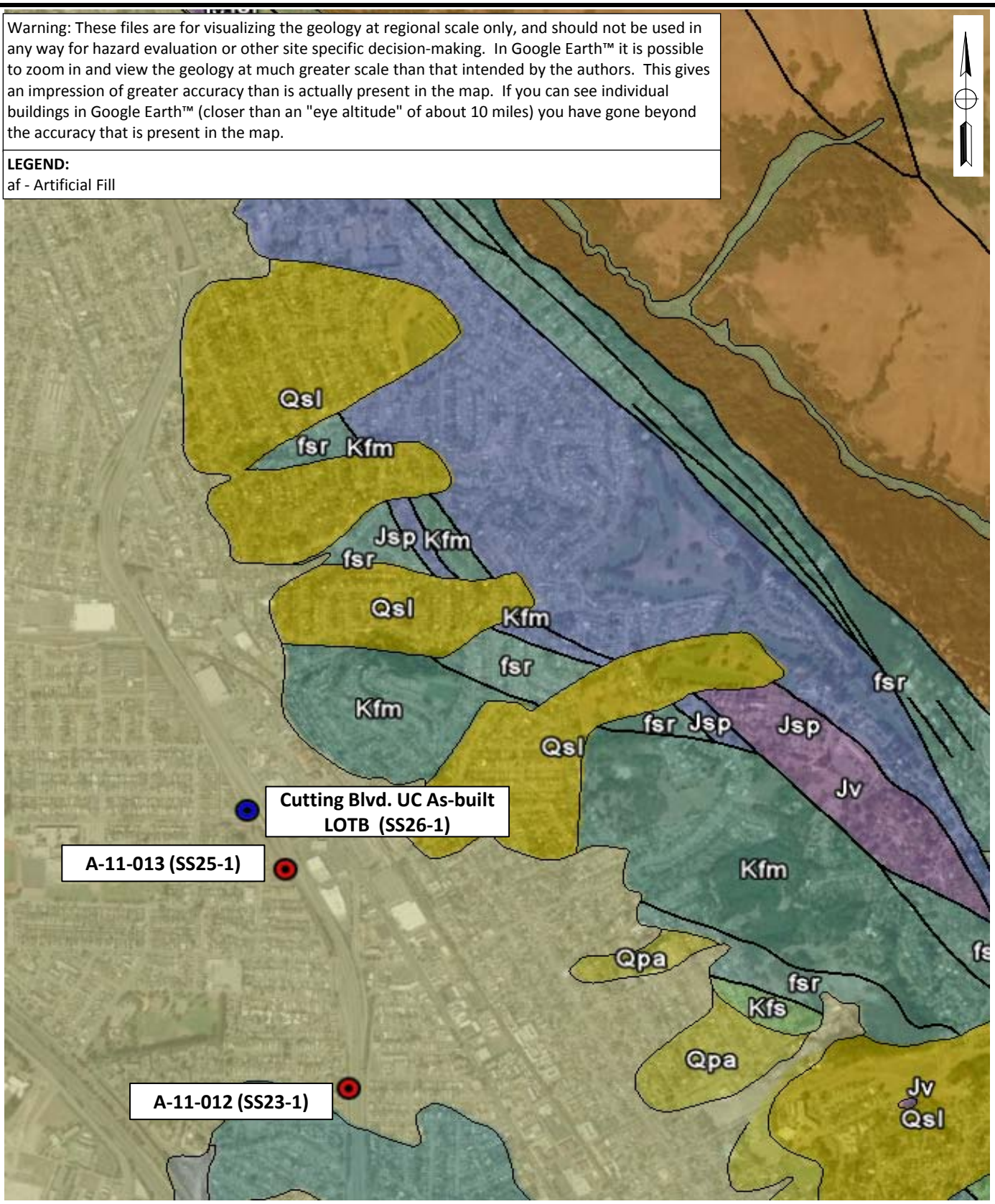
PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

JOB NO.: 2011-114-SGN | PLATE NO.: 2B

Warning: These files are for visualizing the geology at regional scale only, and should not be used in any way for hazard evaluation or other site specific decision-making. In Google Earth™ it is possible to zoom in and view the geology at much greater scale than that intended by the authors. This gives an impression of greater accuracy than is actually present in the map. If you can see individual buildings in Google Earth™ (closer than an "eye altitude" of about 10 miles) you have gone beyond the accuracy that is present in the map.

LEGEND:
af - Artificial Fill

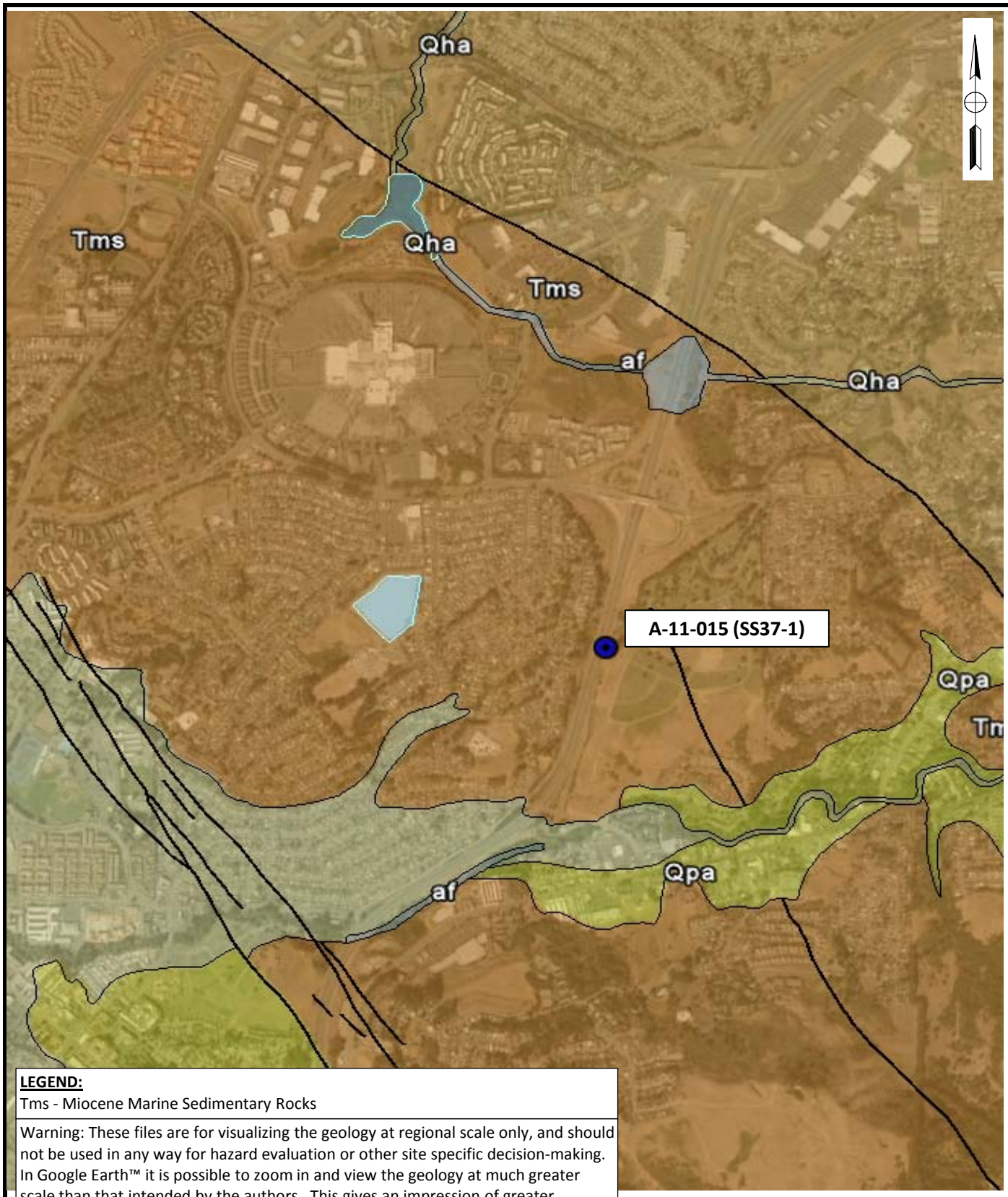


GEOLOGIC MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

JOB NO.: 2011-114-SGN | PLATE NO.: 2C



LEGEND:
Tms - Miocene Marine Sedimentary Rocks

Warning: These files are for visualizing the geology at regional scale only, and should not be used in any way for hazard evaluation or other site specific decision-making. In Google Earth™ it is possible to zoom in and view the geology at much greater scale than that intended by the authors. This gives an impression of greater accuracy than is actually present in the map. If you can see individual buildings in Google Earth™ (closer than an "eye altitude" of about 10 miles) you have gone beyond the accuracy that is present in the map.

GEOLOGIC MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

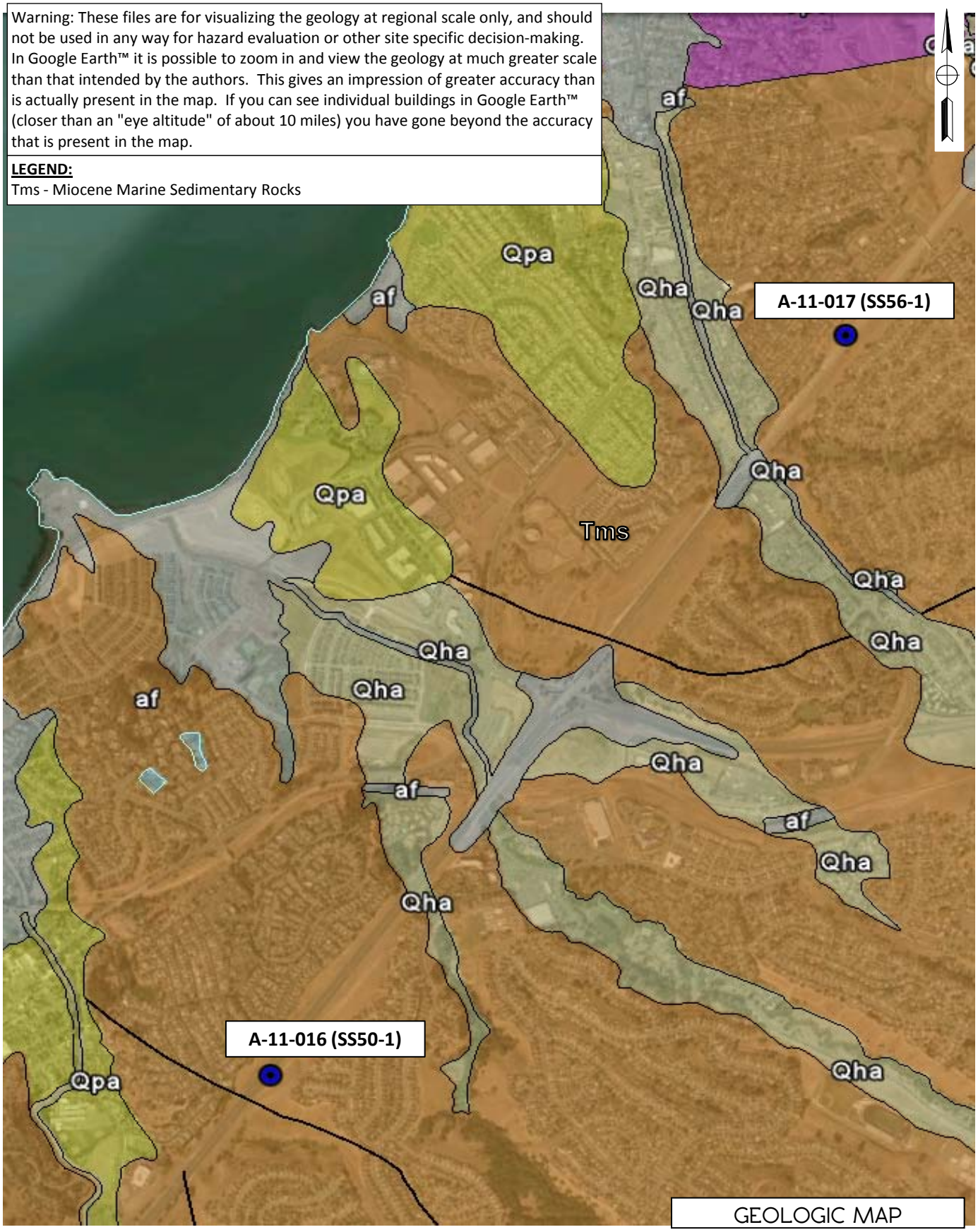
I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

JOB NO.: 2011-114-SGN | PLATE NO.: 2D

Warning: These files are for visualizing the geology at regional scale only, and should not be used in any way for hazard evaluation or other site specific decision-making. In Google Earth™ it is possible to zoom in and view the geology at much greater scale than that intended by the authors. This gives an impression of greater accuracy than is actually present in the map. If you can see individual buildings in Google Earth™ (closer than an "eye altitude" of about 10 miles) you have gone beyond the accuracy that is present in the map.

LEGEND:

Tms - Miocene Marine Sedimentary Rocks

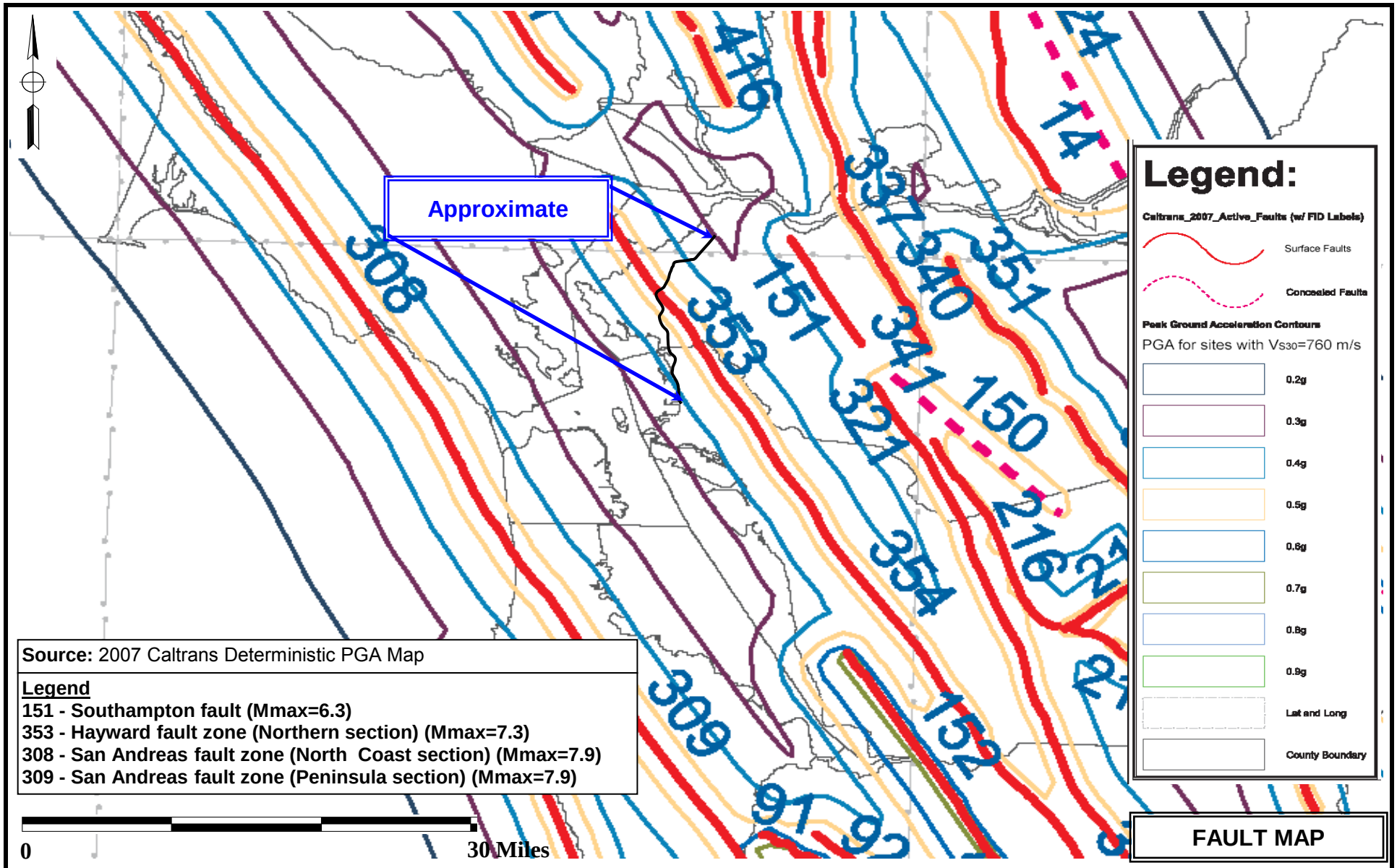


GEOLOGIC MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

JOB NO.: 2011-114-SGN | PLATE NO.: 2E



Source: 2007 Caltrans Deterministic PGA Map

Legend

151 - Southampton fault (Mmax=6.3)
353 - Hayward fault zone (Northern section) (Mmax=7.3)
308 - San Andreas fault zone (North Coast section) (Mmax=7.9)
309 - San Andreas fault zone (Peninsula section) (Mmax=7.9)

FAULT MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

JOB NO.: 2011-114-SGN | **PLATE NO.: 3**

CORE SAMPLES (A-11-017)

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

JOB NO.: 2011-114-SGN | PLATE NO.: 4

APPENDIX A

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1		

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

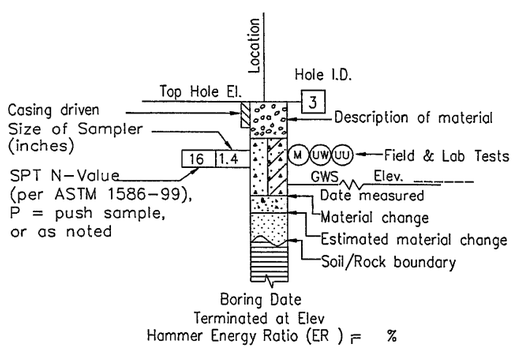
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R	Rotary drilled diamond core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778)
	O	Other (note on LOTB)

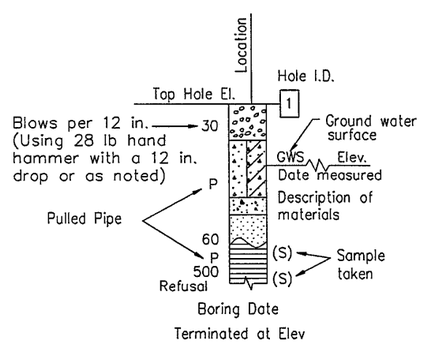
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

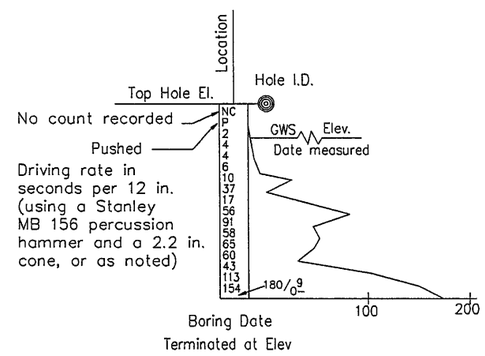
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 – 0.25	0.25 – 0.5	0.12 – 0.25	0.12 – 0.25
Medium Stiff	0.25 – 0.5	0.5 – 1	0.25 – 0.5	0.25 – 0.5
Stiff	0.5 – 1	1 – 2	0.5 – 1	0.5 – 1
Very Stiff	1 – 2	2 – 4	1 – 2	1 – 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



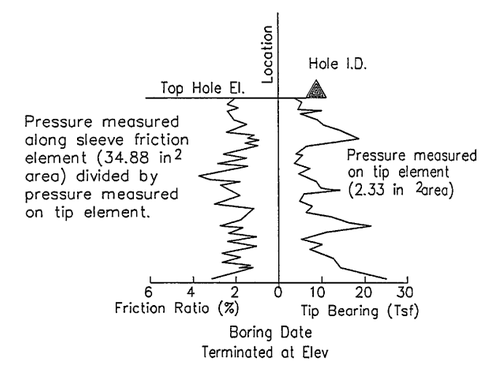
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER	BRIDGE NO. –	I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011			POST MILES –	LOG OF TEST BORINGS

GS LOTB SOIL LEGEND SHEET 1 (ENGLISH) (REV. 07/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES → REVISION DATES 07/01/11 9/28/11 SHEET OF

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1		

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GM	SILTY GRAVEL SILTY GRAVEL with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SM	SILTY SAND SILTY SAND with GRAVEL
SC	CLAYEY SAND CLAYEY SAND with GRAVEL
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL
PT	PEAT
	COBBLES COBBLES and BOULDERS BOULDERS

Graphic/Symbol	Group Names
CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (UC) Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 – 5
Loose	5 – 10
Medium Dense	10 – 30
Dense	30 – 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% – 10%
Little	15% – 25%
Some	30% – 45%
Mostly	50% – 100%

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 – 12
Gravel	Coarse	3/4 – 3
	Fine	1/5 – 3/4
Sand	Coarse	1/16 – 1/5
	Medium	1/64 – 1/16
	Fine	1/300 – 1/64
Silt and Clay		Less than 1/300

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

DRAWN BY: L. TRAN
CHECKED BY: G. PARIKH

A. BAKANE
FIELD INVESTIGATION BY:
DATE: APRIL & MAY 2011

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

G. PARIKH
PROJECT ENGINEER

BRIDGE NO. –
POST MILES –

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT

LOG OF TEST BORINGS

GS LOTB SOIL LEGEND SHEET 2 (ENGLISH) (REV. 07/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 07/01/11 9/28/11

SHEET X OF X

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1	----	----

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

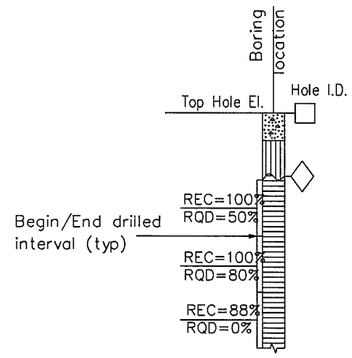
PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

PERCENT CORE RECOVERY (REC) + ROCK QUALITY DESIGNATION (RQD)

$$REC = \frac{\sum \text{Length of the recovered core pieces (in.)}}{\text{Total length of core run (in.)}} \times 100\%$$

$$RQD = \frac{\sum \text{Length of intact core pieces} \quad 4\ \text{in.}}{\text{Total length of core run (in.)}} \times 100\%$$

RQD* Indicates soundness criteria not met.



BEDDING SPACING

Description	Thickness / Spacing
Massive	Greater than 10 ft
Very Thickly Bedded	3 ft – 10 ft
Thickly Bedded	1 ft – 3 ft
Moderately Bedded	4 in. – 1 ft
Thinly Bedded	1 in. – 4 in.
Very Thinly Bedded	1/4 in. – 1 in.
Laminated	Less than 1/4 in.

LEGEND OF ROCK MATERIALS

- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

ROCK HARDNESS

Description	Criteria
Extremely Hard	Cannot be scratched with a pocketknife or sharp pick. Can only be chipped with repeated heavy hammer blows.
Very Hard	Cannot be scratched with a pocketknife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Can be scratched with a pocketknife or sharp pick with difficulty (heavy pressure). Breaks with heavy hammer blows.
Moderately Hard	Can be scratched with pocketknife or sharp pick with light or moderate pressure. Breaks with moderate hammer blows.
Moderately Soft	Can be grooved 1/16 in. deep with a pocketknife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Can be grooved or gouged easily by a pocketknife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Can be readily indented, grooved or gouged with fingernail, or carved with a pocketknife. Breaks with light manual pressure.

FRACTURE DENSITY

Description	Observed Fracture Density
Unfractured	No fractures.
Very Slightly Fractured	Core lengths greater than 3 ft.
Slightly Fractured	Core lengths mostly from 1 to 3 ft.
Moderately Fractured	Core lengths mostly from 4 in. to 1 ft.
Intensely Fractured	Core lengths mostly from 1 to 4 in.
Very Intensely Fractured	Mostly chips and fragments.

WEATHERING DESCRIPTORS FOR INTACT ROCK

Description	Diagnostic Features					General Characteristics
	Chemical Weathering–Discoloration and/or Oxidation		Mechanical Weathering–Grain Boundary Conditions (Disaggregation) Primarily for Granitics and Some Coarse–Grained Sediments	Texture and Leaching		
	Body of Rock	Fracture Surfaces		Texture	Leaching	
Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change	No leaching	Hammer rings when crystalline rocks are struck.
Slightly Weathered	Discoloration or oxidation is limited to surface of, or short distance from, fractures; some feldspar crystals are dull.	Minor to complete discoloration or oxidation of most surfaces.	No visible separation, intact (tight).	Preserved	Minor leaching of some soluble minerals.	Hammer rings when crystalline rocks are struck. Body of rock not weakened.
Moderately Weathered	Discoloration or oxidation extends from fractures usually throughout; Fe–Mg minerals are "rusty," feldspar crystals are "cloudy."	All fracture surfaces are discolored or oxidized.	Partial separation of boundaries visible.	Generally preserved	Soluble minerals may be mostly leached.	Hammer does not ring when rock is struck. Body of rock is slightly weakened.
Intensely Weathered	Discoloration or oxidation throughout; all feldspars and Fe–Mg minerals are altered to clay to some extent; or chemical alteration produces in–situ disaggregation, see grain boundary conditions.	All fracture surfaces are discolored or oxidized, surfaces friable.	Partial separation, rock is friable; in semiarid conditions granitics are disaggregated.	Texture altered by chemical disintegration (hydration, argillation).	Leaching of soluble minerals may be complete.	Dull sound when struck with hammer, usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness such as incipient or hairline fractures, or veinlets. Rock is significantly weakened.
Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe–Mg minerals are completely altered to clay.		Complete separation of grain boundaries (disaggregated).	Resembles a soil, partial or complete remnant rock structure may be preserved; leaching of soluble minerals usually complete.		Can be granulated by hand. Resistant minerals such as quartz may be present as "stringers" or "dikes."

DESIGN OVERSIGHT

SIGN OFF DATE

DRAWN BY L. TRAN

CHECKED BY G. PARIKH

A. BAKANE
FIELD INVESTIGATION BY:
DATE: APRIL & MAY 2011

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

G. PARIKH
PROJECT ENGINEER

BRIDGE NO. –
POST MILES –

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT

LOG OF TEST BORINGS

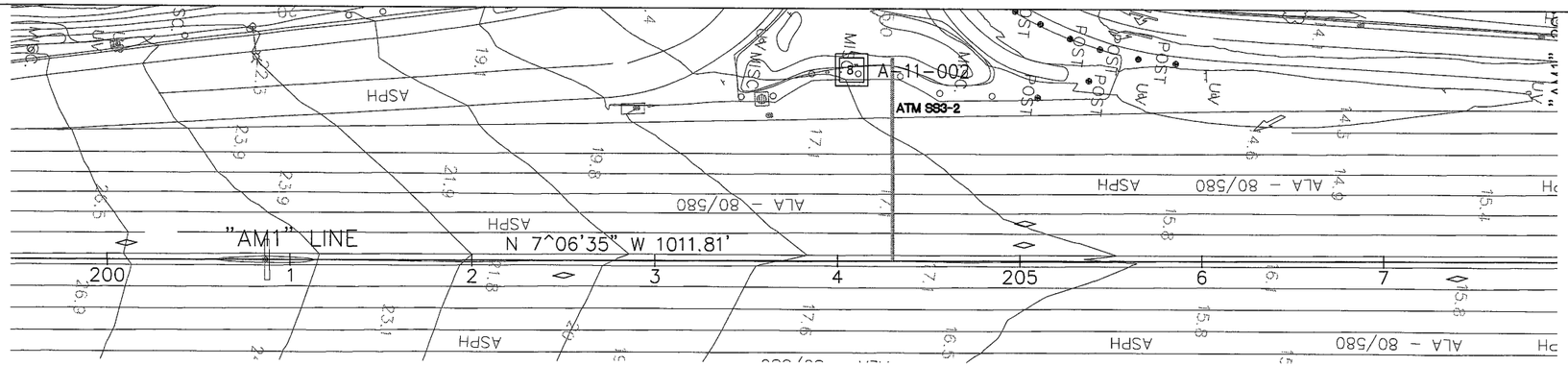
GS LOTB ROCK LEGEND SHEET (ENGLISH) (REV. 07/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 07/01/11 9/28/11 — SHEET — OF —



PLAN
1"=40'

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1		

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

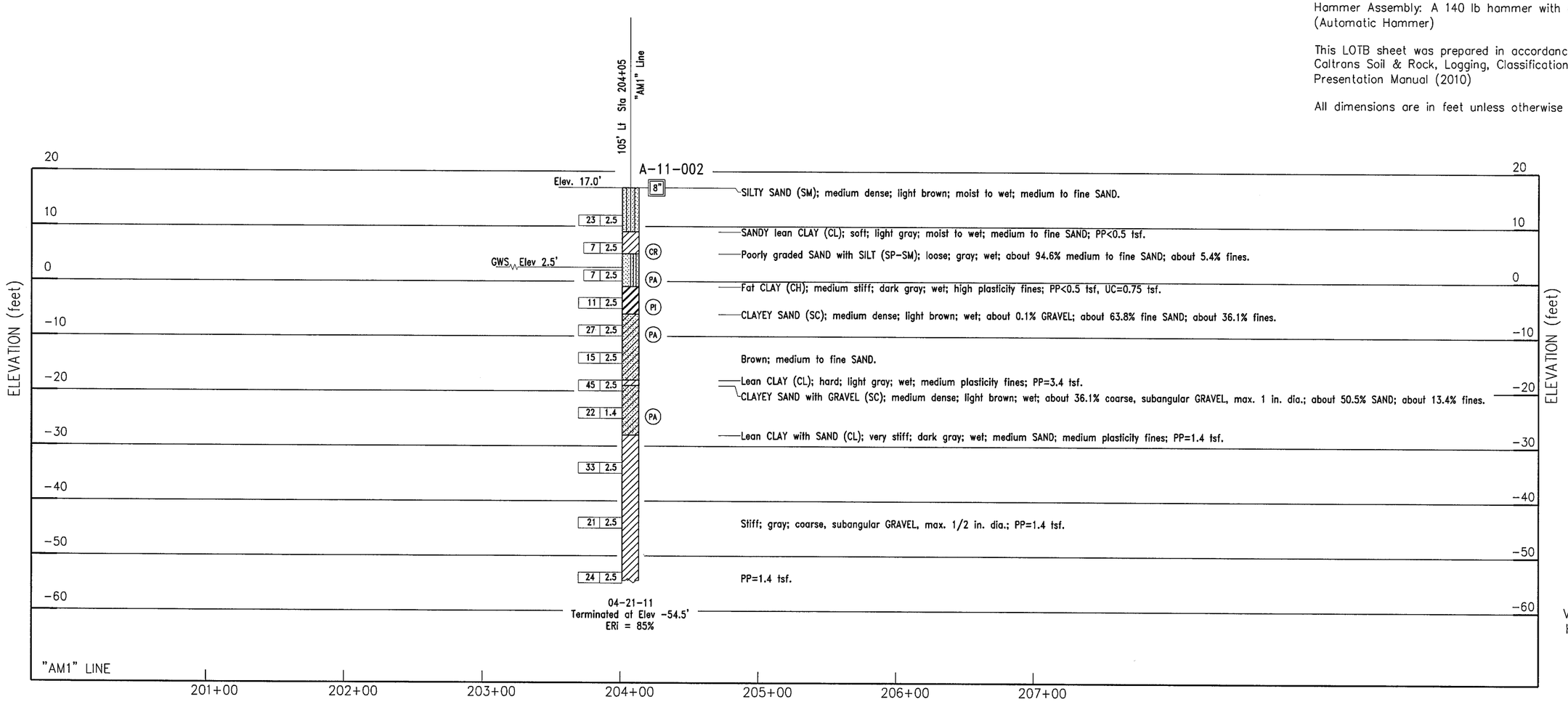
PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

BENCH MARK
Elev 15.5581 MAG
N 2145257
E 6040396

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (2010)

All dimensions are in feet unless otherwise shown



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS3-2

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER	BRIDGE NO. –	I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011			POST MILES –	LOG OF TEST BORINGS

GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 07/01/11 9/28/11

REVISION DATES — SHEET — OF

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1	----	----

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

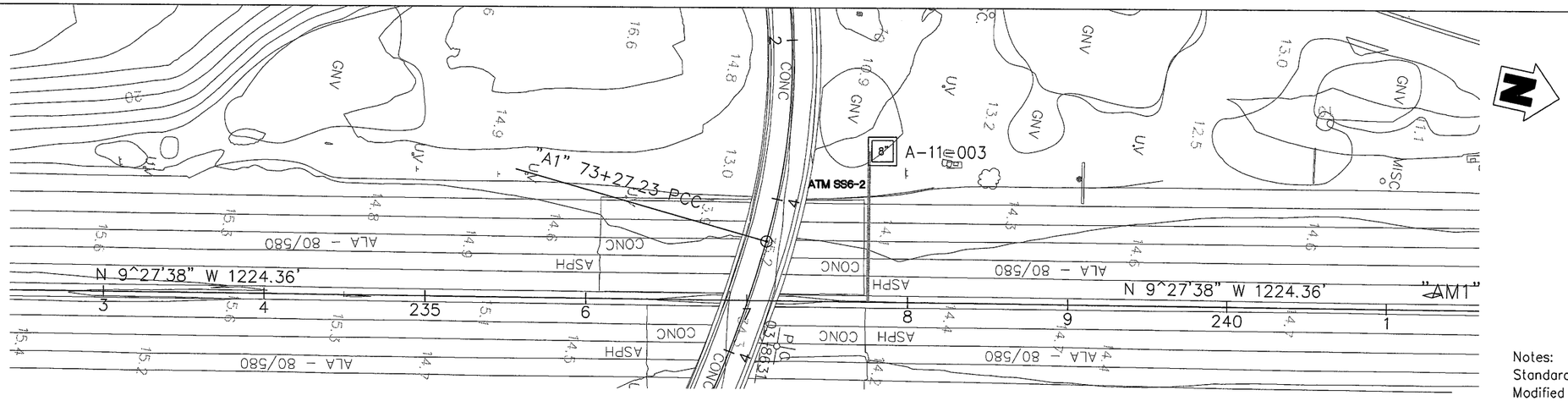
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131



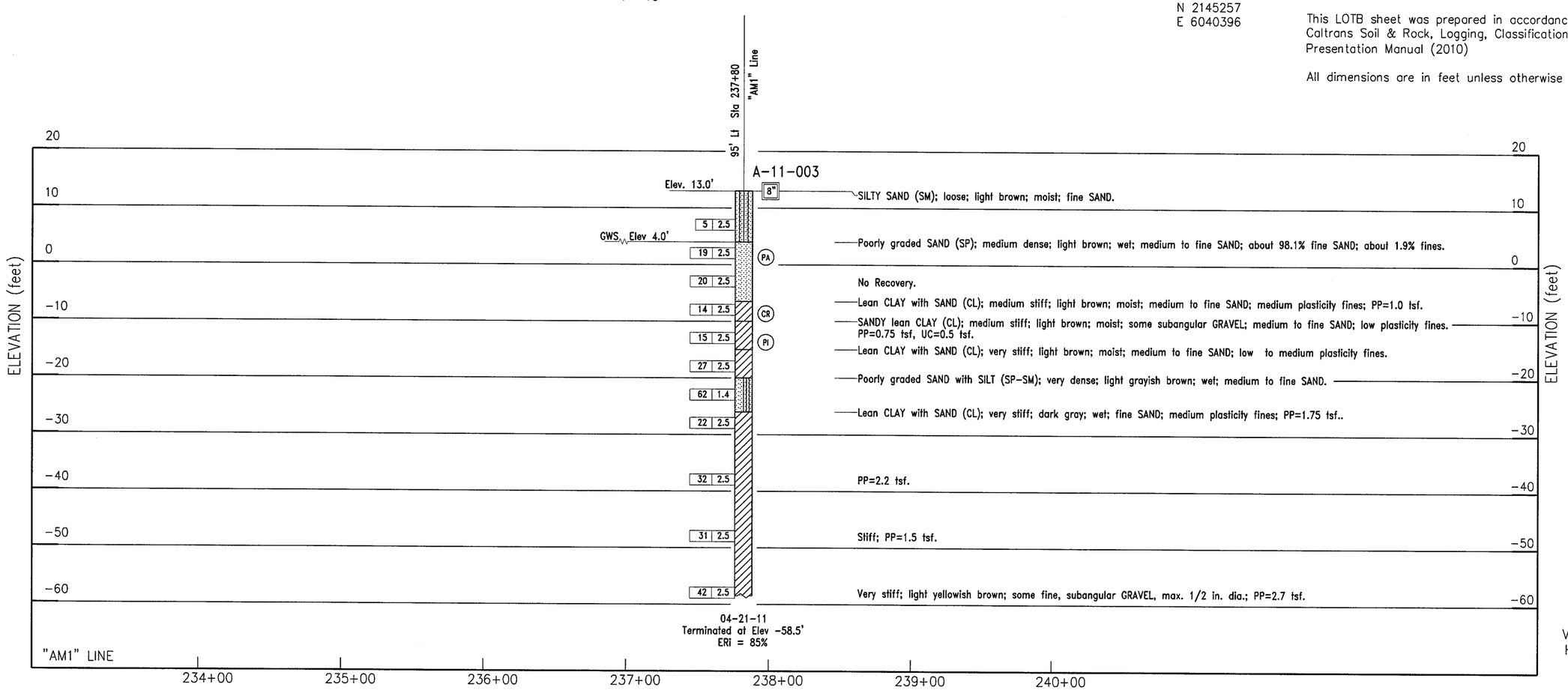
PLAN
1"=40'

BENCH MARK
Elev 15.5581 MAG
N 2145257
E 6040396

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (2010)

All dimensions are in feet unless otherwise shown



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS6-2

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER	BRIDGE NO. –	I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011			POST MILES –	LOG OF TEST BORINGS

GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)

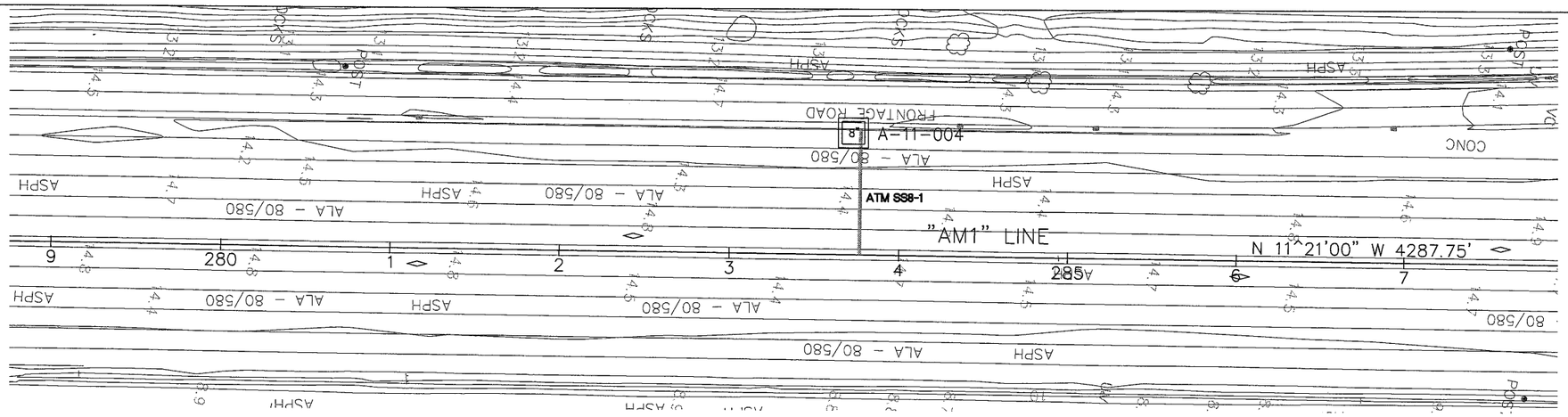
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 07/01/11 9/28/11

SHEET OF



PLAN
1"=40'

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1	----	----

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

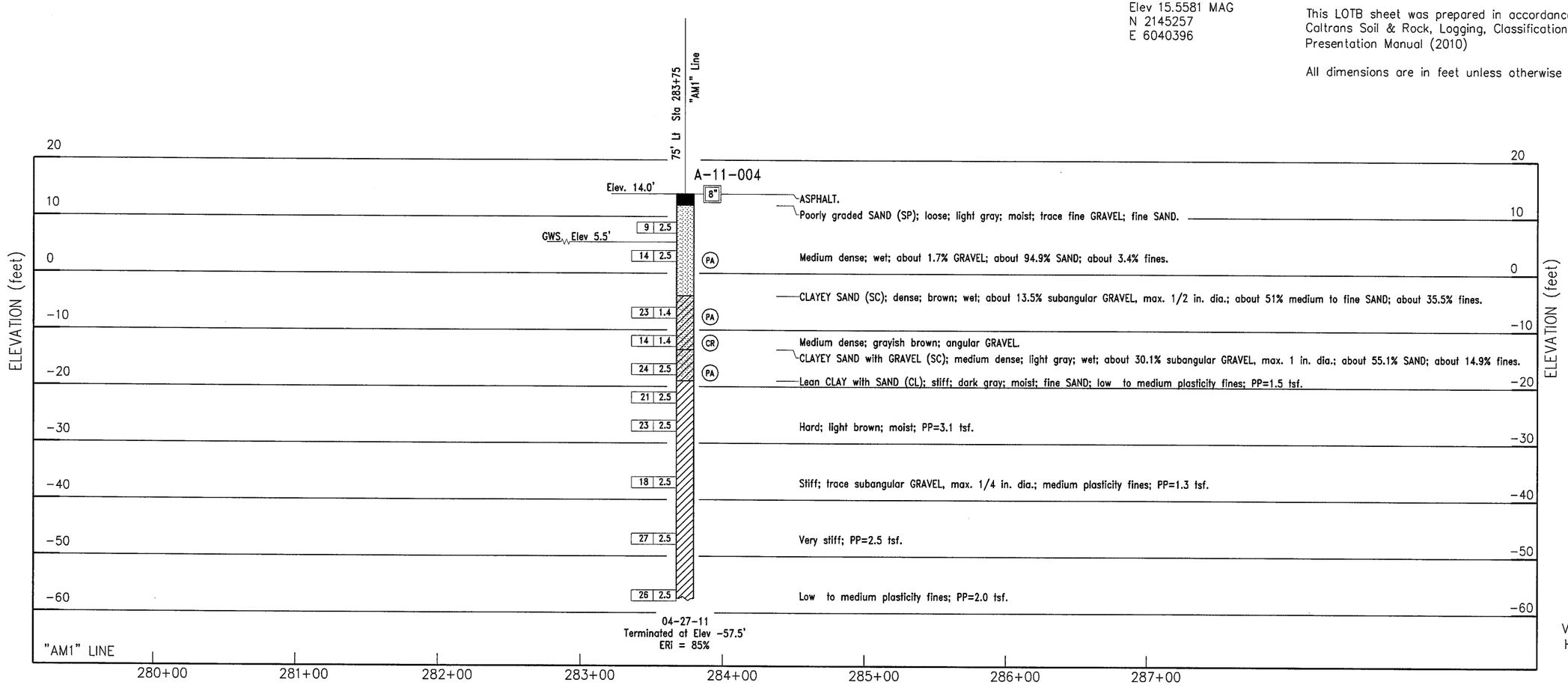
PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

BENCH MARK
Elev 15.5581 MAG
N 2145257
E 6040396

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (2010)

All dimensions are in feet unless otherwise shown



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS8-1

DESIGN OVERSIGHT	DRAWN BY: L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER	BRIDGE NO. –
SIGN OFF DATE	CHECKED BY: G. PARIKH	DATE: APRIL & MAY 2011			POST MILES –

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT

LOG OF TEST BORINGS

GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 07/01/11 9/28/11

REVISION DATES — SHEET — OF

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1	—	—

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

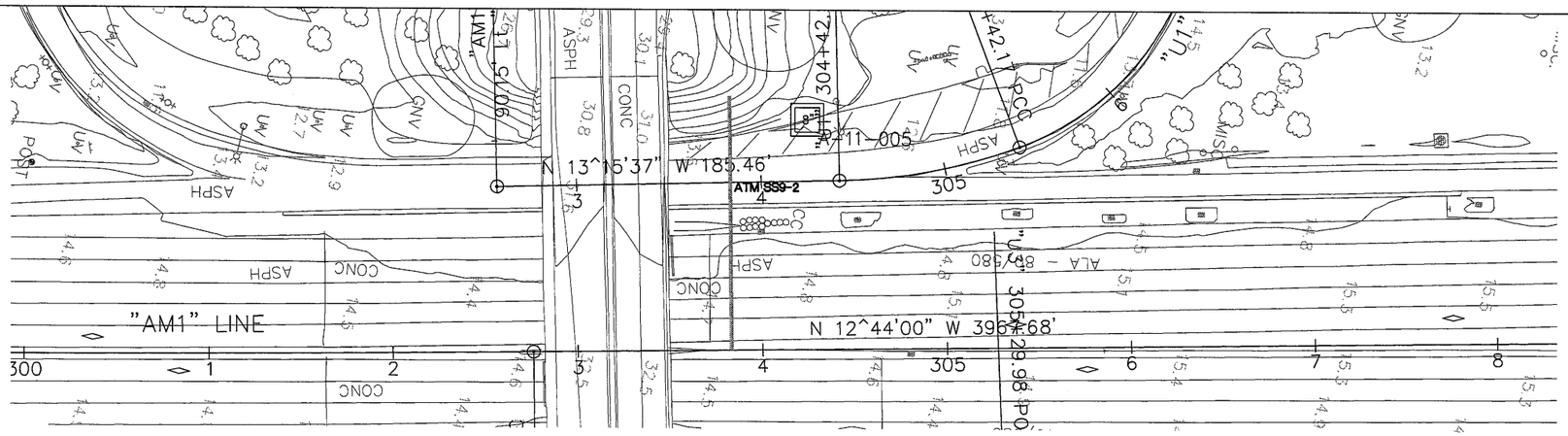
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131



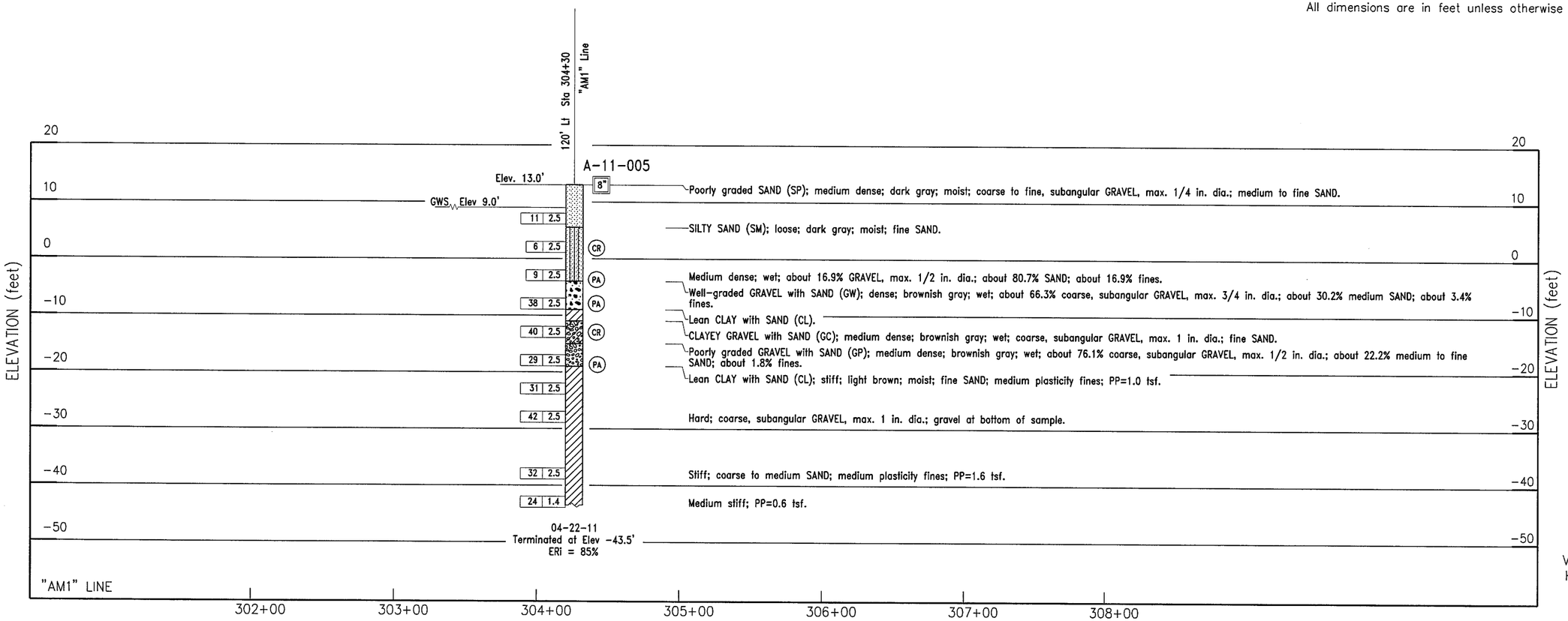
PLAN
1"=40'

BENCH MARK
Elev 15.5581 MAG
N 2145257
E 6040396

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (2010)

All dimensions are in feet unless otherwise shown



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS9-2

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011		

BRIDGE NO. —
POST MILES —

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
LOG OF TEST BORINGS

GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 07/01/11 9/28/11

REVISION DATES — SHEET — OF

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1	----	----

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

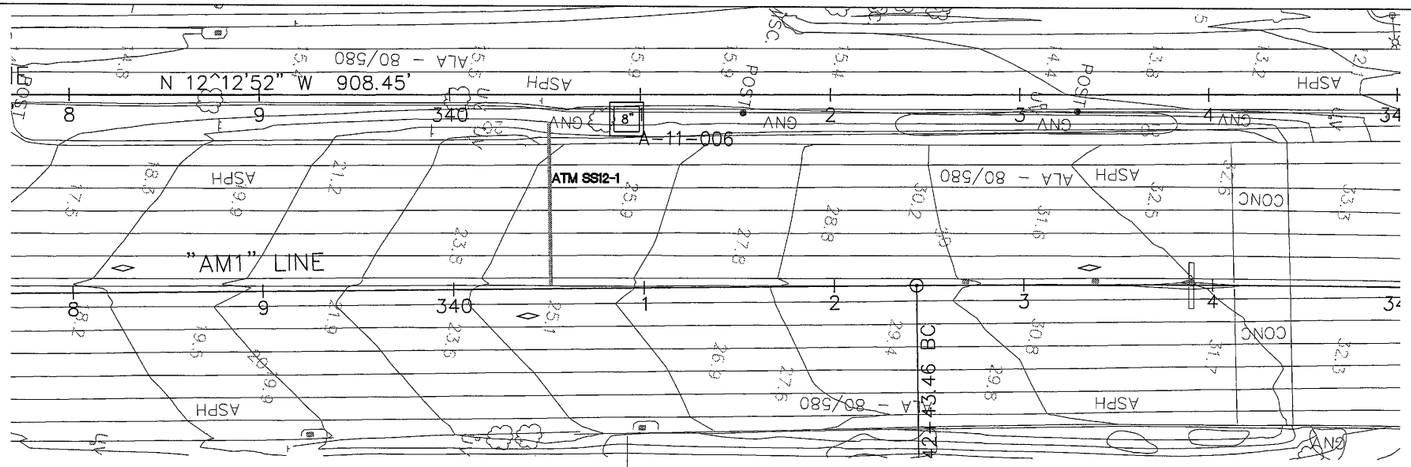
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131



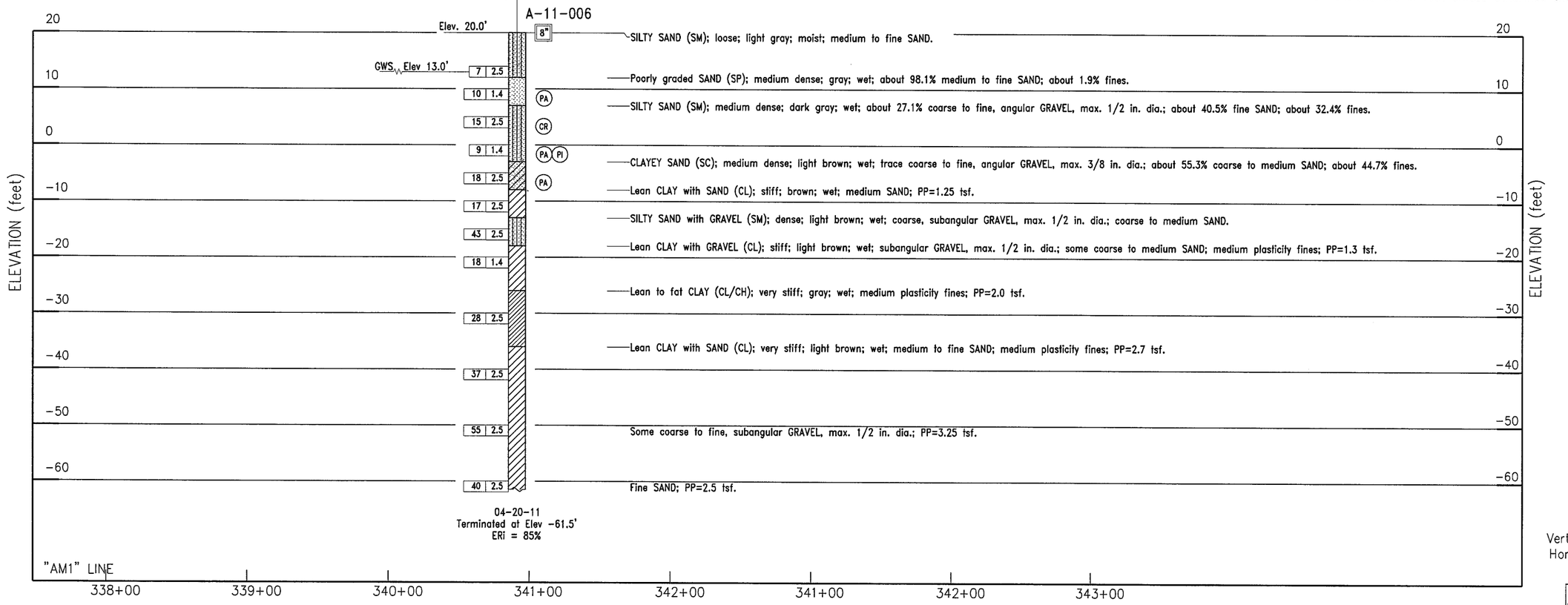
PLAN
1"=40'

BENCH MARK
Elev 11.60742 MAG
N 2142963
E 6040297

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (2010)

All dimensions are in feet unless otherwise shown



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS12-1

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER	BRIDGE NO. –
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011			POST MILES –

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT

LOG OF TEST BORINGS

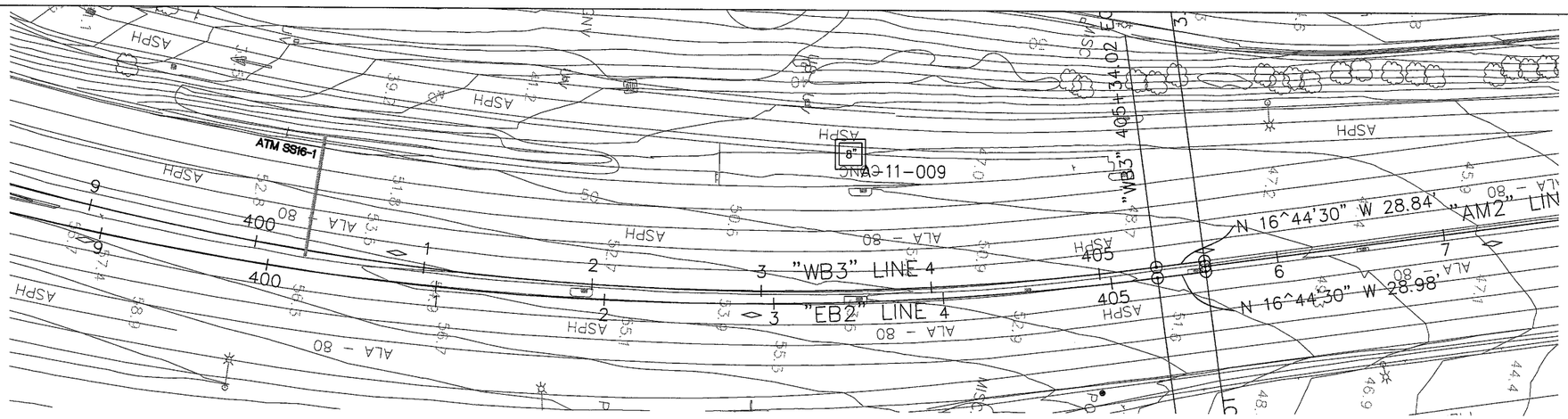
GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 07/01/11 9/28/11

REVISION DATES — SHEET — OF



PLAN
1"=40'

BENCH MARK
Elev 11.60742 MAG
N 2142963
E 6040297

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1	----	----

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

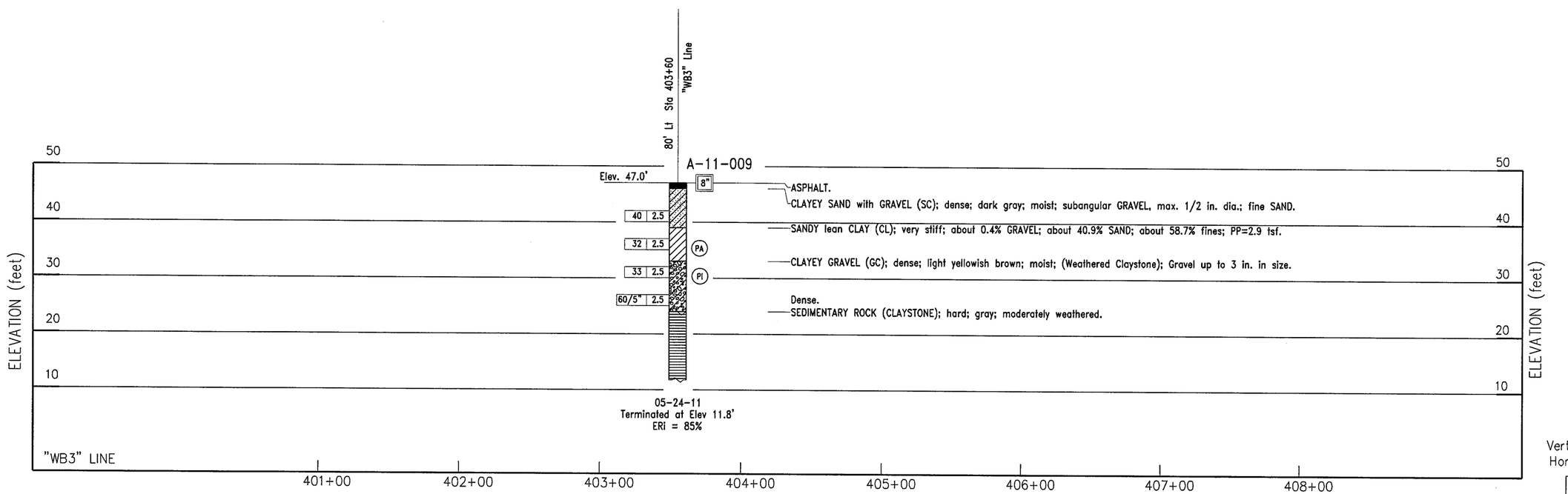
PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (2010)

Groundwater was not encountered during drilling.

All dimensions are in feet unless otherwise shown



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS16-1

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011

GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

PREPARED FOR THE
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

G. PARIKH
PROJECT ENGINEER

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

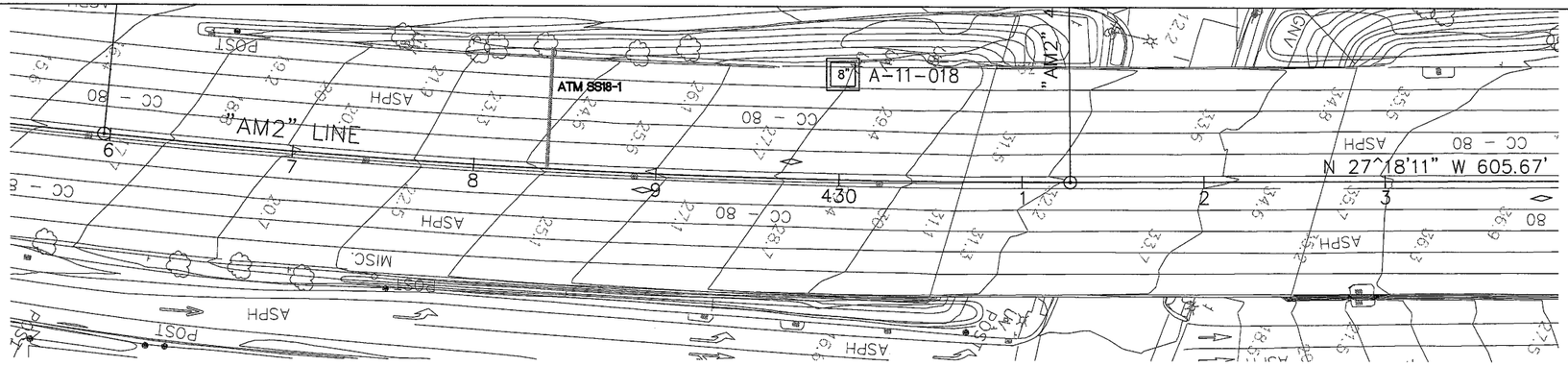
BRIDGE NO. –
POST MILES –

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 07/01/11 9/28/11

REVISION DATES — SHEET — OF

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT

LOG OF TEST BORINGS



PLAN
1"=40'

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1	----	----

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

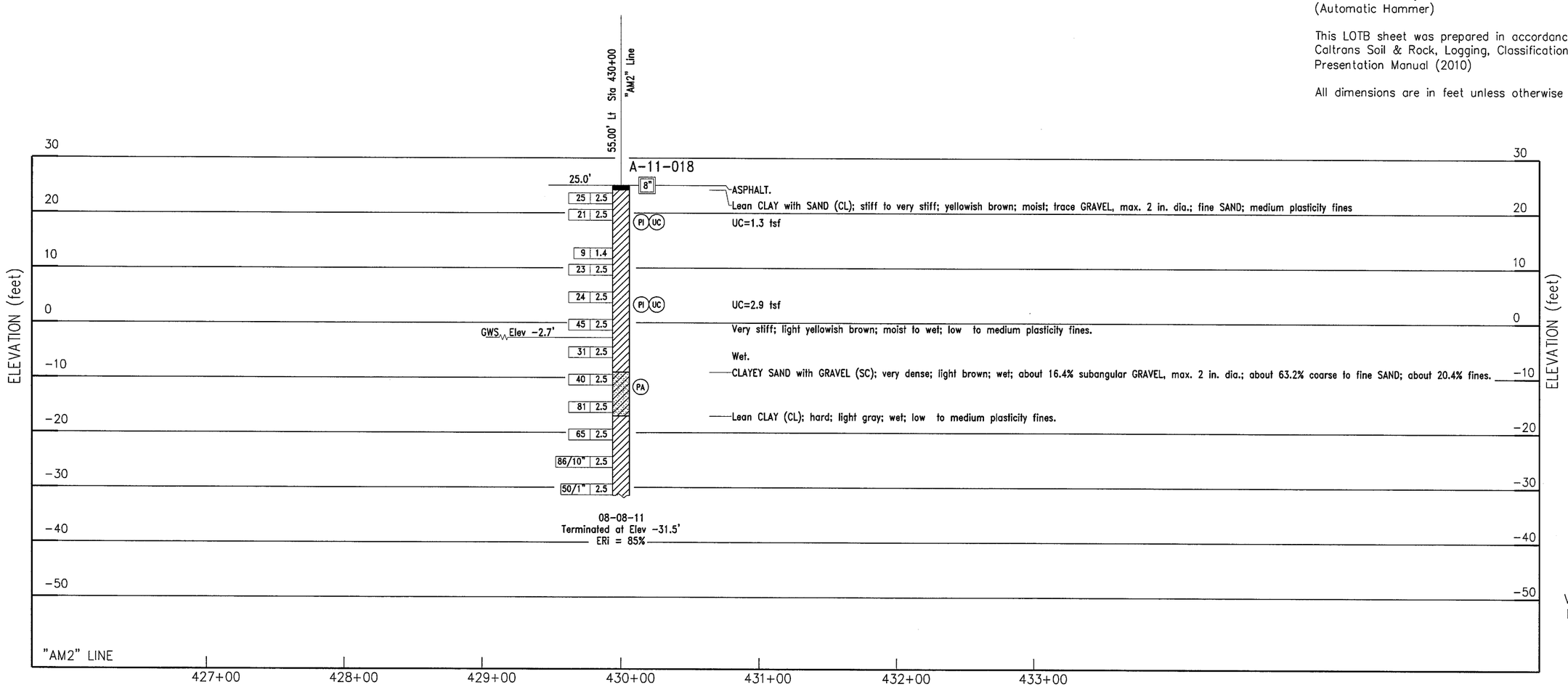
PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

BENCH MARK
Elev 13.2594 MAG
N 2135559
E 6041789

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (2010)

All dimensions are in feet unless otherwise shown



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS18-1

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER	BRIDGE NO. –	I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011			POST MILES –	LOG OF TEST BORINGS

GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 07/01/11 9/28/11

SHEET OF

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1	----	----

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

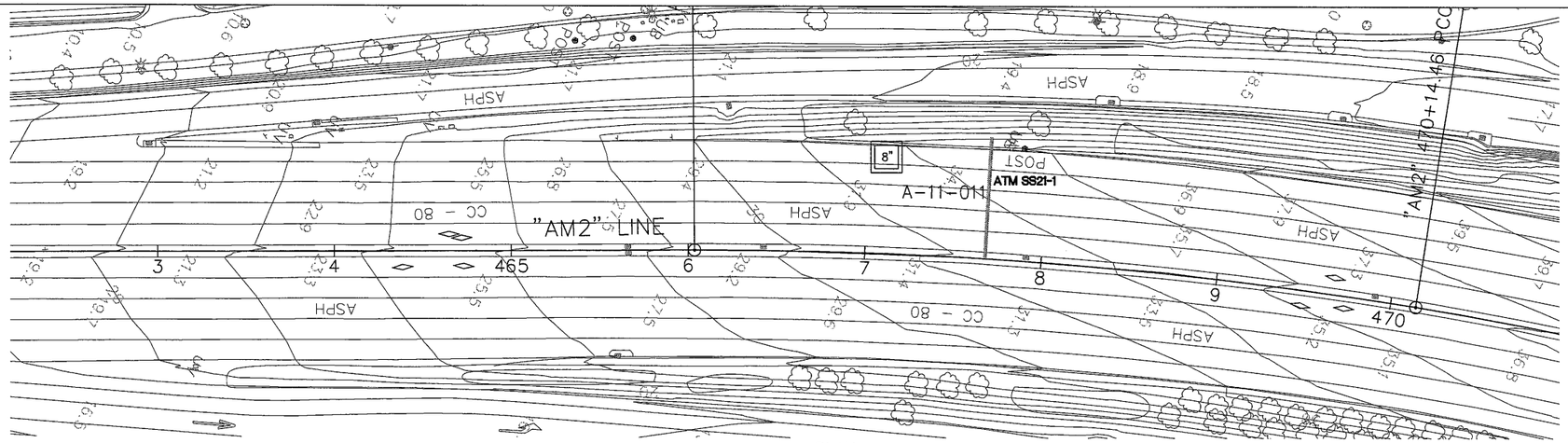
PROFESSIONAL ENGINEER — REGISTERED — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131



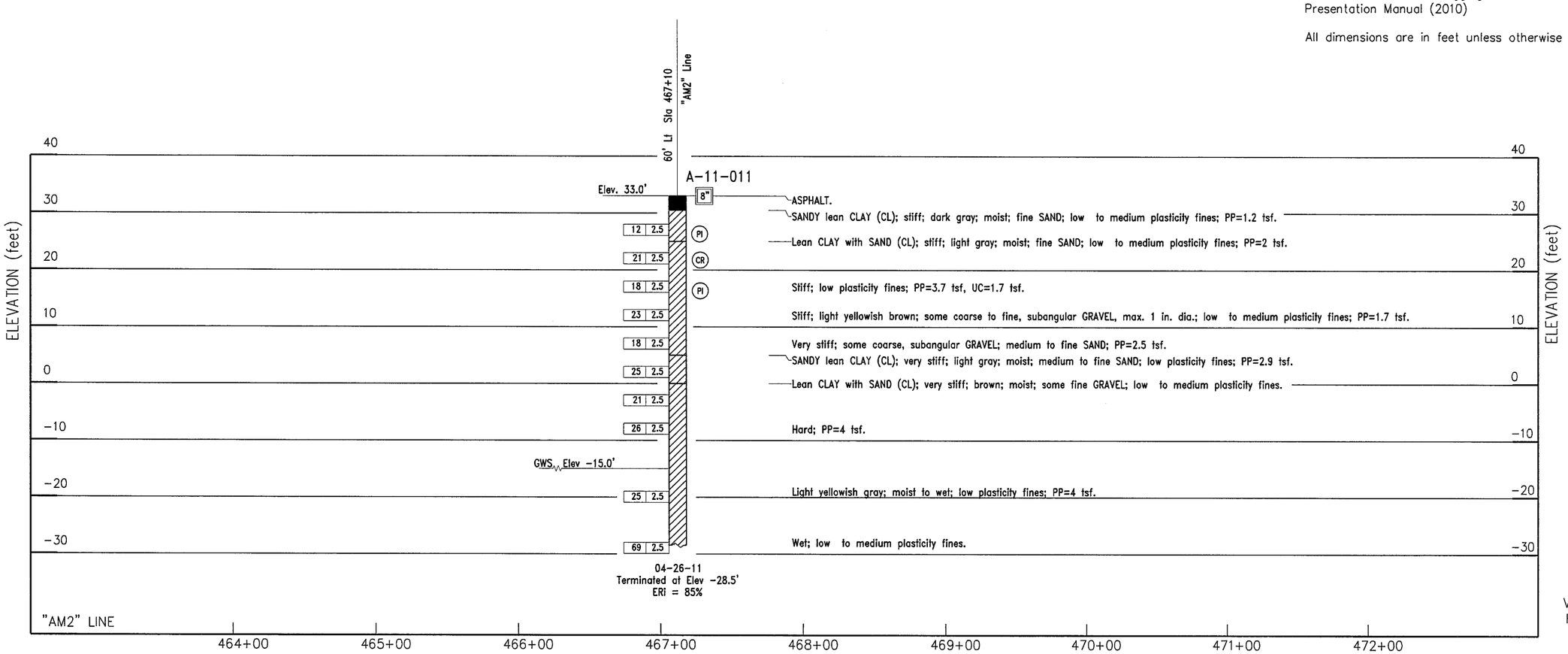
PLAN
1"=40'

BENCH MARK
Elev 13.2594 MAG
N 2135559
E 6041789

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (2010)

All dimensions are in feet unless otherwise shown



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS21-1

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER	BRIDGE NO. –
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011			POST MILES –

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT

LOG OF TEST BORINGS

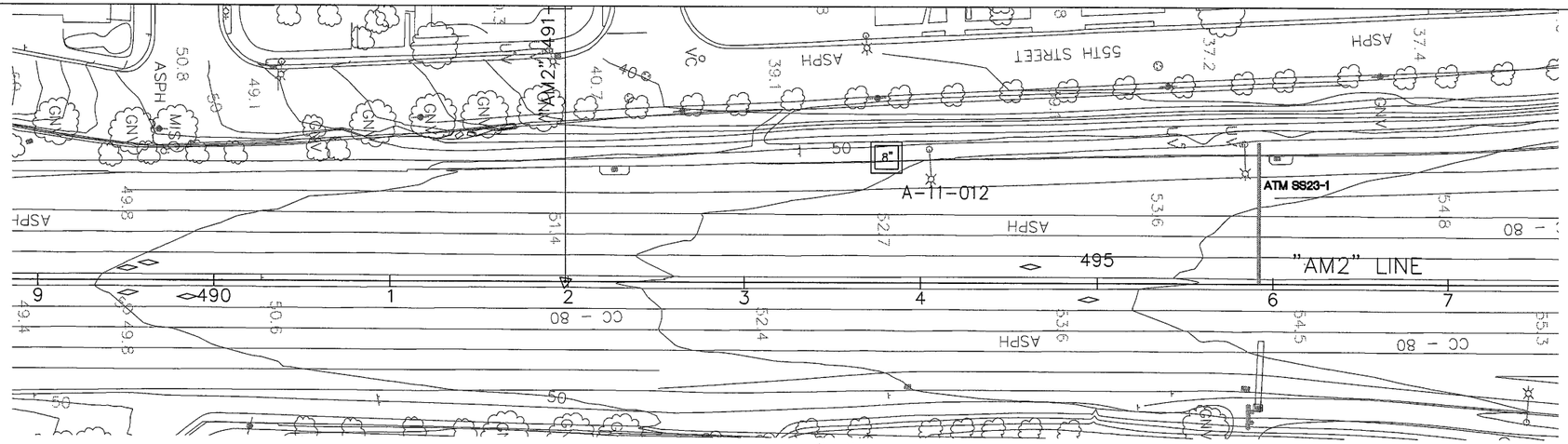
GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES → REVISION DATES 07/01/11 9/28/11

SHEET OF



PLAN
1"=40'

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1	----	----

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

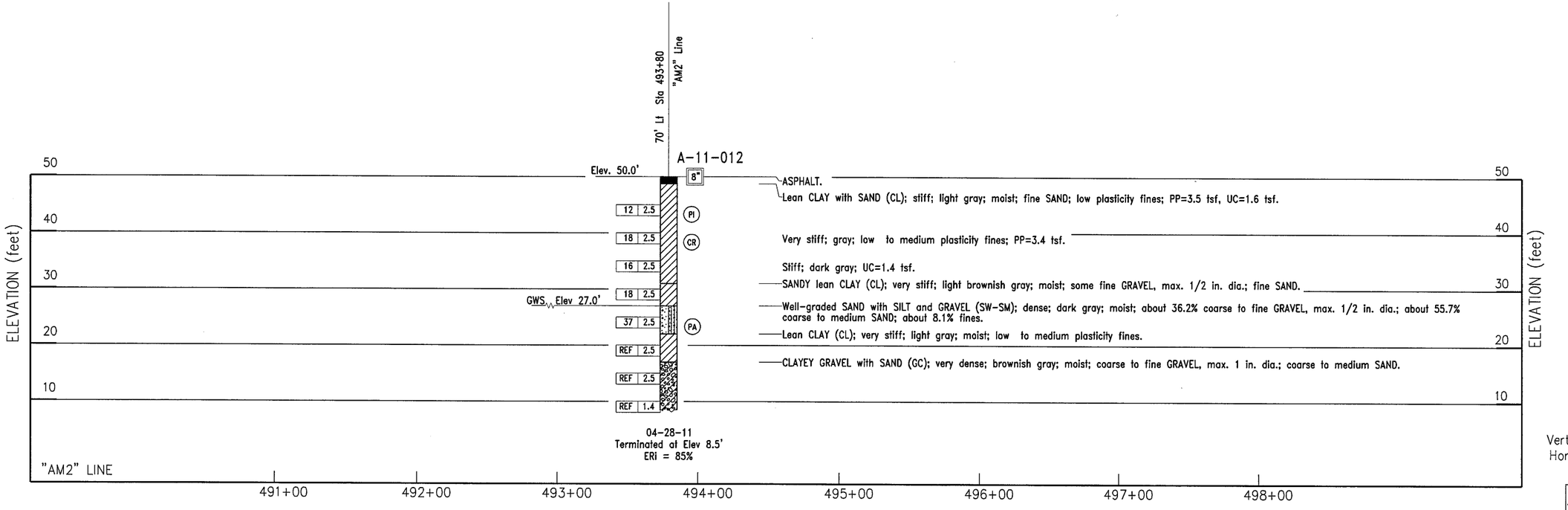
PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

BENCH MARK
Elev 11 MAG
N 2142129
E 6037331

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (2010)

All dimensions are in feet unless otherwise shown



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS23-1

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011		

BRIDGE NO. --
POST MILES --

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
LOG OF TEST BORINGS

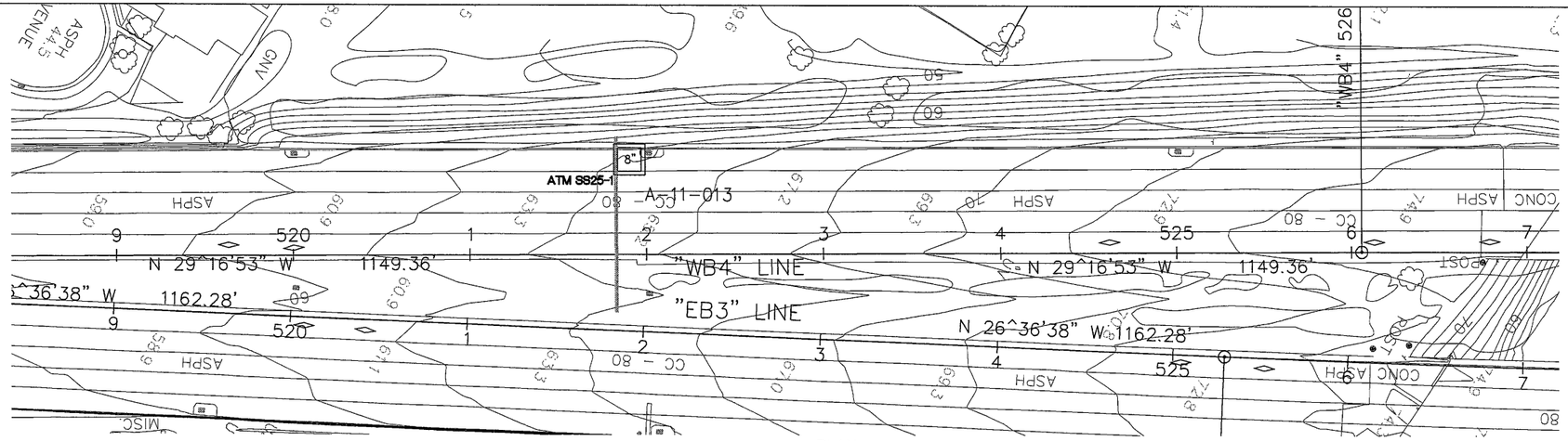
GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 07/01/11 9/28/11

REVISION DATES — SHEET — OF



PLAN
1"=40'

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1	----	----

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

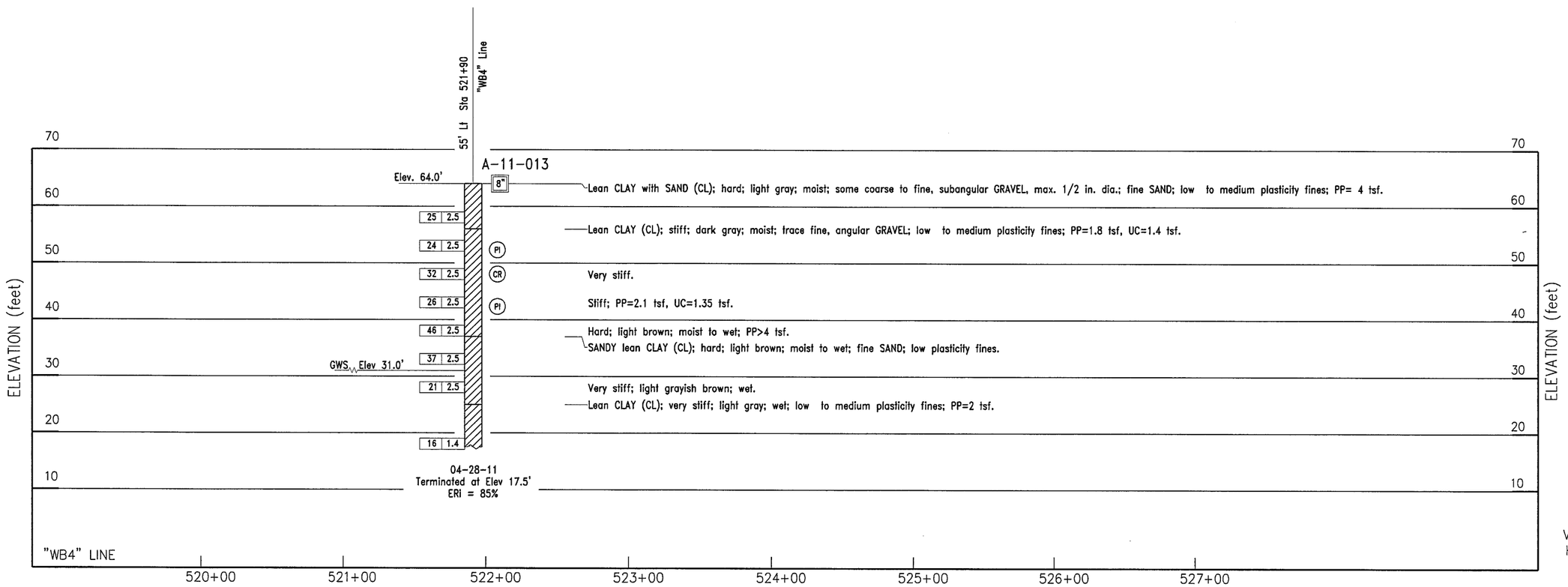
PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

BENCH MARK
Elev 11 MAG
N 2142129
E 6037331

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (2010)

All dimensions are in feet unless otherwise shown



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS25-1

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011		

BRIDGE NO. –
POST MILES –

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT

LOG OF TEST BORINGS

GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 07/01/11 9/28/11

SHEET OF

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1	----	----

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

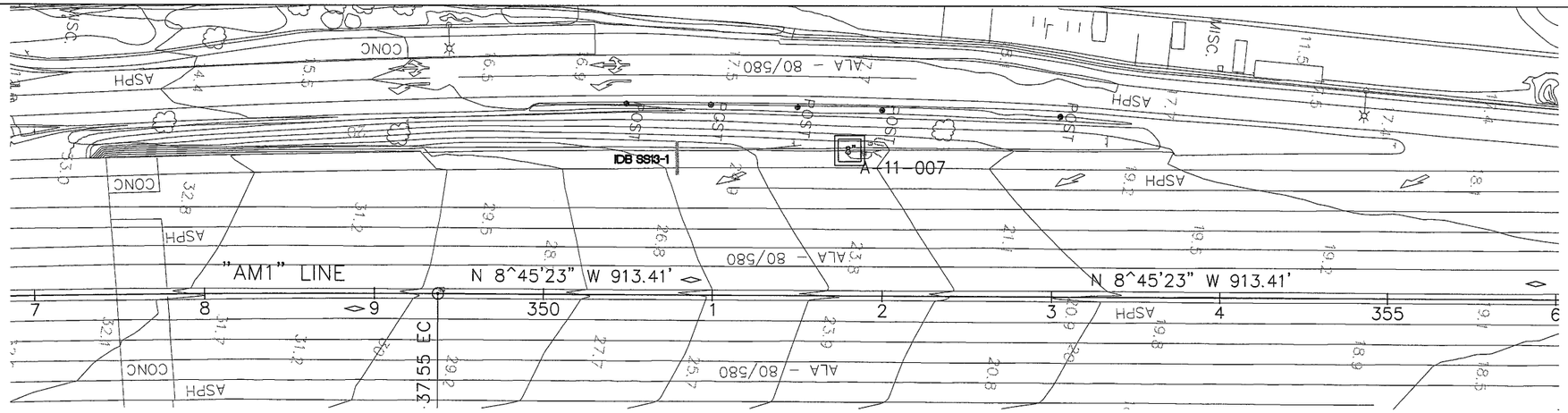
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131



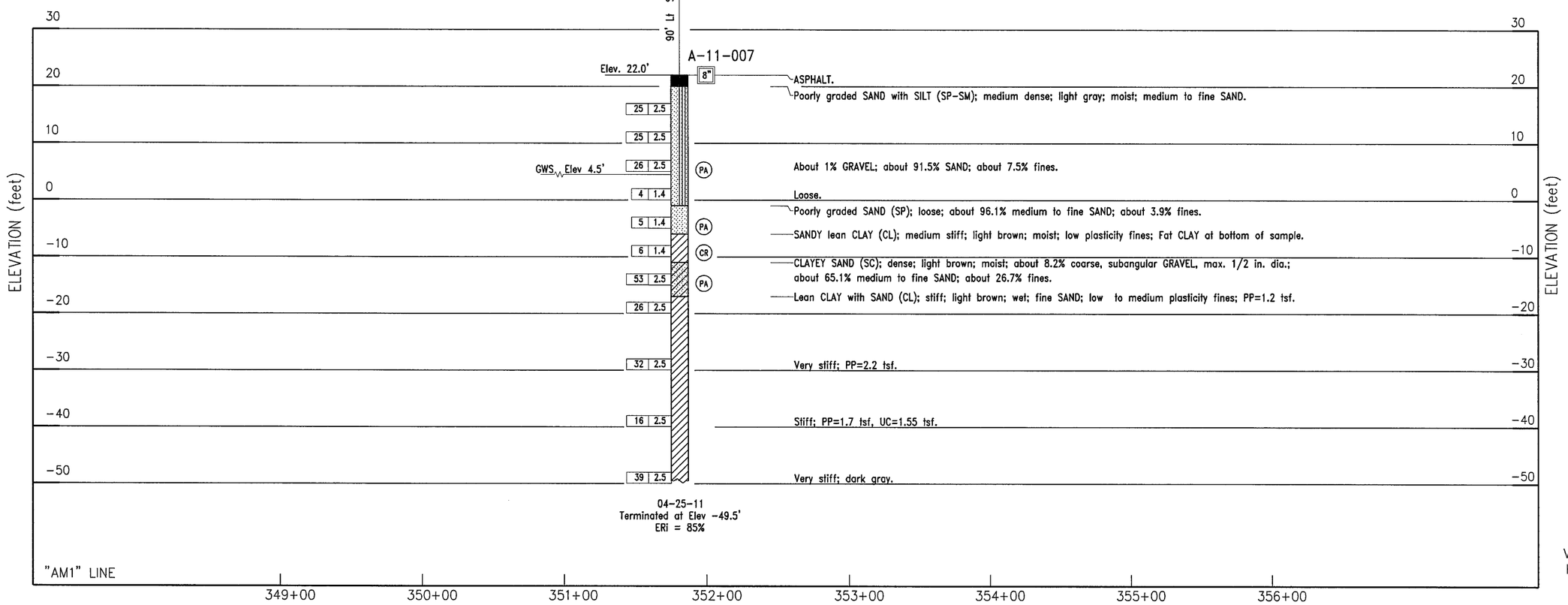
PLAN
1"=40'

BENCH MARK
Elev 11.60742 MAG
N 2142963
E 6040297

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (2010)

All dimensions are in feet unless otherwise shown



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS13-1

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER	BRIDGE NO. –
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011			POST MILES –

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT

LOG OF TEST BORINGS

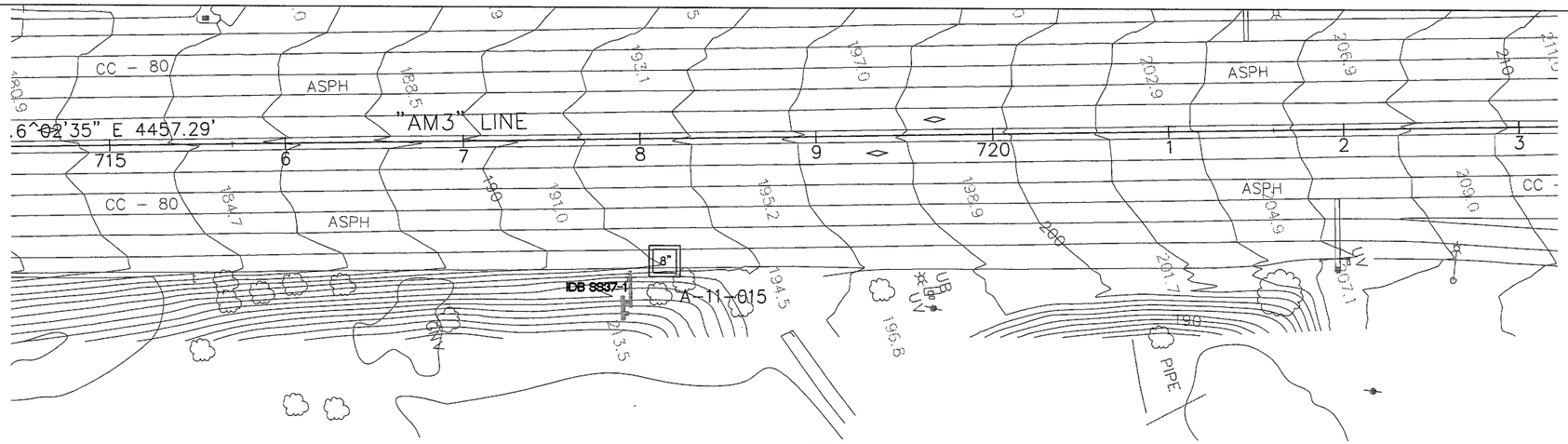
GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 07/01/11 9/28/11

REVISION DATES — SHEET — OF



PLAN
1"=40'

BENCH MARK
Elev 15.72688 SET MAG/TT
N 2133378
E 6042893

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1	----	----

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

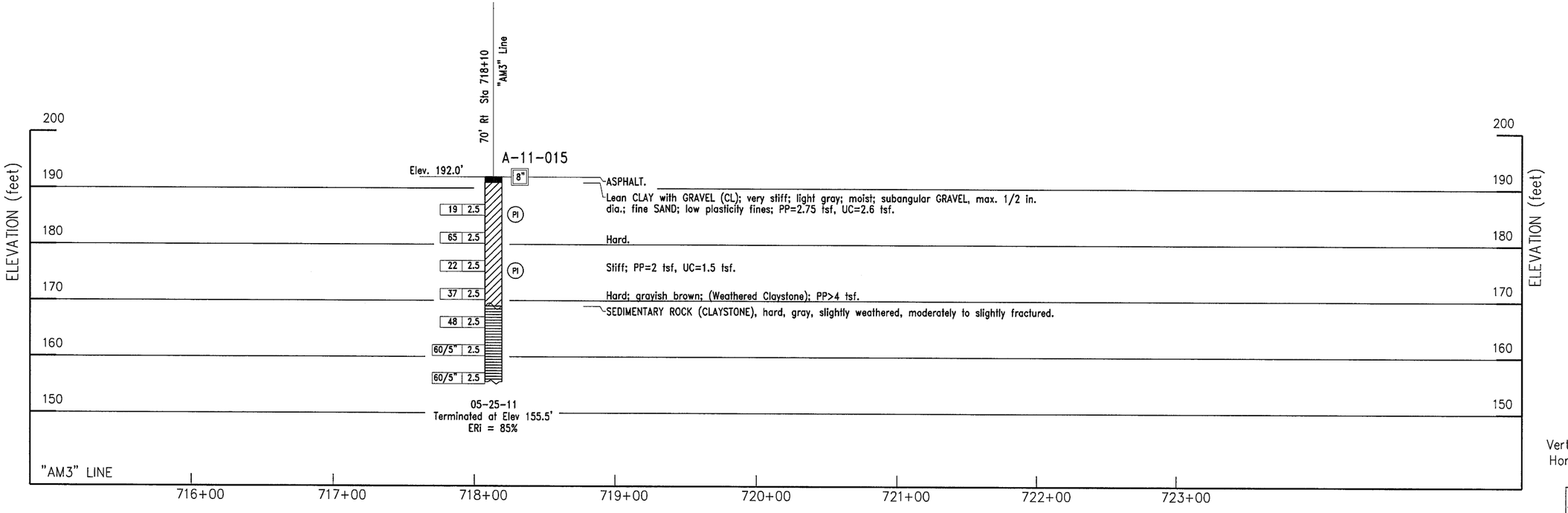
PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (2010)

Groundwater was not encountered during drilling.

All dimensions are in feet unless otherwise shown



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS37-1

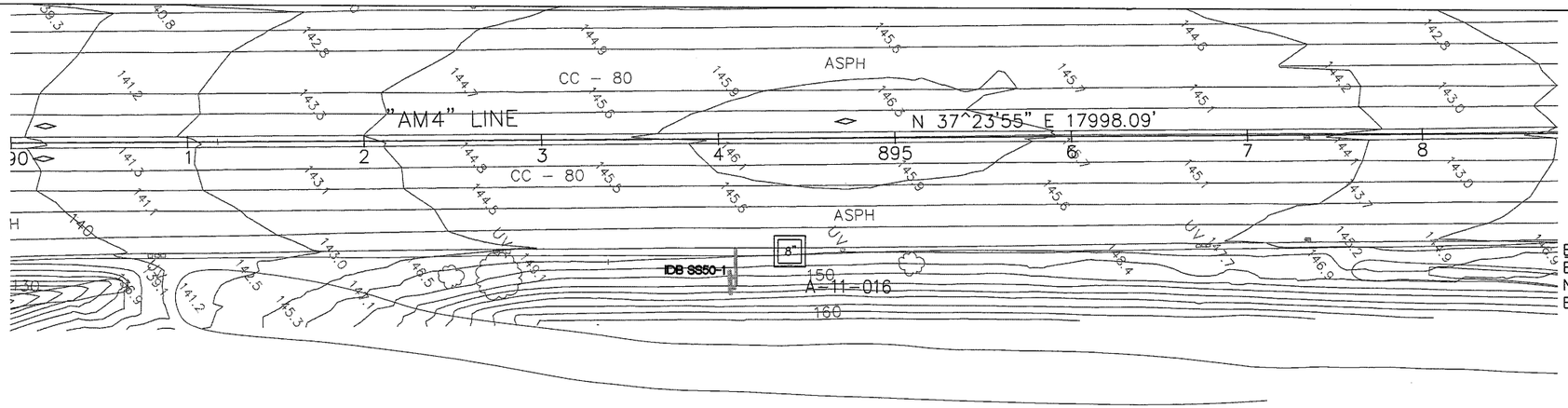
DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER	BRIDGE NO. –	I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011			POST MILES –	LOG OF TEST BORINGS

GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES → REVISION DATES 07/01/11 9/28/11 SHEET OF



BENCH MARK
Elev 35.91734 MAG+TT
N 2158743
E 6037520

PLAN
1"=40'

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1	----	----

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

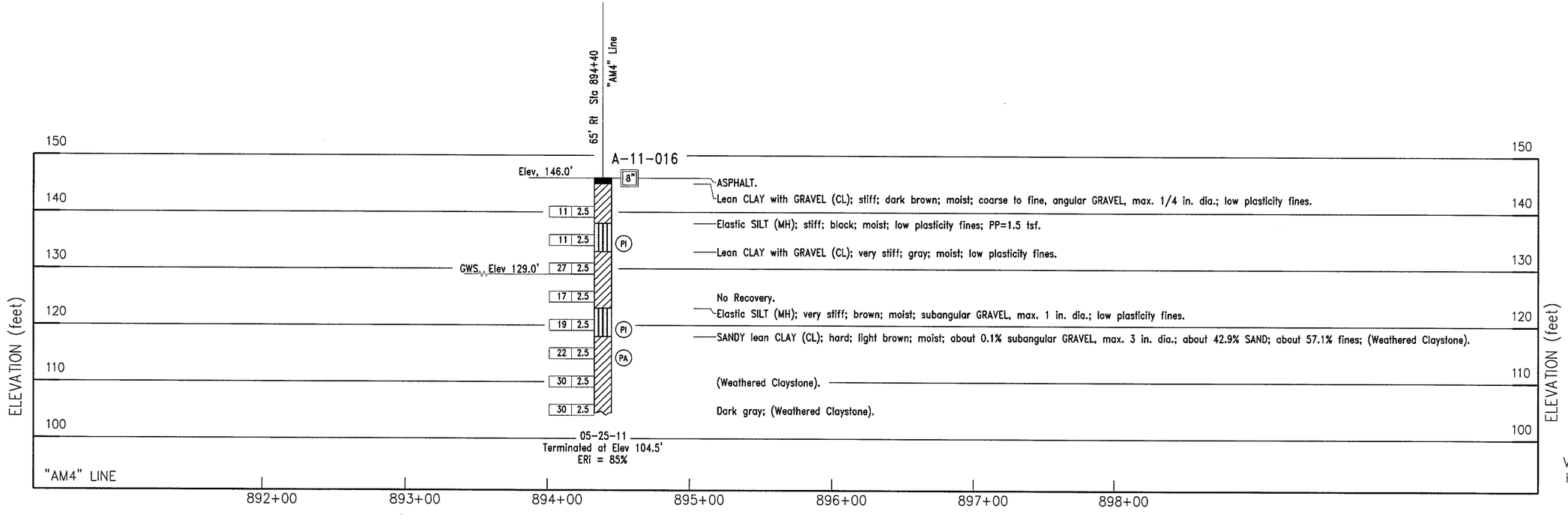
ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (2010)

All dimensions are in feet unless otherwise shown



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS50-1

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER	BRIDGE NO. –	I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011			POST MILES –	LOG OF TEST BORINGS

GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 07/01/11 9/28/11

REVISION DATES — SHEET — OF

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.3/8.0 0.0/13.1	----	----

GEOTECHNICAL PROFESSIONAL — DATE 9/28/11

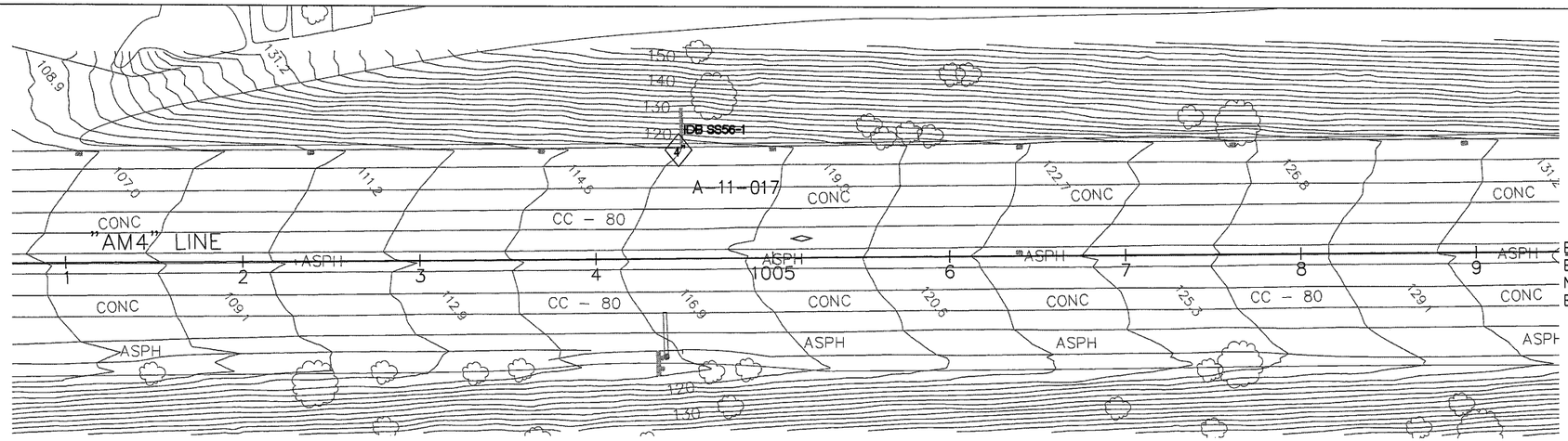
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131



BENCH MARK
Elev 35.91734 MAG+TT
N 2158743
E 6037520

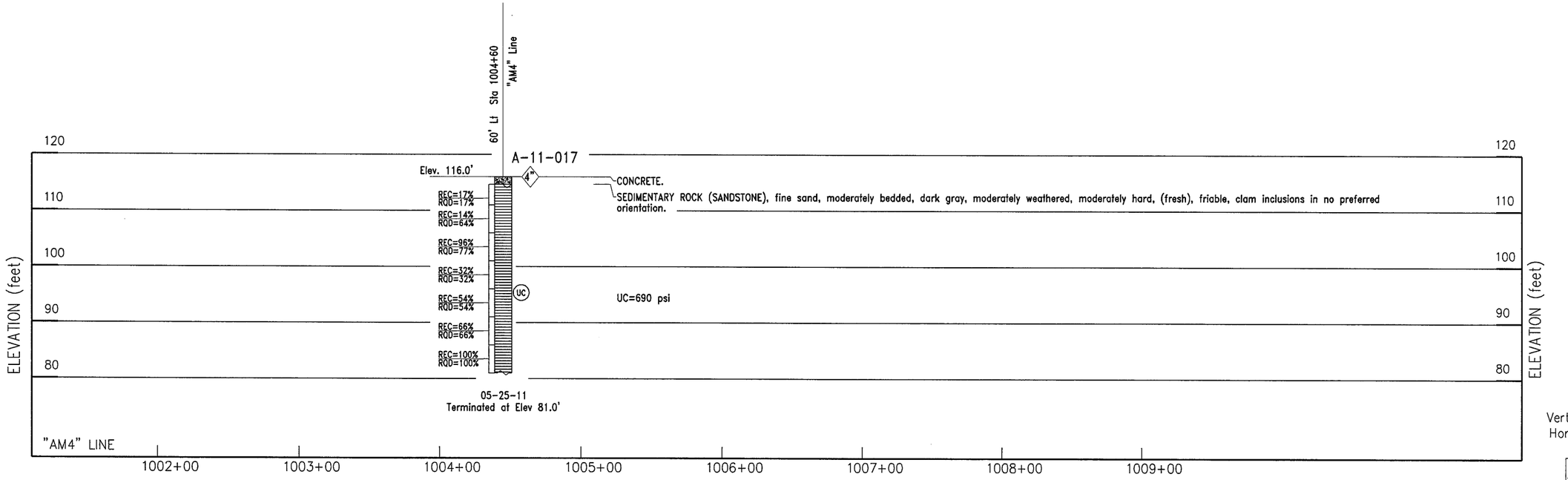
PLAN
1"=40'

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (2010)

Groundwater was not encountered during drilling.

All dimensions are in feet unless otherwise shown



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS56-1

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER	BRIDGE NO. –	I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011			POST MILES –	LOG OF TEST BORINGS

GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 07/01/11 9/28/11

REVISION DATES — SHEET — OF

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	80, 580	6.2/8.0, 47.4/47.6	421	443

REGISTERED ENGINEER - CIVIL

2-12-96
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER M. DESALVATORE No. 39499 Exp. 12-31-98 CIVIL STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

DIVISION OF ENGINEERING SERVICES – GEOTECHNICAL SERVICES

As-Built Log of Test Borings sheet is considered an informational document only. As such, the State of California registration seal with signature, license number and registration certificate expiration date confirm that this is a true and accurate copy of the original document. This drawing is available and presented only for the convenience of any bidder, contractor or other interested party.

DIST.	COUNTY	ROUTE	POST MILES-TOTAL PROJECT	Sheet No.	Total Sheets
04	ALA.CC	80	2.3/8.0 – 0.0/13.1		

REGISTERED CIVIL ENGINEER — 9/28/11 DATE

REGISTERED PROFESSIONAL ENGINEER GARY PARIKH No. G.E. 666 Exp. 12/31/11 GEOTECHNICAL STATE OF CALIFORNIA

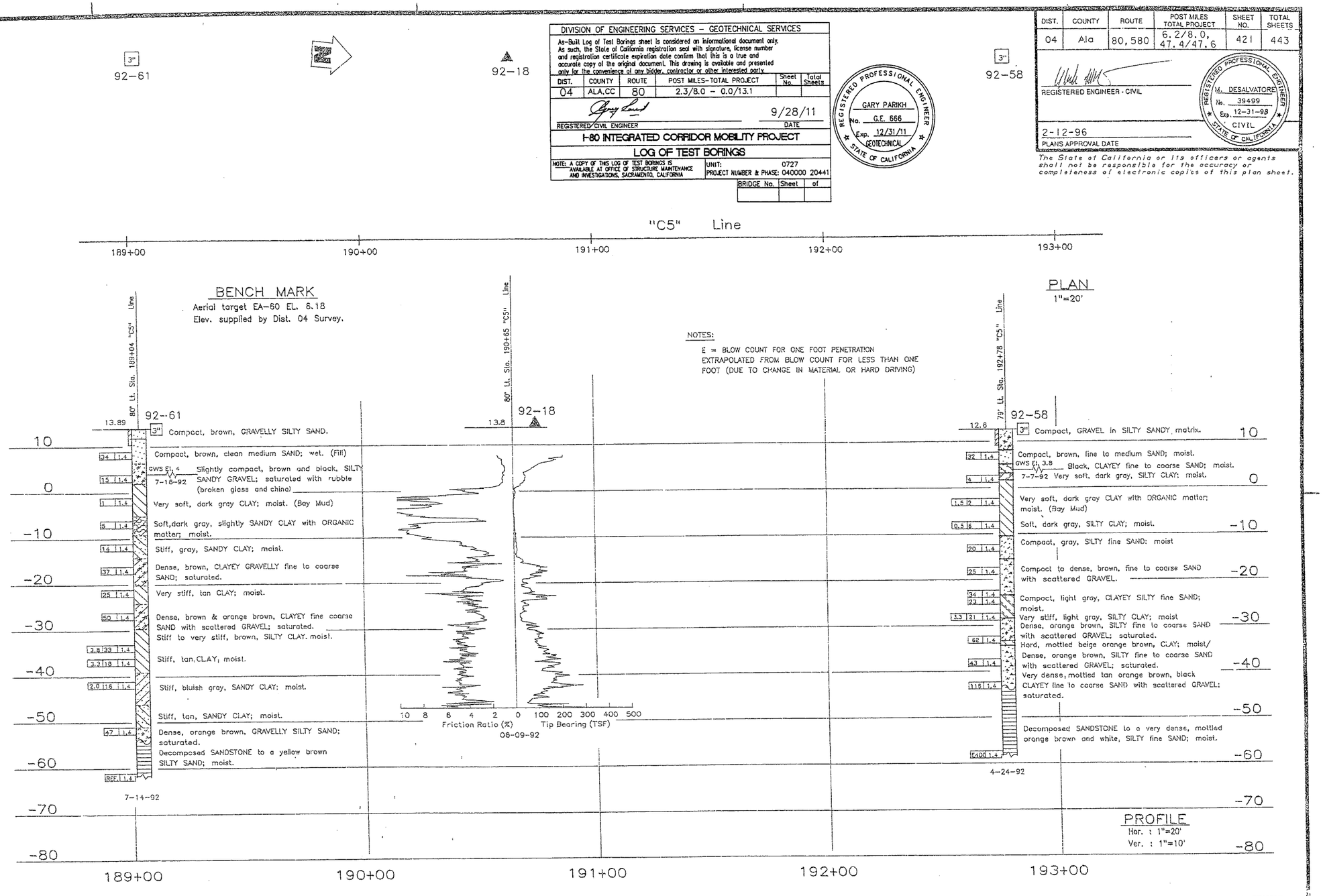
I-80 INTEGRATED CORRIDOR MOBILITY PROJECT

LOG OF TEST BORINGS

NOTE: A COPY OF THIS LOG OF TEST BORINGS IS AVAILABLE AT OFFICE OF STRUCTURE MAINTENANCE AND INVESTIGATIONS, SACRAMENTO, CALIFORNIA

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

BRIDGE No.	Sheet	of



LEGEND OF BORING OPERATIONS

LEGEND OF EARTH MATERIALS: GRAVEL, SAND, SILT, CLAY, SANDY CLAY or CLAYEY SAND, SANDY SILT or SILTY SAND, SILTY CLAY, CLAYEY SILT, PEAT and/or ORGANIC MATTER, FILL MATERIAL, IGNEOUS ROCK, SEDIMENTARY ROCK, METAMORPHIC ROCK

CONSISTENCY CLASSIFICATION FOR SOIL % According to the Standard Penetration Test

Penetration Index (Blows / Ft)	Granular	Cohesive
0-4	Very loose	Very soft
5-9	Loose	Soft
10-15	Slightly compact	Very stiff
20-34	Compact	Hard
35-69	Dense	Very hard
>70	Very dense	

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

DIVISION OF NEW TECHNOLOGY, MATERIALS AND RESEARCH	ENGINEERING GEOLOGY BRANCH
DRAWN BY ED FONG 9-92	
CHECKED BY	

FIELD INVESTIGATION BY: M. DESALVATORE

State of CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES STRUCTURE DESIGN 6

CU 04175
EA 180051

BRIDGE NO. 33-RWB
POST MILE 6.6

RETAINING WALL "B"

LOG OF TEST BORINGS 4 OF 10

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY) SHEET 13 OF 13

TL 6052 REV 8/00

DIVISION OF ENGINEERING SERVICES – GEOTECHNICAL SERVICES

As-Built Log of Test Borings sheet is considered an informational document only. As such, the State of California registration seal with signature, license number and registration certificate expiration date confirm that this is a true and accurate copy of the original document. This drawing is available and presented only for the convenience of any bidder, contractor or other interested party.

DIST.	COUNTY	ROUTE	POST MILES–TOTAL PROJECT	Sheet No.	Total Sheets
04	ALA,CC	80	2.3/8.0 – 0.0/13.1		

REGISTERED CIVIL ENGINEER — DATE 9/28/11

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT

LOG OF TEST BORINGS

NOTE: A COPY OF THIS LOG OF TEST BORINGS IS AVAILABLE AT OFFICE OF STRUCTURE MAINTENANCE AND INVESTIGATIONS, SACRAMENTO, CALIFORNIA

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

BRIDGE No.	Sheet	of

103.117

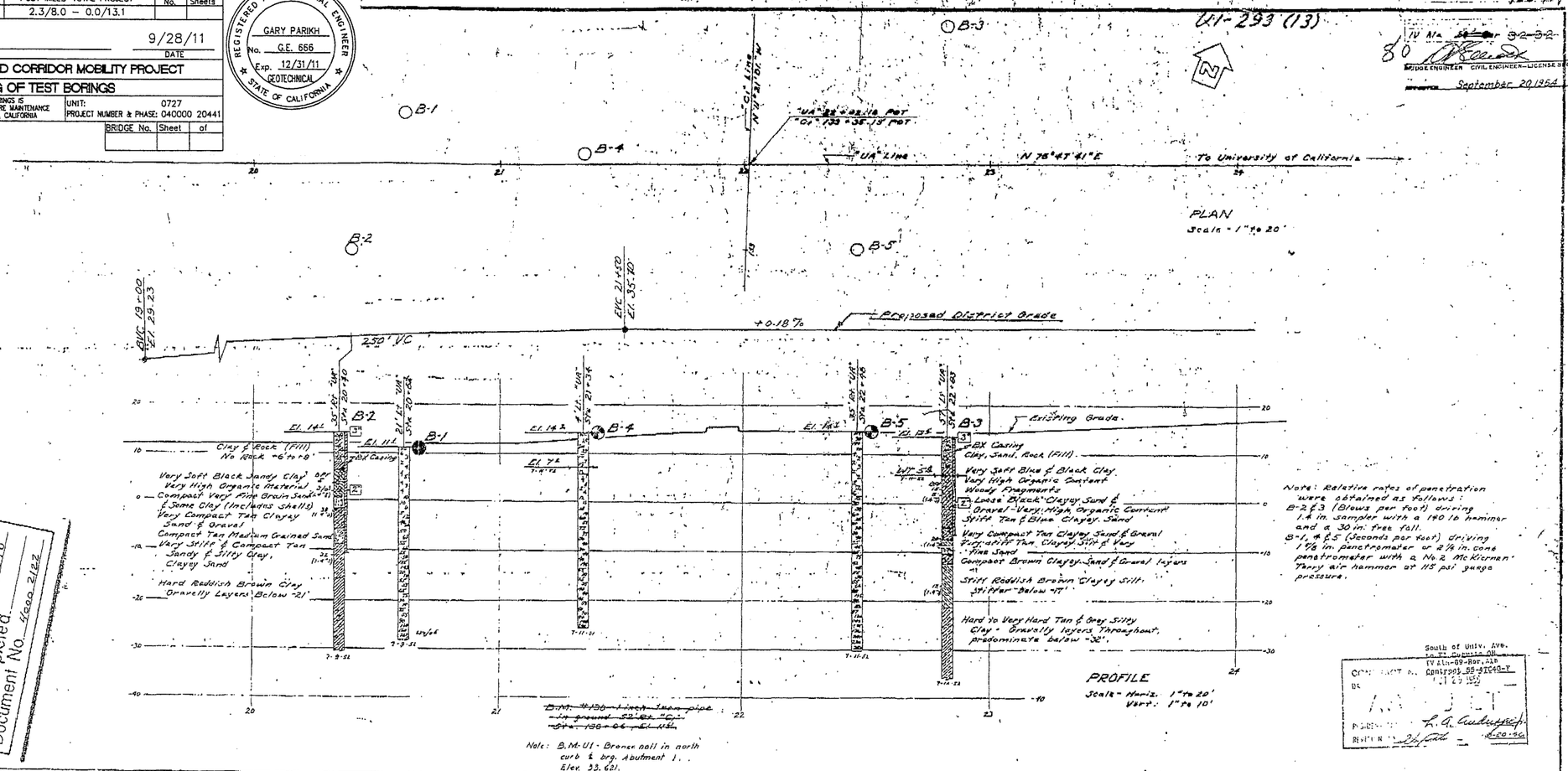
U1-293 (13)

80

IV Na ~~Sheet~~ 92-32

BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE

September 20 1954

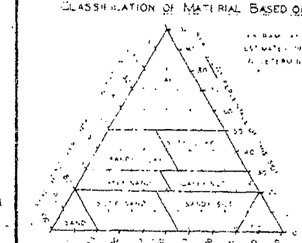


AS BUILT PLANS
Contract No. 55-97040
Date Completed
Document No. 4600 2482

South of Univ. Ave.
IV Ala-80-Bor. A&D
Contract 55-97040-F
11 23 1955

L. A. Cudworth
8-20-96

CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS



LEGEND OF BORING OPERATIONS

- PLAN OF BORING
- SAMPLER BLOWS
- ROTARY WASH BORING
- 2" CLOSED SAMPLER DRIVEN
- CORE BORING
- 2 2 PENETROMETER DRIVEN
- 1 3/8" SAMPLER BORING
- 2" OS" AUGER BORING
- 6" TO 20" AUGER BORING
- CASING DRIVEN
- JET BORING
- SAMPLE TAKEN
- 1 3/8" A-R30 DRIVEN
- 2 1/4" CONE PENETROMETER

THE APPROPRIATE BORING SYMBOLS DESIGNATING THE METHOD OF OPERATION ARE SHOWN AT THE UPPER RIGHT-HAND CORNER OF THE RESPECTIVE BORING. WHERE TOOL CHANGES WERE MADE DURING THE BORING OPERATION SYMBOLS ARE SHOWN AT THE POINT OF CHANGE.

LEGEND OF EARTH MATERIALS

- GRAVEL – G
- SAND – S
- SILT – SI
- CLAY – C
- SILTY SAND – S. S
- CLAYEY SAND – C S
- SANDY SILT – S SI
- CLAYEY SILT – C SI
- SANDY CLAY – SC
- SILTY CLAY – SI C
- PEAT & ORGANIC CLAY – O
- SANDSTONE – SS
- SHALE – SH
- BROKEN ROCK (FRAGMENTS) – BR
- ROCK – R
- FILL MATERIAL

ABBREVIATIONS

EL 69.4	ELEVATION OF GROUND AT TEST HOLE
bpf	BLOWS PER FOOT – (SEE NOTE ABOVE)
P	PULLED PIPE
M	MOISTURE AS % DRY WEIGHT
EL 14.2 9-7-54	ELEVATION OF GROUND WATER AND DATE

NOTES

THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 2, ARTICLE (c) OF THE STANDARD SPECIFICATIONS AND TO THE SPECIAL PROVISIONS ACCOMPANYING THIS SET OF PLANS.

CLASSIFICATION OF EARTH MATERIALS AS SHOWN ON THIS SHEET IS BASED UPON FIELD INSPECTION AND IS NOT TO BE CONSTRUED TO IMPLY MECHANICAL ANALYSIS.

Alinement & Profile data obtained from District IV "Site Plan" Dwg. # PR 29204 dtd 8-24-54

FOR PRELIMINARY REPORT

UNIVERSITY AVENUE OVERCROSSING
LOG OF TEST BORINGS

SCALE as noted — FILE E-33
BRIDGE NO. 33-23 — DRAWING NO. 0-2920-32

PREL. DRAWING NO. P. 2920 112

ClibPDF - www.fastio.com

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO	TOTAL SHEETS
04	Ala	80	3.2/4.4	194	204

REGISTERED · CERTIFIED ENGINEERING GEOLOGIST

11-20-95

PLANS APPROVAL DATE

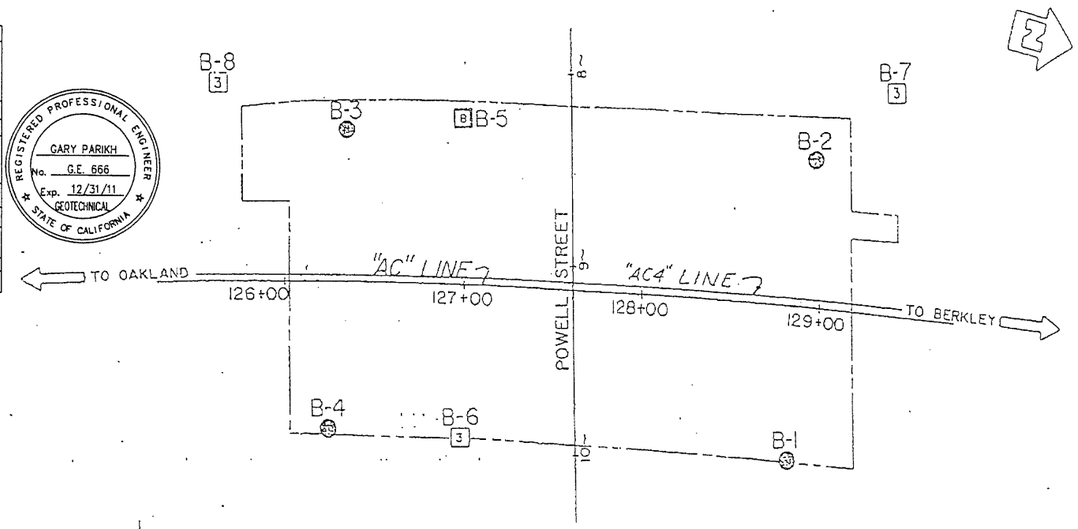
REGISTERED CALIFORNIA E.G. COLUSCHINI No. 329 Exp. 11/20/95 STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

AS BUILT (W 7/27/98)
CORRECTIONS BY DWR #4472
CONTRACT NO. 04-180414
DATE 3/12/98

DIVISION OF ENGINEERING SERVICES – GEOTECHNICAL SERVICES					
As-Built Log of Test Borings sheet is considered an informational document only. As such, the State of California registration seal with signature, license number and registration certificate expiration date confirm that this is a true and accurate copy of the original document. This drawing is available and presented only for the convenience of any bidder, contractor or other interested party.					
DIST.	COUNTY	ROUTE	POST MILES–TOTAL PROJECT	Sheet No.	Total Sheets
04	ALA,CC	80	2.3/8.0 – 0.0/13.1		
REGISTERED CIVIL ENGINEER			9/28/11 DATE		
I-80 INTEGRATED CORRIDOR MOBILITY PROJECT					
LOG OF TEST BORINGS					
NOTE: A COPY OF THIS LOG OF TEST BORINGS IS AVAILABLE AT OFFICE OF STRUCTURE MAINTENANCE AND INVESTIGATIONS, SACRAMENTO, CALIFORNIA			UNIT: 0727 PROJECT NUMBER & PHASE: 040000 20441		
			BRIDGE No.	Sheet	of

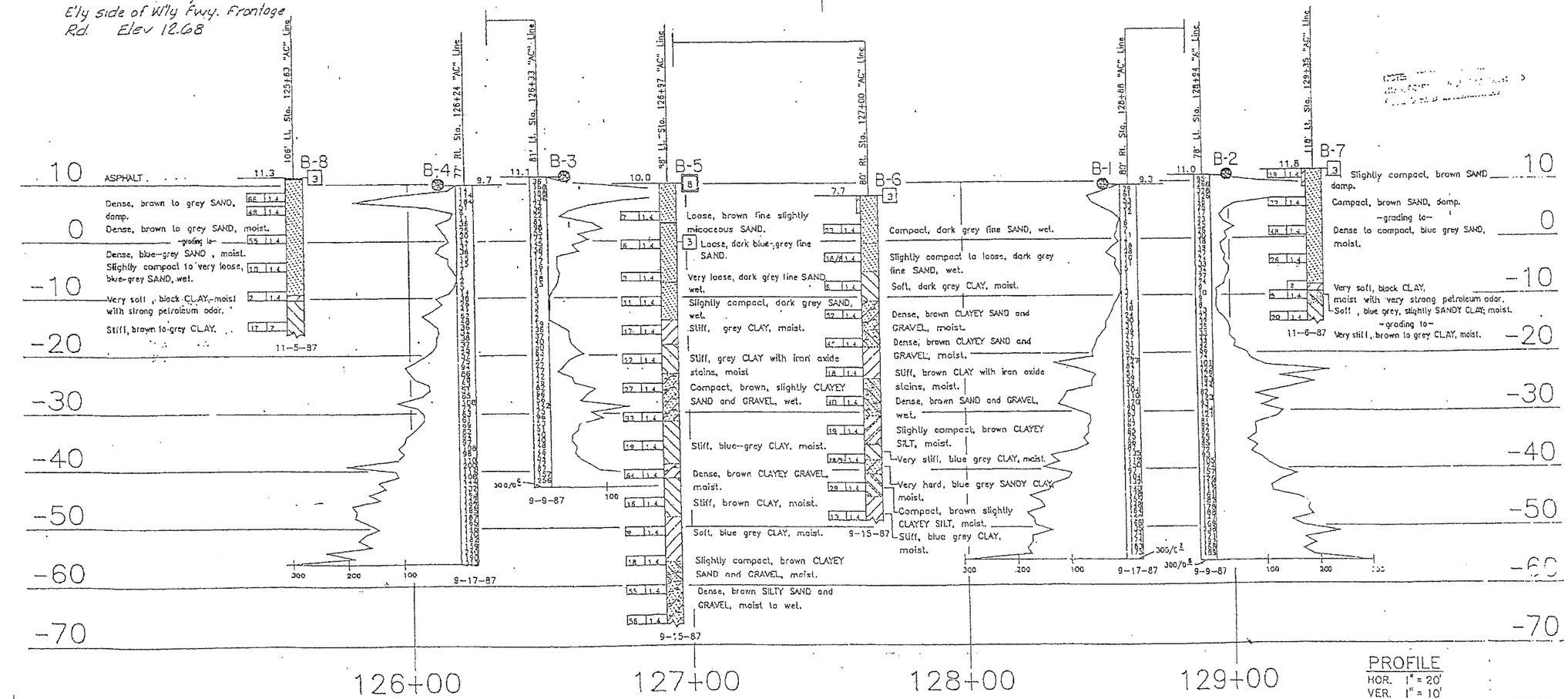
REGISTERED PROFESSIONAL ENGINEER GARY PARIKH No. G.E. 666 Exp. 12/31/11 GEOTECHNICAL STATE OF CALIFORNIA



PLAN
1" = 40'

BENCH MARK

BM Monument T-5, Fd Chis. X in PCC Island @ N'ly side of Powell & E'ly side of W'ly Fwy. Frontage Rd. Elev 12.68



PROFILE
HOR. 1" = 20'
VER. 1" = 10'

LEGEND OF BORING OPERATIONS

ROTARY BORING

PENETRATION BORING

JET BORING

ROTARY BORING (NEST)

A-SIZE BORING (OPT)

2 1/2" CONE PENETROMETER

SAMPLER BORING (OPT)

1" SOIL TUBE

MATERIALS

GRAVEL, SAND, SILT, CLAY, SILTY CLAY or CLAYEY SILT, ORGANIC MATTER, FILL MATERIAL, IGNEOUS ROCK, SEDIMENTARY ROCK, METAMORPHIC ROCK, SANDY CLAY or CLAYEY SAND, SANDY SILT or SILTY SAND

FOR SOILS

According to the Standard Penetration Test		
Penetration Index (Blows/Ft)	Granular	Cohesive
0-4	Very loose	Very soft
5-9	Loose	Soft
10-19	Slightly compact	Stiff
20-34	Compact	Very stiff
35-69	Dense	Hard
> 70	Very dense	Very hard

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

UNIFIED SOIL CLASSIFICATION SYSTEM

GEOTECHNICAL BRANCH - TRANSPORTATION LABORATORY					
DRAWN BY	COHOLAN 12/87	R. Fox 78	R.C. Wilhelm 560	CHARGE UNIT	EXPEND. AUTHOR	SPEC. DESIGN
CHECKED BY					

State of CALIFORNIA DEPARTMENT OF TRANSPORTATION

STRUCTURES - DESIGN 1

40453

BRIDGE NO. 33-20

POST MILE 3.8

POWELL ST. U.C. (WIDEN)

LOG OF TEST BORINGS

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC	80, 123	1.7/2.6, 1.9/2.2	240	281

REGISTERED ENGINEER-CIVIL

3-6-95
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER R. R. PRICE No. 49593 Exp. 9-30-96 CIVIL STATE OF CALIFORNIA

BENCH MARK

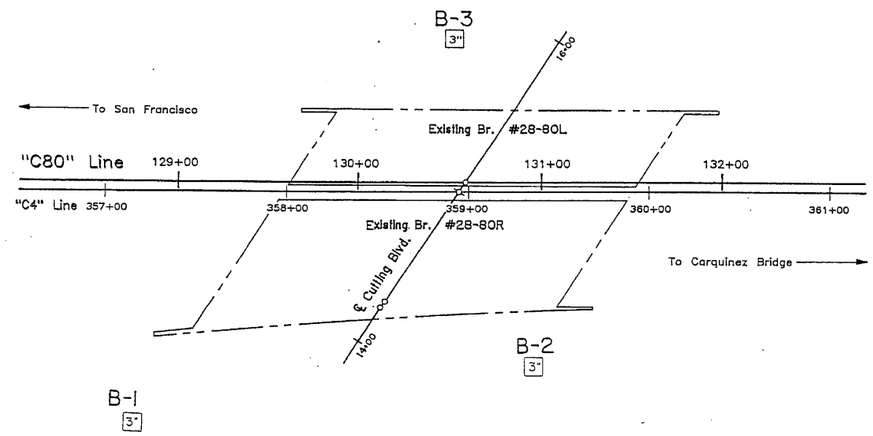
BM: SB-127 Elev. 51.30

DIVISION OF ENGINEERING SERVICES - GEOTECHNICAL SERVICES					
As-Built Log of Test Borings sheet is considered an informational document only. As such, the State of California registration seal with signature, license number and registration certificate expiration date confirm that this is a true and accurate copy of the original document. This drawing is available and presented only for the convenience of any bidder, contractor or other interested party.					
DIST.	COUNTY	ROUTE	POST MILES-TOTAL PROJECT	Sheet No.	Total Sheets
04	ALA,CC	80	2.3/8.0 - 0.0/13.1		
REGISTERED CIVIL ENGINEER			9/28/11 DATE		
I-80 INTEGRATED CORRIDOR MOBILITY PROJECT					
LOG OF TEST BORINGS					
NOTE: A COPY OF THIS LOG OF TEST BORINGS IS AVAILABLE AT OFFICE OF STRUCTURE MAINTENANCE AND INVESTIGATIONS, SACRAMENTO, CALIFORNIA			UNIT: 0727 PROJECT NUMBER & PHASE: 040000 20441		
			BRIDGE No.	Sheet	of

REGISTERED PROFESSIONAL ENGINEER GARY PARIKH No. G.E. 666 Exp. 12/31/11 GEOTECHNICAL STATE OF CALIFORNIA

PLAN

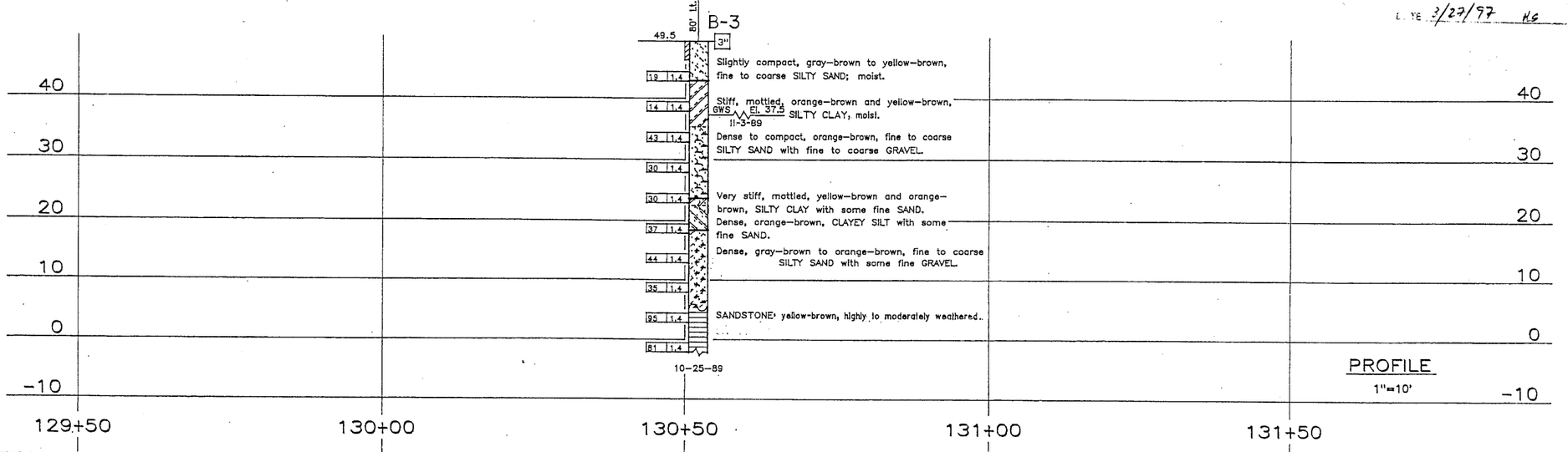
1"=40'

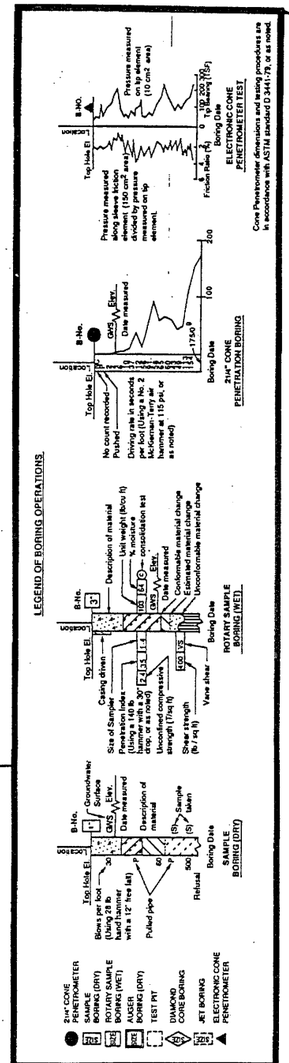


AS BUILT
CORRECTIONS PER USER Drawing
CONTRACT NO. 04-180264
DATE 3/27/97 HG

PROFILE

1"=10'





LEGEND OF EARTH MATERIALS

GRAVEL, SAND, SILT, CLAY, SANDY CLAY or CLAYEY SAND, SANDY SILT or SILTY SAND, SILTY CLAY, CLAYEY SILT, PEAT and/or ORGANIC MATTER, FILL MATERIAL, IGNEOUS ROCK, SEDIMENTARY ROCK, METAMORPHIC ROCK

CONSISTENCY CLASSIFICATION FOR SOILS

According to the Standard Penetration Test		
Penetration Index (Blows / Ft)	Granular	Cohesive
0-4	Very loose	Very soft
5-9	Loose	Soft
10-19	Slightly compact	Stiff
20-34	Compact	Very stiff
35-69	Dense	Hard
>70	Very dense	Very hard

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

ENGINEERING GEOLOGY BRANCH - TRANSPORTATION LABORATORY		
DRAWN BY	JOHN L. THORNE	12/89
CHECKED BY		

, PROJECT ENGINEER

State of CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES STRUCTURE DESIGN

BRIDGE NO.	28-80
POST MILE	0.0/9.7

CUTTING BLVD. UC

LOG OF TEST BORINGS 1 OF 3

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 180261

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET 30 OF 32

TL 6061 REV. 4/89

ClibPDF - www.fastio.com

DIST.	COUNTY	ROUTE	POST MILES—TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	CC	80			

ENGINEERING GEOLOGIST #165 — CERT. ENGINEERING GEOLOGIST NO.

DATE APPROVED

DIST.	COUNTY	ROUTE	POST MILES - TOTAL PROJECT	Sheet No.	Total Sheets
04	CC	80, 123	1.7/2.6, 1.9/2.2	241	281

OFFICE OF ENGINEERING GEOLOGY - DIV. OF NEW TECH., MATLS. & RESEARCH

REGISTERED ENGINEER-CIVIL — 3-6-95 PLANS APPROVAL DATE

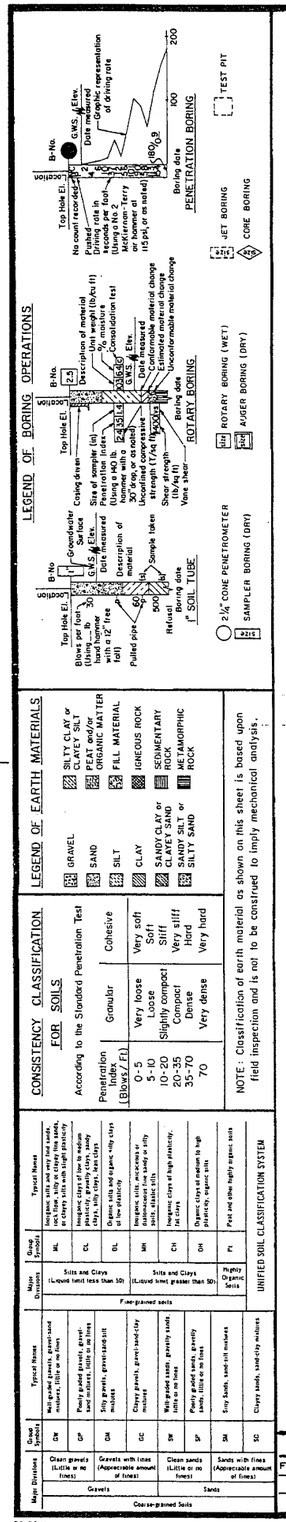
CUTTING BOULEVARD UNDERCROSSING

LOG OF TEST BORINGS 2 OF 3

CU: 04 EA: 180261 — BRIDGE No. 28-80

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER — R. R. PRICE — No. 49593 — Exp. 9-30-96 — CIVIL — STATE OF CALIFORNIA



DIVISION OF ENGINEERING SERVICES – GEOTECHNICAL SERVICES

As-Built Log of Test Borings sheet is considered an informational document only. As such, the State of California registration seal with signature, license number and registration certificate expiration date confirm that this is a true and accurate copy of the original document. This drawing is available and presented only for the convenience of any bidder, contractor or other interested party.

DIST.	COUNTY	ROUTE	POST MILES-TOTAL PROJECT	Sheet No.	Total Sheets
04	ALA,CC	80	2.3/8.0 – 0.0/13.1		

REGISTERED CIVIL ENGINEER — 9/28/11 DATE

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT

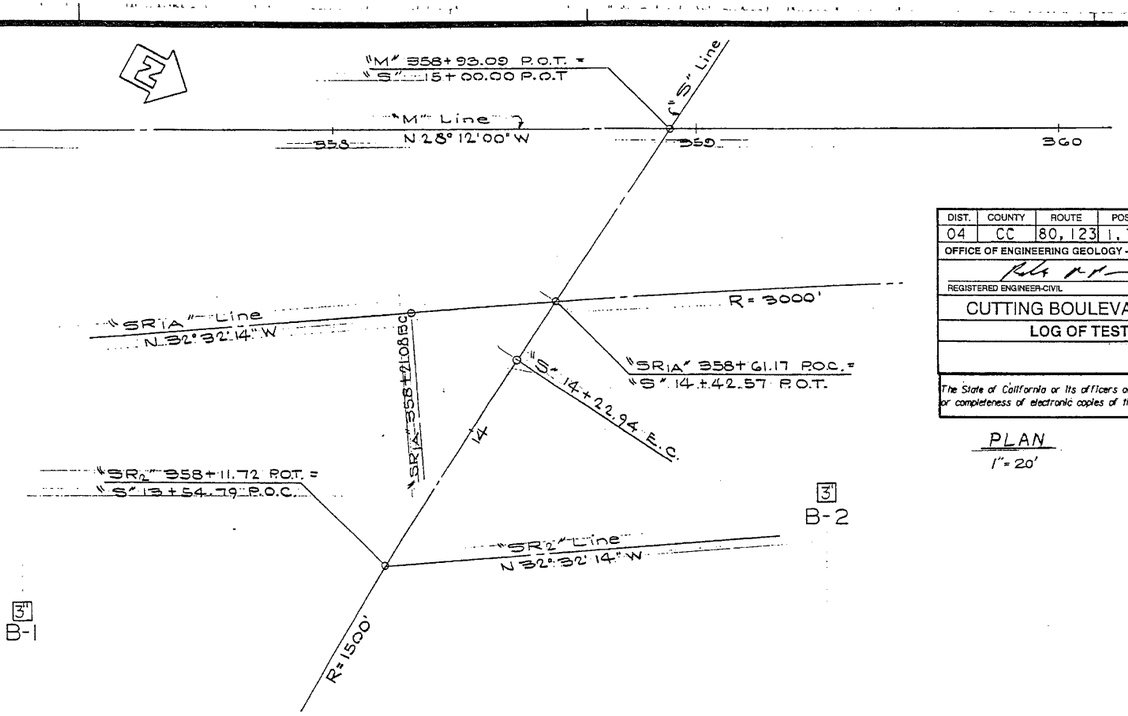
LOG OF TEST BORINGS

NOTE: A COPY OF THIS LOG OF TEST BORINGS IS AVAILABLE AT OFFICE OF STRUCTURE MAINTENANCE AND INVESTIGATIONS, SACRAMENTO, CALIFORNIA

UNIT: 0727
PROJECT NUMBER & PHASE: 040000 20441

BRIDGE No.	Sheet	of

REGISTERED PROFESSIONAL ENGINEER — GARY PARIKH — No. G.E. 666 — Exp. 12/31/11 — GEOTECHNICAL — STATE OF CALIFORNIA

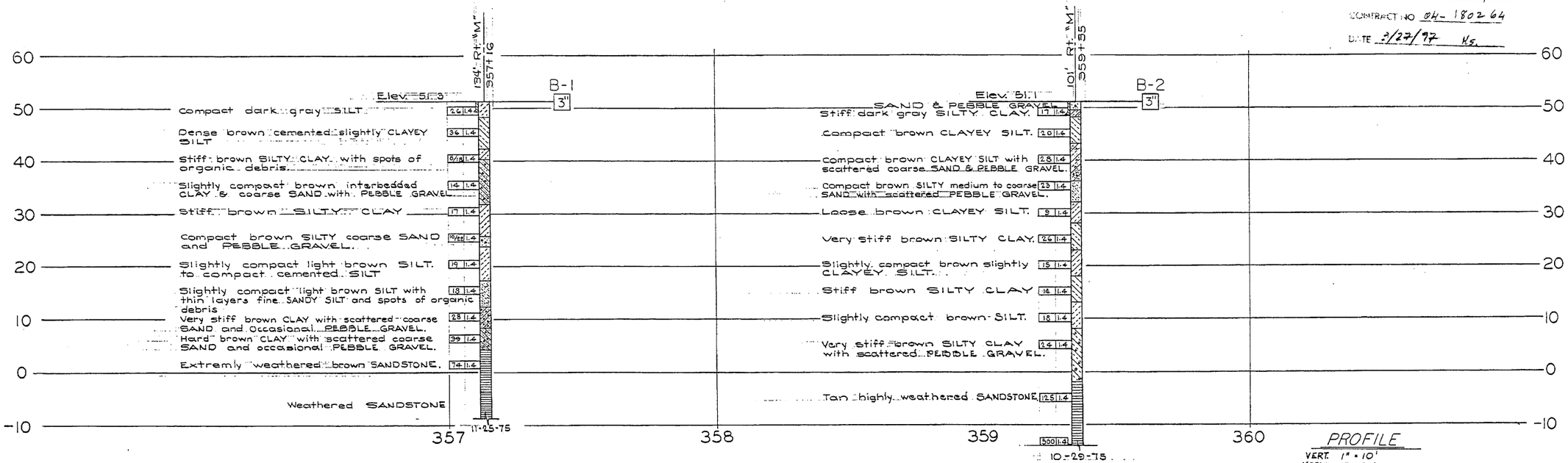


PLAN
1" = 20'

TBM "N-2" Elev. 51.04
Found chisled sq. on top curb 32' Lt. "S" 10+52.

BM. "P-19" Elev. 49.47
Found R.R. Spike in AC 29' Rt "S" 16+70.

NO CORRECTIONS THIS SHEET
AS BUILT
CORRECTIONS BY Usen Inyang
CONTRACT NO 04-180264
DATE 3/27/97 KS



PROFILE
VERT. 1" = 10'
HORIZ. 1" = 20'

ENGINEERING GEOLOGY BRANCH		
FIELD STUDY	By R.C. Wilhelms 11/75	Approval Recommended By Richard Wilhelms
DRAWN	By Ken Johnson 9/76	ENGINEERING GEOLOGIST
CHECKED	By R.C. Wilhelms 1/77	CERTIFIED ENGINEERING GEOLOGIST NUMBER 560

State of CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES DESIGN SECTION — PROJECT ENGINEER

BRIDGE NO. 28-80S — POST MILE 2.0

CUTTING BOULEVARD UNDERCROSSING-WIDE

LOG OF TEST BORINGS 2 OF 3

DS D148

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04205
WO 302521

Disregard prints bearing earlier revision dates

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET 31 OF 3

ClibPDF - www.fastio.com

APPENDIX B

APPENDIX B
LABORATORY TESTS

Classification Tests
The field classification of the samples was visually verified in the laboratory according to the Unified Soil Classification System. The results are presented in "Log of Test Borings", Appendix A.

Moisture-Density
The natural moisture contents and dry unit weights were determined for selected undisturbed samples of the soils in general accordance with ASTM Test Method D 2216. This information was used to classify and correlate the soils. The results are presented at the appropriate depths on Plate B-2.

Atterberg Limits
The Atterberg Limits were determined for selected samples of the fine-grained materials. These results were used to classify the soils, as well as to obtain an indication of the effective strength characteristics and expansion potential with variations in moisture content. The Atterberg Limits were determined in general accordance with ASTM Test Method D 4318. The results of these tests are presented on Plate B-3, "Plasticity Chart".

Grain Size Classification
Grain size classification tests (ASTM Test Method D422) were performed on selected samples of granular soil to aid in the classification. The results are presented on Plates B-4A through 4E, "Grain Size Distribution Curves".

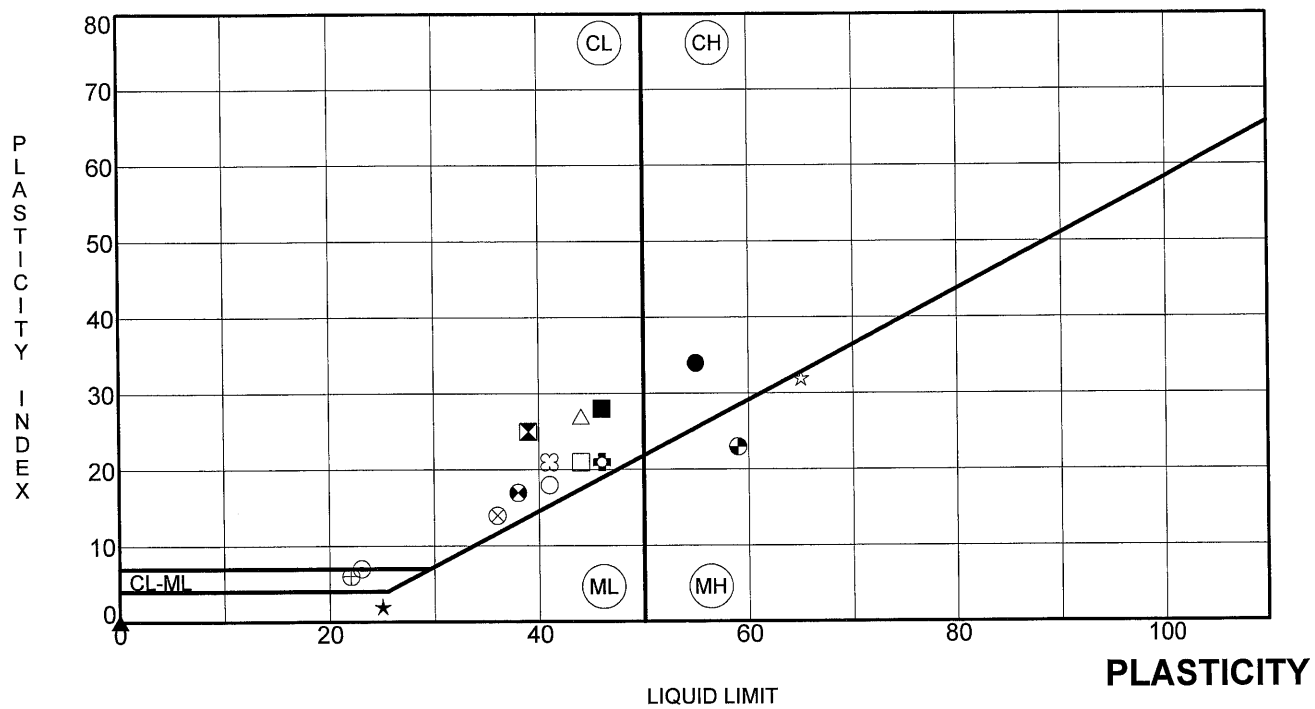
Unconfined Compression Tests
Strength tests were performed on selected undisturbed samples using unconfined compression machine. Unconfined compression tests were performed in general accordance with ASTM Test Method D 2166. The results are presented on Plate B-2.

Corrosion Tests
Corrosion tests were performed on a selected sample to determine the corrosion potential of the soils. The pH and minimum resistively tests were performed according to California Test Method 643. The tests were performed by Sunland Analytical. The test results are presented on Plates B-5A and B-5N.

Borehole	Sample Number	Depth	Classi-fication	Water Content	Dry Density	Liquid Limit	Plastic Limit	Plasticity Index	% > Sieve 4	% < Sieve 200	Unconfined Compressive Strength (tsf)
A-11-002	1	6.0	SM	6.0	102.0						
A-11-002	2	11.0	CL	23.3	103.3						
A-11-002	3	16.0	SP-SM	27.0	94.6				0.0	5.4	
A-11-002	4	21.0	CH	30.6	88.9	55	21	34			0.75
A-11-002	5	26.0	SC	22.4	105.4				0.1	36.1	
A-11-002	6	31.0	SC	23.4	102.1						
A-11-002	7	36.0	CL	19.9	-						
A-11-002	8	41.0	SC	22.5	-				36.1	13.4	
A-11-002	9	51.0	CL	23.4	104.2						
A-11-002	10	61.0	CL	39.5	80.9						
A-11-002	11	71.0	CL	26.4	97.3						
A-11-003	1	6.0	SM	20.4	89.2						
A-11-003	2	11.0	SP	20.2	105.7					1.9	
A-11-003	3	16.0	SP	-	-						
A-11-003	4	21.0	CL	26.1	26.1						
A-11-003	5	26.0	CL	26.9	97.2	39	14	25			0.55
A-11-003	6	31.0	CL	20.2	109.1						
A-11-003	7	36.0	SP-SM	22.1	-						
A-11-003	8	41.0	CL	25.0	101.5						
A-11-003	9	51.0	CL	21.9	105.3						
A-11-003	10	61.0	CL	37.1	84.8						
A-11-003	11	71.0	CL	21.2	105.5						
A-11-004	1	6.0	SP	6.6	99.9						
A-11-004	2	11.0	SP	20.9	104.5				1.7	3.4	
A-11-004	3	16.0	SP	-	-						
A-11-004	4	21.0	SC	20.9	-				13.5	35.5	
A-11-004	5	26.0	SC	20.7	-						
A-11-004	6	31.0	SC	16.1	119.1				30.1	14.9	
A-11-004	7	36.0	CL	27.4	97.3						
A-11-004	8	41.0	CL	25.0	102.5						
A-11-004	9	51.0	CL	22.2	105.0						
A-11-004	10	61.0	CL	26.8	98.5						
A-11-004	11	71.0	CL	23.1	105.5						
A-11-005	1	6.0	SP	18.2	-						
A-11-005	2	11.0	SM	21.7	-						
A-11-005	3	16.0	SM	21.8	106.6				2.3	16.9	
A-11-005	4	21.0	GW	12.1	-				66.3	3.4	
A-11-005	5	26.0	GC	15.6	-						
A-11-005	6	31.0	GP	8.9	-				76.1	1.8	
A-11-005	7	36.0	CL	32.2	89.4						
A-11-005	8	41.0	CL	12.6	-						
A-11-005	9	51.0	CL	27.1	98.3						
A-11-005	10	56.0	CL	25.9	-						

Borehole	Sample Number	Depth	Classi-fication	Water Content	Dry Density	Liquid Limit	Plastic Limit	Plasticity Index	% > Sieve 4	% < Sieve 200	Unconfined Compressive Strength (tsf)
A-11-006	1	6.0	SM	22.3	104.2						
A-11-006	2	11.0	SP	22.0	-				0.0	1.9	
A-11-006	3	16.0	SM	20.9	107.5	NP	NP	NP			
A-11-006	4	21.0	SM	28.8	-	25	23	2	27.1	32.4	
A-11-006	5	26.0	SC	27.3	99.4				0.0	44.7	
A-11-006	6	31.0	CL	24.9	101.6						
A-11-006	7	36.0	SM	18.5	104.7						
A-11-006	8	41.0	CL	28.8	96.4						
A-11-006	9	51.0	CL/CH	28.5	102.4						
A-11-006	10	61.0	CL	24.1	110.0						
A-11-006	11	71.0	CL	18.1	100.3						
A-11-006	12	81.0	CL	23.4	100.6						
A-11-007	1	6.0	SP-SM	2.5	102.4						
A-11-007	2	11.0	SP-SM	4.2	100.2						
A-11-007	3	16.0	SP-SM	18.2	104.6				1.0	7.5	
A-11-007	4	21.0	SP-SM	22.0	183.7						
A-11-007	5	26.0	SP	29.7	84.1					3.9	
A-11-007	6	31.0	CL	22.0	62.2						
A-11-007	7	36.0	SC	13.4	121.5				8.2	26.7	
A-11-007	8	41.0	CL	26.9	98.4						
A-11-007	9	51.0	CL	23.7	101.5						
A-11-007	10	61.0	CL	27.1	97.2						1.55
A-11-007	11	71.0	CL	22.1	-						
A-11-009	1	6.0	SC	11.3	-						
A-11-009	2	11.0	CL	14.9	117.3				0.4	58.7	
A-11-009	3	16.0	CL	10.8	-	23	16	7			
A-11-009	4	21.0	GC	11.6	-						
A-11-011	1	6.0	CL	19.5	-	46	25	21			
A-11-011	2	11.0	CL	23.4	-						
A-11-011	3	16.0	CL	23.8	98.6	41	23	18			1.7
A-11-011	4	21.0	CL	17.4	110.2						
A-11-011	5	26.0	CL	17.0	113.1						
A-11-011	6	31.0	CL	18.6	109.2						
A-11-011	7	36.0	CL	15.5	-						
A-11-011	8	41.0	CL	21.5	104.4						
A-11-011	9	52.0	CL	16.5	116.6						
A-11-011	10	61.0	CL	14.1	120.6						
A-11-012	1	6.0	CL	17.3	107.3	44	17	27			1.6
A-11-012	2	11.0	CL	18.8	109.4						
A-11-012	3	16.0	CL	17.9	110.1						1.4
A-11-012	4	21.0	CL	16.7	121.7						
A-11-012	5	26.0	SW-SM	12.7	-				36.2	8.1	
A-11-012		30.0	-	29.0	95.6						

Borehole	Sample Number	Depth	Classi-fication	Water Content	Dry Density	Liquid Limit	Plastic Limit	Plasticity Index	% > Sieve 4	% < Sieve 200	Unconfined Compressive Strength (tsf)
A-11-012	6	31.0	CL	-	-						
A-11-012		35.0	-	6.3	-						
A-11-012	7	36.0	GC	-	-						
A-11-012		40.0	-	9.2	-						
A-11-012	8	41.0	GC	-	-						
A-11-013	1	6.0	CL	16.8	115.1						
A-11-013	2	11.0	CL	22.5	99.1	36	22	14			1.4
A-11-013	3	16.0	CL	14.2	-						
A-11-013	4	21.0	CL	15.5	119.2	22	16	6			1.35
A-11-013	5	26.0	CL	21.1	-						
A-11-013	6	31.0	CL	13.2	-						
A-11-013	7	36.0	CL	22.9	104.4						
A-11-013	8	46.0	CL	24.1	-						
A-11-015	1	6.0	CL	26.5	121.0	44	23	21			2.6
A-11-015	2	11.0	CL	22.0	-						
A-11-015	3	16.0	CL	24.7	99.7	38	21	17			1.5
A-11-015	4	21.0	CL	26.5	97.5						
A-11-015	5	26.0	-	23.9	-						
A-11-015	6	31.0	-	17.5	113.6						
A-11-015	7	36.0	-	13.4	136.7						
A-11-016	1	6.0	CL	35.9	88.0						
A-11-016	2	11.0	MH	41.7	73.5	59	36	23			1.15
A-11-016	3	16.0	CL	46.7	69.6						
A-11-016	4	21.0	CL	-	-						
A-11-016	5	26.0	MH	36.0	-	65	33	32			
A-11-016	6	31.0	CL	45.1	-				0.0	57.1	
A-11-016	7	36.0	GC	45.7	-						
A-11-016	8	41.0	GC	37.0	-						
A-11-017		20.0	-	-	-						49.7
A-11-018	1	3.0	CL	8.9	-						
A-11-018	2	6.0	CL	18.8	105.6	41	20	21			1.32
A-11-018	3	13.0	CL	17.3	-						
A-11-018	4	16.0	CL	10.3	-						
A-11-018	5	21.0	CL	18.6	110.3	46	18	28			2.92
A-11-018	6	26.0	CL	18.4	107.3						
A-11-018	7	31.0	CL	17.2	-						
A-11-018	8	36.0	SC	17.8	-				16.7	20.4	
A-11-018	9	41.0	SC	12.3	-						
A-11-018	10	46.0	CL	16.4	-						
A-11-018	11	51.0	CL	12.8	-						
A-11-018	12	56.0	CL	6.2	-						

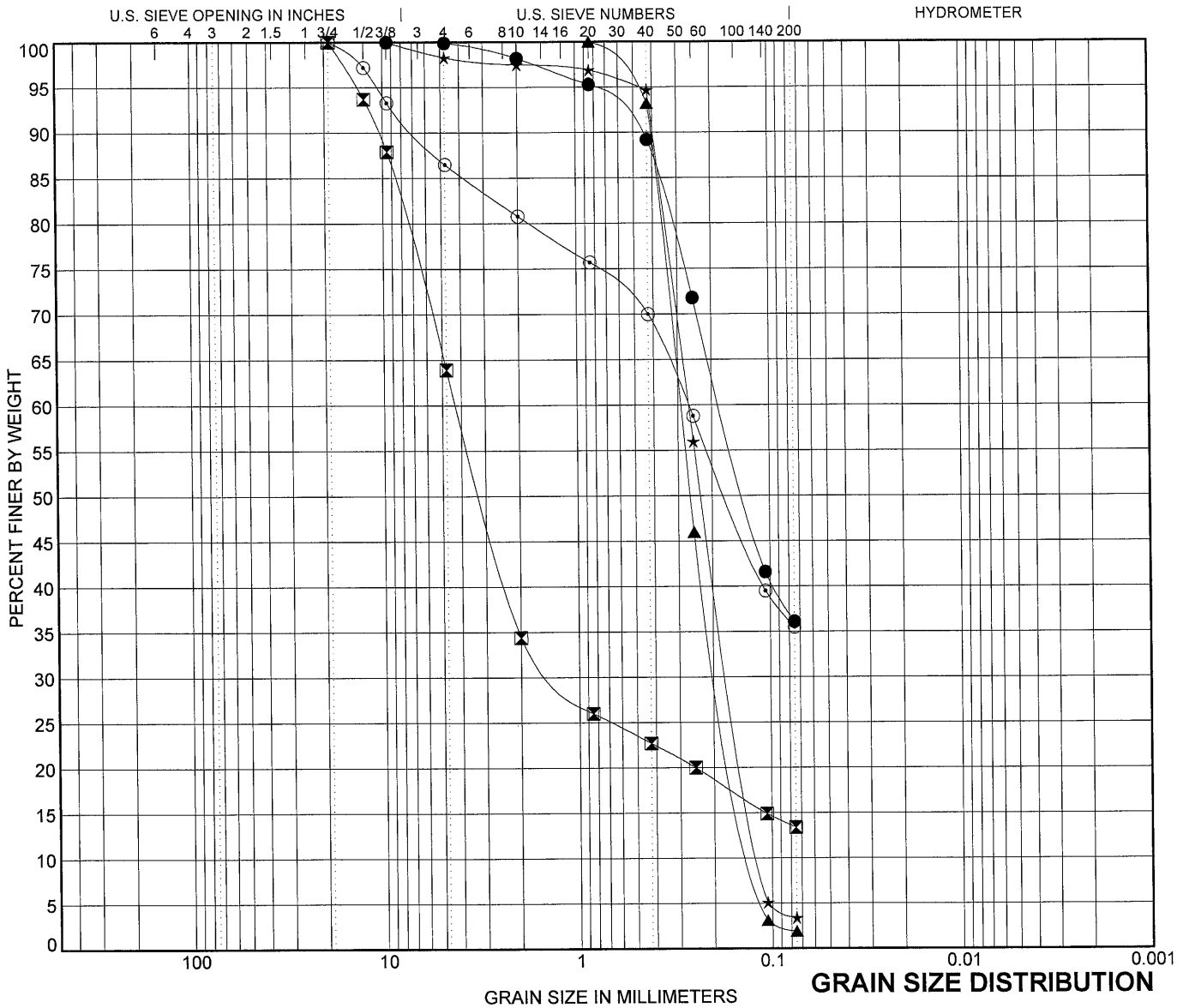


	BOREHOLE	SAMPLE #	DEPTH	LL	PL	PI	Fines	Classification
●	A-11-002	4	21.0	55	21	34		Fat CLAY (CH)
⧗	A-11-003	5	26.0	39	14	25		SANDY lean CLAY (CL)
▲	A-11-006	3	16.0	NP	NP	NP		SILTY SAND with GRAVEL
★	A-11-006	4	21.0	25	23	2	32	SILTY SAND (SM)
⊙	A-11-009	3	16.0	23	16	7		Lean CLAY with SAND (SC)
✿	A-11-011	1	6.0	46	25	21		SANDY lean CLAY (CL)
○	A-11-011	3	16.0	41	23	18		Lean CLAY with SAND (CL)
△	A-11-012	1	6.0	44	17	27		Lean CLAY with SAND (CL)
⊗	A-11-013	2	11.0	36	22	14		Lean CLAY (CL)
⊕	A-11-013	4	21.0	22	16	6		Lean CLAY (CL)
□	A-11-015	1	6.0	44	23	21		Lean CLAY with GRAVEL (CL)
⊛	A-11-015	3	16.0	38	21	17		Lean CLAY with GRAVEL (CL)
◕	A-11-016	2	11.0	59	36	23		Elastic SILT (MH)
☆	A-11-016	5	26.0	65	33	32		Elastic SILT (MH)
⌘	A-11-018	2	6.0	41	20	21		Lean CLAY with SAND
■	A-11-018	5	21.0	46	18	28		Lean CLAY with SAND

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

JOB NO:2011-114-SGN | PLATE NO: B-3



GRAIN SIZE DISTRIBUTION

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

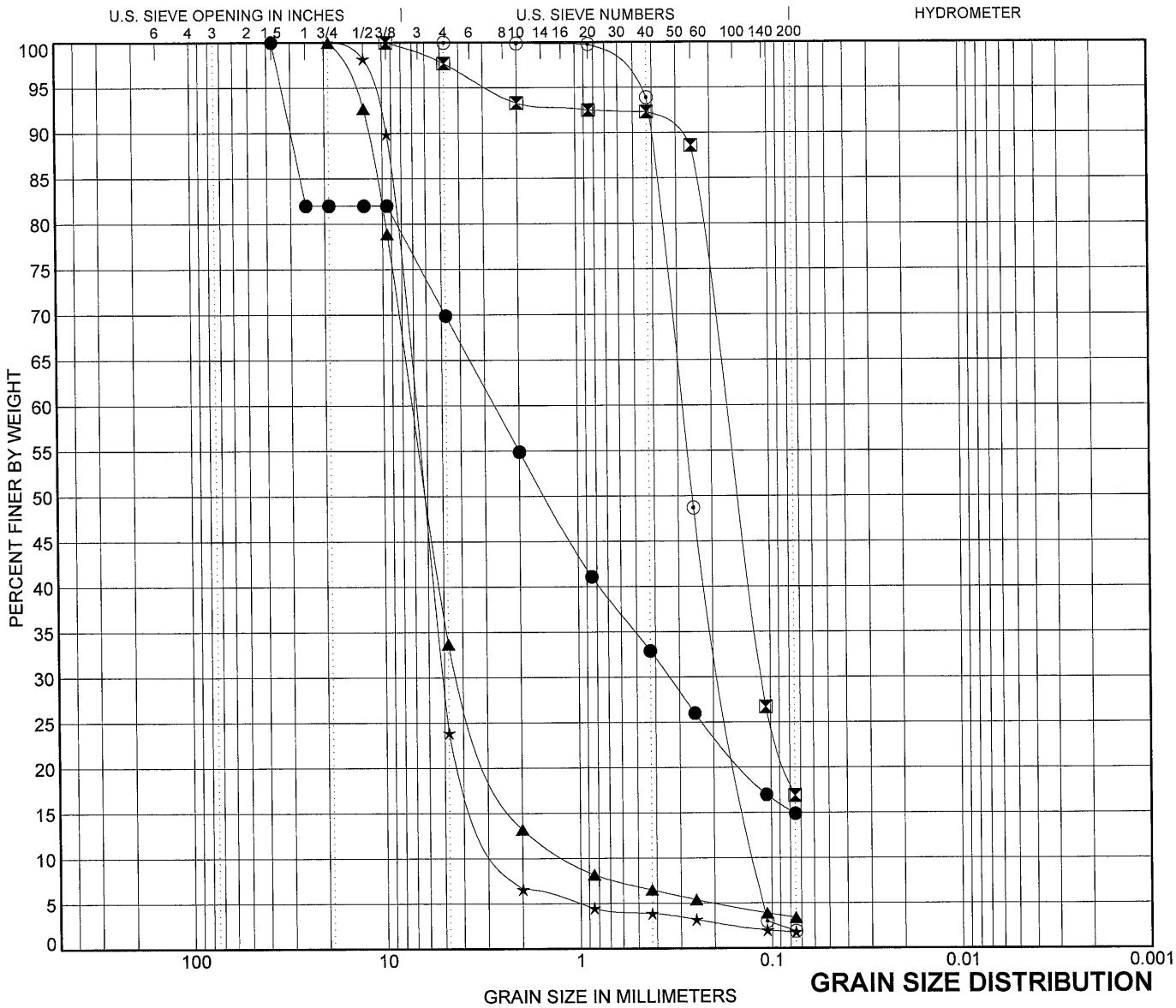
	BORING	SAMPLE #	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	A-11-002	5	26.0	CLAYEY SAND (SC)					
⊠	A-11-002	8	41.0	CLAYEY SAND with GRAVEL (SC)					
▲	A-11-003	2	11.0	Poorly graded SAND (SP)				0.93	2.40
★	A-11-004	2	11.0	Poorly graded SAND (SP)				0.86	2.29
⊙	A-11-004	4	21.0	CLAYEY SAND (SC)					

	BORING	SAMPLE #	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	A-11-002	5	26.0	9.5	0.179			0.1	63.8	36.1	
⊠	A-11-002	8	41.0	19	4.237	1.278		36.1	50.5	13.4	
▲	A-11-003	2	11.0	0.85	0.293	0.182	0.122	0.0	98.1	1.9	
★	A-11-004	2	11.0	9.5	0.264	0.161	0.115	1.7	94.9	3.4	
⊙	A-11-004	4	21.0	19	0.265			13.5	51.0	35.5	

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

JOB NO:2011-114-SGN | PLATE NO: B-4A



GRAIN SIZE DISTRIBUTION

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING	SAMPLE #	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	A-11-004	6	31.0	CLAYEY SAND with GRAVEL (SC)					
⊠	A-11-005	3	16.0	SILTY SAND (SM)					
▲	A-11-005	4	21.0	Well-graded GRAVEL with SAND				2.01	6.15
★	A-11-005	6	31.0	Poorly graded GRAVEL with SAND (GP)				1.56	2.93
⊙	A-11-006	2	11.0	Poorly graded SAND (SP)				0.90	2.36

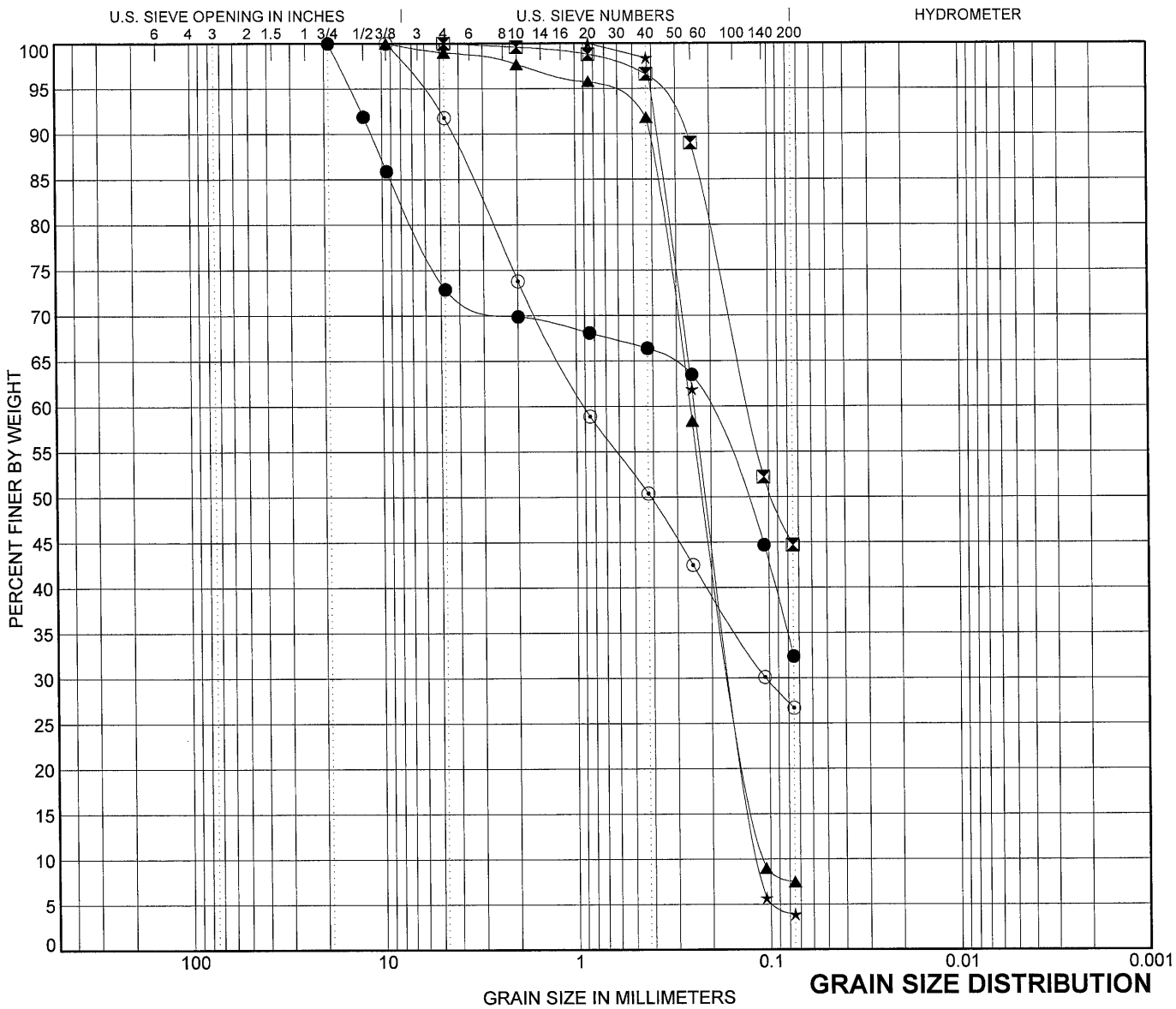
	BORING	SAMPLE #	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	A-11-004	6	31.0	37.5	2.684	0.34		30.1	55.0	14.9	
⊠	A-11-005	3	16.0	9.5	0.168	0.111		2.3	80.8	16.9	
▲	A-11-005	4	21.0	19	7.11	4.063	1.157	66.3	30.3	3.4	
★	A-11-005	6	31.0	19	6.94	5.064	2.371	76.1	22.1	1.8	
⊙	A-11-006	2	11.0	4.75	0.285	0.176	0.121	0.0	98.1	1.9	

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

JOB NO:2011-114-SGN

PLATE NO: B-4B



GRAIN SIZE DISTRIBUTION

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

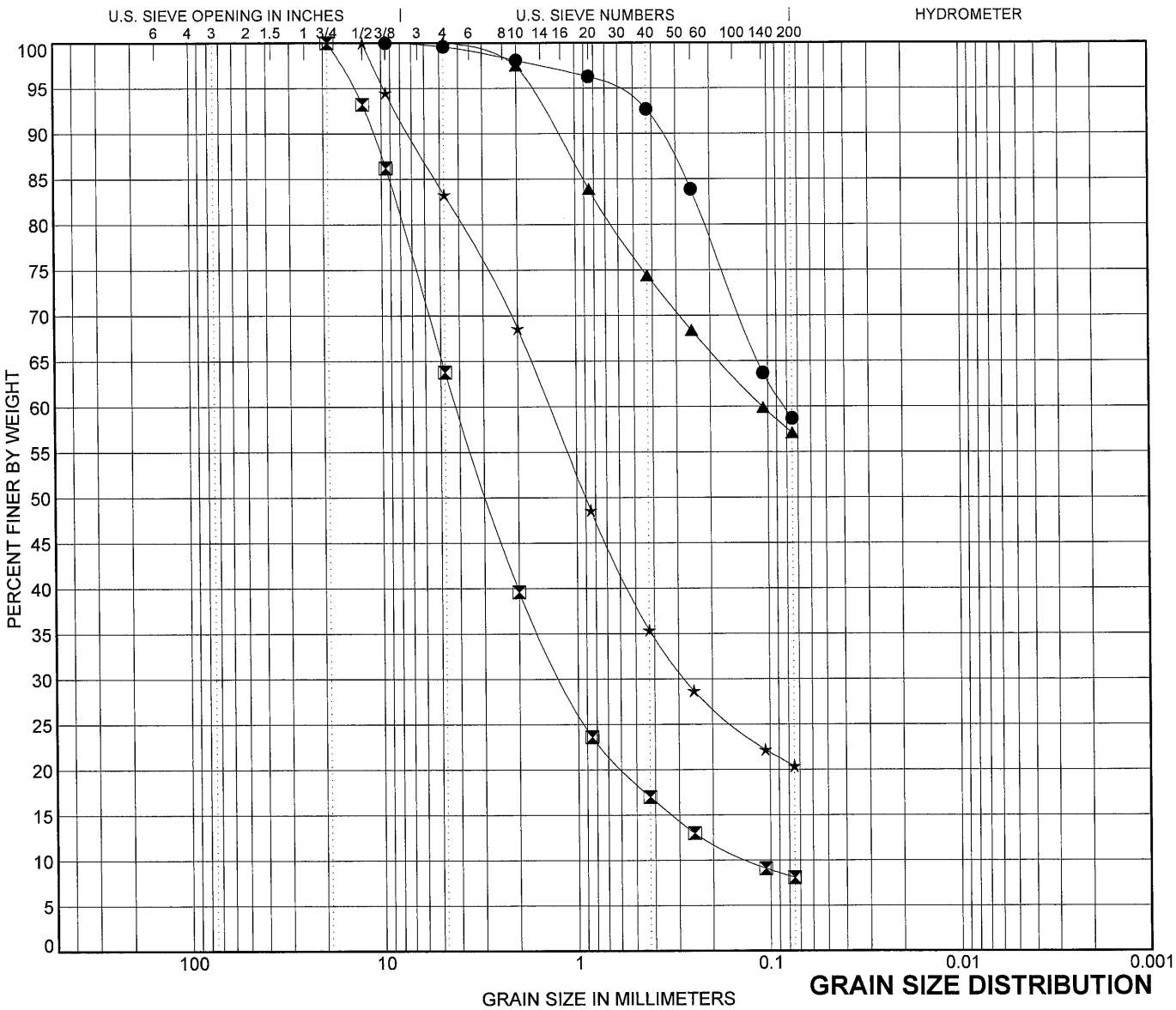
	BORING	SAMPLE #	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	A-11-006	4	21.0	SILTY SAND (SM)	25	23	2		
⊠	A-11-006	5	26.0	CLAYEY SAND (SC)					
▲	A-11-007	3	16.0	Poorly graded SAND with SILT (SP-SM)				0.84	2.38
★	A-11-007	5	26.0	Poorly graded SAND (SP)				0.86	2.15
⊙	A-11-007	7	36.0	CLAYEY SAND (SC)					

	BORING	SAMPLE #	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	A-11-006	4	21.0	19	0.213			27.1	40.5	32.4	
⊠	A-11-006	5	26.0	4.75	0.127			0.0	55.3	44.7	
▲	A-11-007	3	16.0	9.5	0.256	0.153	0.108	1.0	91.5	7.5	
★	A-11-007	5	26.0	0.85	0.243	0.154	0.113	0.0	96.1	3.9	
⊙	A-11-007	7	36.0	9.5	0.905	0.105		8.2	65.1	26.7	

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

JOB NO:2011-114-SGN | PLATE NO: B-4C



GRAIN SIZE DISTRIBUTION

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING	SAMPLE #	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	A-11-009	2	11.0	SANDY lean CLAY (CL)					
⊠	A-11-012	5	26.0	Well-graded SAND with SILT and GRAVEL (SW-SM)				2.67	32.09
▲	A-11-016	6	31.0	SANDY lean CLAY (CL)					
★	A-11-018	8	36.0	CLAYEY SAND with GRAVEL					

	BORING	SAMPLE #	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	A-11-009	2	11.0	9.5	0.082			0.4	40.9	58.7	
⊠	A-11-012	5	26.0	19	4.147	1.197	0.129	36.2	55.7	8.1	
▲	A-11-016	6	31.0	4.75	0.107			0.0	42.9	57.1	
★	A-11-018	8	36.0	12.5	1.384	0.277		16.7	62.9	20.4	

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

JOB NO:2011-114-SGN | PLATE NO: B-4D

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 05/11/2011
Date Submitted 05/05/2011

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2011-114-SGN/I80 INT Site ID : A11-002#2 @ 10'.
Thank you for your business.

* For future reference to this analysis please use SUN # 60025-122678.

EVALUATION FOR SOIL CORROSION

Soil pH	7.87	
Minimum Resistivity	0.83 ohm-cm (x1000)	
Chloride	84.5 ppm	00.00845 %
Sulfate	222.8 ppm	00.02228 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

MAY 13 2011

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 05/18/2011
Date Submitted 05/12/2011

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2011-114-SGN/I80PROJ Site ID : A-11-003 #4@21'.
Thank you for your business.

* For future reference to this analysis please use SUN # 60078-122789.

EVALUATION FOR SOIL CORROSION

Soil pH	8.27	
Minimum Resistivity	0.78 ohm-cm (x1000)	
Chloride	47.5 ppm	00.00475 %
Sulfate	62.4 ppm	00.00624 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

RECEIVED
MAY 20 2011
By

PLATE NO.: B-5B

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 05/18/2011
Date Submitted 05/12/2011

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2011-114-SGN/I80PROJ Site ID : A-11-004#5@25'.
Thank you for your business.

* For future reference to this analysis please use SUN # 60078-122788.

EVALUATION FOR SOIL CORROSION

Soil pH	7.83	
Minimum Resistivity	0.72 ohm-cm (x1000)	
Chloride	99.4 ppm	00.00994 %
Sulfate	43.0 ppm	00.00430 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 06/29/2011
Date Submitted 06/23/2011

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2011-114-SGN/I-80 Site ID : A11-005#2 @ 10'.
Thank you for your business.

* For future reference to this analysis please use SUN # 60337-123419.

EVALUATION FOR SOIL CORROSION

Soil pH	7.86	
Minimum Resistivity	0.48 ohm-cm (x1000)	
Chloride	235.7 ppm	00.02357 %
Sulfate	521.4 ppm	00.05214 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 05/11/2011
Date Submitted 05/05/2011

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2011-114-SGN/I80 INT Site ID : A11-006#3 @ 16'.
Thank you for your business.

* For future reference to this analysis please use SUN # 60025-122677.

EVALUATION FOR SOIL CORROSION

Soil pH	6.44	
Minimum Resistivity	0.72 ohm-cm (x1000)	
Chloride	52.4 ppm	00.00524 %
Sulfate	898.5 ppm	00.08985 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

RECEIVED
MAY 13 2011
By

PLATE NO.: B-5E

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 05/27/2011
Date Submitted 05/23/2011

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney RA
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2011-114-SGN/I-80 Site ID : A11-007 #6 @30'.
Thank you for your business.

* For future reference to this analysis please use SUN # 60131-122939.

EVALUATION FOR SOIL CORROSION

Soil pH	8.50		
Minimum Resistivity	0.25 ohm-cm (x1000)		
Chloride	1013.6 ppm	00.10136	%
Sulfate	499.7 ppm	00.04997	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

MAY 31 2011

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 06/15/2011
Date Submitted 06/09/2011

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2011-114-SGN/I80 INT Site ID : A11-009#3 @ 15'.
Thank you for your business.

* For future reference to this analysis please use SUN # 60254-123209.

EVALUATION FOR SOIL CORROSION

Soil pH	7.30	
Minimum Resistivity	2.68 ohm-cm (x1000)	
Chloride	37.0 ppm	00.00370 %
Sulfate	30.6 ppm	00.00306 %

METHODS
pH and Min.Resistivity CA DOT Test #643 Mod.(Sm.Cell)
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

RECEIVED
JUN 17 2011
BY

PLATE NO.: B-5G

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 05/11/2011
Date Submitted 05/05/2011

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2011-114-SGN/I80 INT Site ID : A11-011#2 @ 10'.
Thank you for your business.

* For future reference to this analysis please use SUN # 60025-122680.

EVALUATION FOR SOIL CORROSION

Soil pH	7.81		
Minimum Resistivity	0.51 ohm-cm (x1000)		
Chloride	24.6 ppm	00.00246	%
Sulfate	103.4 ppm	00.01034	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

RECEIVED
MAY 13 2011
BY

PLATE NO.: B-5H

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 05/27/2011
Date Submitted 05/23/2011

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2011-114-SGN/I-80 Site ID : A11-012 #2 @10'.
Thank you for your business.

* For future reference to this analysis please use SUN # 60131-122940.

EVALUATION FOR SOIL CORROSION

Soil pH	7.61	
Minimum Resistivity	1.10 ohm-cm (x1000)	
Chloride	21.2 ppm	00.00212 %
Sulfate	96.2 ppm	00.00962 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

MAY 31 2011

PLATE NO.: B-51

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 05/27/2011
Date Submitted 05/23/2011

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2011-114-SGN/I-80 Site ID : A11-013#3 @ 15'.
Thank you for your business.

* For future reference to this analysis please use SUN # 60131-122938.

EVALUATION FOR SOIL CORROSION

Soil pH	7.63	
Minimum Resistivity	1.07 ohm-cm (x1000)	
Chloride	74.7 ppm	00.00747 %
Sulfate	47.8 ppm	00.00478 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

RECEIVED
MAY 31 2011

PLATE NO.: B-5J

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 06/15/2011
Date Submitted 06/09/2011

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2011-114-SGN/I80 INT Site ID : A11-015#2 @ 10'.
Thank you for your business.

* For future reference to this analysis please use SUN # 60254-123210.

EVALUATION FOR SOIL CORROSION

Soil pH	7.06		
Minimum Resistivity	0.72 ohm-cm (x1000)		
Chloride	56.2 ppm	00.00562	%
Sulfate	23.3 ppm	00.00233	%

METHODS
pH and Min.Resistivity CA DOT Test #643 Mod.(Sm.Cell)
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

RECEIVED
JUN 17 2011
BY

PLATE NO.: B-5K

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 06/15/2011
Date Submitted 06/09/2011

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2011-114-SGN/I80 INT Site ID : A11-016#1 @ 5'.
Thank you for your business.

* For future reference to this analysis please use SUN # 60254-123208.

EVALUATION FOR SOIL CORROSION

Soil pH	7.24	
Minimum Resistivity	0.86 ohm-cm (x1000)	
Chloride	18.1 ppm	00.00181 %
Sulfate	30.1 ppm	00.00301 %

METHODS
pH and Min.Resistivity CA DOT Test #643 Mod.(Sm.Cell)
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

RECEIVED
JUN 17 2011
By

PLATE NO.: B-5L

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 09/02/2011
Date Submitted 08/30/2011

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2011-114-SGN/I-80 Site ID : A11-018#3 @ 13'.
Thank you for your business.

* For future reference to this analysis please use SUN # 60910-124960.

EVALUATION FOR SOIL CORROSION

Soil pH	7.71	
Minimum Resistivity	1.05 ohm-cm (x1000)	
Chloride	22.3 ppm	00.00223 %
Sulfate	94.6 ppm	00.00946 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

APPENDIX C

LIQUEFACTION ANALYSES

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME ***I-80 INTEGRATED MOBILITY PROJECT***
PROJECT NO. ***2011-114-SGN***
SIGN ***SS3-2***
BORING NO. ***A-11-002***

BOREHOLE DIA (in)= 5
GW DEPTH (ft)= 10
ELEV (ft)=

SOIL GROUPS
1. GRAVELS, SANDS AND NONPLASTIC SILTS
2. CLAYS AND PLASTIC SILTS

HAMMER ENERGY = 85%

FAULT INFO
HAYWARD FAULT ZONE
a_{max} *(g)=* 0.75
FAULT M_w = 7.3

MSF = 1.07

					CYCLIC STRESS RATIO (CSR)				*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)*											*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α*		
Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	σ_v (psf)	σ_v' (psf)	r_d	CSR	Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60,CS}$	$CRR_{7.5}$	Kσ	Kα	F.S.
1	6	1	23	MC	750	750	0.99	0.48	15.0	1.42	0.75	1.0	1.00	15.9	1.40	22.2		22.2		1.00	1	
2	11	2	7	MC	1375	1313	0.98		4.6	1.42	0.80	1.0	1.00	5.2	1.19	6.1				1.00	1	
3	16	1	7	MC	2000	1625	0.97	0.58	4.6	1.42	0.80	1.0	1.00	5.2	1.09	5.6	5%	5.6	0.08	1.00	1	(0.14)
4	21	2	11	MC	2625	1938	0.95		7.2	1.42	0.80	1.0	1.00	8.1	1.01	8.2				1.00	1	
5	26	1	27	MC	3250	2250	0.94	0.66	17.6	1.42	0.85	1.0	1.00	21.1	0.95	20.0	36%	29.0	0.41	0.96	1	(0.64)
6	31	1	15	MC	3875	2563	0.92	0.67	9.8	1.42	0.95	1.0	1.00	13.1	0.89	11.6	30%	18.1	0.19	0.93	1	(0.29)
7	36	2	45	MC	4500	2875	0.88		29.3	1.42	0.95	1.0	1.00	39.4	0.83	32.8				0.86	1	
8	41	1	22	SPT	5125	3188	0.84	0.66	22.0	1.42	1.00	1.2	1.00	37.4	0.79	29.5	13%	32.4		0.84	1	NON-LIQ.
9	51	2	33	MC	6375	3813	0.74		21.5	1.42	1.00	1.0	1.00	30.4	0.71	21.5				0.80	1	
10	61	2	21	MC	7625	4438	0.65		13.7	1.42	1.00	1.0	1.00	19.3	0.64	12.4				0.79	1	
11	71	2	24	MC	8875	5063	0.59		15.6	1.42	1.00	1.0	1.00	22.1	0.59	13.0				0.76	1	

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME	***I-80 INTEGRATED MOBILITY PROJECT***	*SOIL GROUPS*	*FAULT INFO*
PROJECT NO.	***2011-114-SGN***	1. GRAVELS, SANDS AND NONPLASTIC SILTS	*HAYWARD FAULT ZONE*
SIGN	***SS6-2***	2. CLAYS AND PLASTIC SILTS	*a_{max} (g)=* 0.75
BORING NO.	***A-11-003***		*FAULT M_w =* 7.3
BOREHOLE DIA (in)=	5	*HAMMER ENERGY =* 85%	
GW DEPTH (ft)=	5		*MSF =* 1.07
ELEV (ft)=			

					CYCLIC STRESS RATIO (CSR)				*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)*											*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α*		
Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	σ_v (psf)	σ_v' (psf)	r_d	CSR	Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60,CS}$	$CRR_{7.5}$	Kσ	Kα	F.S.
1	6	1	5	MC	750	688	0.99	0.53	3.3	1.42	0.75	1.0	1.00	3.5	1.43	4.9		4.9	0.07	1.00	1	(0.15)
2	11	1	19	MC	1375	1000	0.98	0.65	12.4	1.42	0.80	1.0	1.00	14.0	1.29	18.1	2%	18.1	0.19	1.00	1	(0.32)
3	16	1	20	MC	2000	1313	0.97	0.72	13.0	1.42	0.80	1.0	1.00	14.7	1.19	17.5		17.5	0.19	1.00	1	(0.28)
4	21	2	14	MC	2625	1625	0.95		9.1	1.42	0.80	1.0	1.00	10.3	1.09	11.3				1.00	1	
5	26	2	15	MC	3250	1938	0.94		9.8	1.42	0.85	1.0	1.00	11.7	1.01	11.9				1.00	1	
6	31	2	27	MC	3875	2250	0.92		17.6	1.42	0.95	1.0	1.00	23.6	0.95	22.3				0.96	1	
7	36	1	62	SPT	4500	2563	0.88	0.76	62.0	1.42	0.95	1.2	1.00	100.1	0.89	88.8		88.8		0.91	1	NON-LIQ.
8	41	2	22	MC	5125	2875	0.84		14.3	1.42	1.00	1.0	1.00	20.3	0.83	16.9				0.89	1	
9	51	2	32	MC	6375	3500	0.74		20.8	1.42	1.00	1.0	1.00	29.5	0.75	22.0				0.82	1	
10	61	2	31	MC	7625	4125	0.65		20.2	1.42	1.00	1.0	1.00	28.5	0.67	19.2				0.78	1	
11	71	2	32	MC	8875	4750	0.59		20.8	1.42	1.00	1.0	1.00	29.5	0.62	18.1				0.75	1	

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME	***I-80 INTEGRATED MOBILITY PROJECT***	*SOIL GROUPS*	*FAULT INFO*
PROJECT NO.	***2011-114-SGN***	1. GRAVELS, SANDS AND NONPLASTIC SILTS	*HAYWARD FAULT ZONE*
SIGN	***SS8-1***	2. CLAYS AND PLASTIC SILTS	*a_{max} (g)=* 0.75
BORING NO.	***A-11-004***		*FAULT M_w =* 7.3
BOREHOLE DIA (in)=	5	*HAMMER ENERGY =* 85%	
GW DEPTH (ft)=	5		*MSF =* 1.07
ELEV (ft)=			

					CYCLIC STRESS RATIO (CSR)				*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)*											*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α*		
Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	σ_v (psf)	σ_v' (psf)	r_d	CSR	Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60, CS}$	$CRR_{7.5}$	Kσ	Kα	F.S.
1	6	1	9	MC	750	688	0.99	0.53	5.9	1.42	0.75	1.0	1.00	6.2	1.43	8.9	3%	8.9	0.10	1.00	1	(0.21)
2	11	1	14	MC	1375	1000	0.98	0.65	9.1	1.42	0.80	1.0	1.00	10.3	1.29	13.3	3%	13.3	0.14	1.00	1	(0.24)
3	16	1	27	MC	2000	1313	0.97	0.72	17.6	1.42	0.80	1.0	1.00	19.9	1.19	23.6	3%	23.6	0.27	1.00	1	(0.40)
4	21	1	23	SPT	2625	1625	0.95	0.75	23.0	1.42	0.80	1.2	1.00	31.3	1.09	34.2	36%	46.0		1.00	1	NON-LIQ.
5	26	1	14	SPT	3250	1938	0.94	0.77	14.0	1.42	0.85	1.2	1.00	20.2	1.01	20.5	15%	24.0	0.27	1.00	1	(0.38)
6	31	1	24	MC	3875	2250	0.92	0.77	15.6	1.42	0.95	1.0	1.00	21.0	0.95	19.9	15%	23.3	0.26	0.96	1	(0.35)
7	36	2	21	MC	4500	2563	0.88		13.7	1.42	0.95	1.0	1.00	18.4	0.89	16.3				0.92	1	
8	41	2	23	MC	5125	2875	0.84		15.0	1.42	1.00	1.0	1.00	21.2	0.83	17.7				0.89	1	
9	51	2	18	MC	6375	3500	0.74		11.7	1.42	1.00	1.0	1.00	16.6	0.75	12.4				0.85	1	
10	61	2	27	MC	7625	4125	0.65		17.6	1.42	1.00	1.0	1.00	24.9	0.67	16.8				0.79	1	
11	71	2	26	MC	8875	4750	0.59		16.9	1.42	1.00	1.0	1.00	23.9	0.62	14.7				0.76	1	

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME	***I-80 INTEGRATED MOBILITY PROJECT***	*SOIL GROUPS*	*FAULT INFO*
PROJECT NO.	***2011-114-SGN***	1. GRAVELS, SANDS AND NONPLASTIC SILTS	*HAYWARD FAULT ZONE*
SIGN	***SS9-2***	2. CLAYS AND PLASTIC SILTS	*a_{max} (g)=* 0.75
BORING NO.	***A-11-005***		*FAULT M_w =* 7.3
BOREHOLE DIA (in)=	5	*HAMMER ENERGY =* 85%	
GW DEPTH (ft)=	0		*MSF =* 1.07
ELEV (ft)=			

					CYCLIC STRESS RATIO (CSR)				*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)*											*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α*		
Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	σ_v (psf)	σ_v' (psf)	r_d	CSR	Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60,CS}$	$CRR_{7.5}$	Kσ	Kα	F.S.
1	6	1	11	MC	750	375	0.99	0.96	7.2	1.42	0.75	1.0	1.00	7.6	1.59	12.0		12.0	0.13	1.00	1	(0.15)
2	11	1	6	MC	1375	688	0.98	0.95	3.9	1.42	0.80	1.0	1.00	4.4	1.43	6.3		6.3	0.08	1.00	1	(0.09)
3	16	1	9	MC	2000	1000	0.97	0.94	5.9	1.42	0.80	1.0	1.00	6.6	1.29	8.6	17%	12.1	0.13	1.00	1	(0.15)
4	21	1	38	MC	2625	1313	0.95	0.93	24.7	1.42	0.80	1.0	1.00	28.0	1.19	33.2	3%	33.2		1.00	1	NON-LIQ.
5	26	1	40	MC	3250	1625	0.94	0.91	26.0	1.42	0.85	1.0	1.00	31.3	1.09	34.2		34.2		1.00	1	NON-LIQ.
6	31	1	29	MC	3875	1938	0.92	0.89	18.9	1.42	0.95	1.0	1.00	25.4	1.01	25.7	2%	25.7	0.31	1.00	1	(0.37)
7	36	2	39	MC	4500	2250	0.88		25.4	1.42	0.95	1.0	1.00	34.1	0.95	32.3				0.95	1	
8	41	2	42	MC	5125	2563	0.84		27.3	1.42	1.00	1.0	1.00	38.7	0.89	34.3				0.91	1	
9	51	2	32	MC	6375	3188	0.74		20.8	1.42	1.00	1.0	1.00	29.5	0.79	23.2				0.84	1	
10	56	2	24	SPT	7000	3500	0.69		24.0	1.42	1.00	1.2	1.00	40.8	0.75	30.4				0.81	1	

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME	***I-80 INTEGRATED MOBILITY PROJECT***	*SOIL GROUPS*	*FAULT INFO*
PROJECT NO.	***2011-114-SGN***	1. GRAVELS, SANDS AND NONPLASTIC SILTS	*HAYWARD FAULT ZONE*
SIGN	***SS12-1***	2. CLAYS AND PLASTIC SILTS	*a_{max} (g)=* 0.75
BORING NO.	***A-11-006***		*FAULT M_w =* 7.3
BOREHOLE DIA (in)=	5	*HAMMER ENERGY =* 85%	
GW DEPTH (ft)=	5		*MSF =* 1.07
ELEV (ft)=	#######		

Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	*CYCLIC STRESS RATIO (CSR)* σ_v (psf)	σ_v' (psf)	r_d	CSR	*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)* Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60,CS}$	$CRR_{7.5}$	*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α* Kσ	Kα	F.S.
1	6	1	7	MC	750	688	0.99	0.53	4.6	1.42	0.75	1.0	1.00	4.8	1.43	6.9	30%	12.7	0.14	1.00	1	(0.28)
2	11	1	10	SPT	1375	1000	0.98	0.65	10.0	1.42	0.80	1.2	1.00	13.6	1.29	17.6	2%	17.6	0.19	1.00	1	(0.31)
3	16	1	15	MC	2000	1313	0.97	0.72	9.8	1.42	0.80	1.0	1.00	11.1	1.19	13.1	32%	20.2	0.22	1.00	1	(0.32)
4	21	1	9	SPT	2625	1625	0.95	0.75	9.0	1.42	0.80	1.2	1.00	12.2	1.09	13.4	32%	20.6	0.22	1.00	1	(0.32)
5	26	1	18	MC	3250	1938	0.94	0.77	11.7	1.42	0.85	1.0	1.00	14.1	1.01	14.3	45%	22.2	0.24	1.00	1	(0.34)
6	31	2	17	MC	3875	2250	0.92		11.1	1.42	0.95	1.0	1.00	14.9	0.95	14.1				0.96	1	
7	36	1	43	MC	4500	2563	0.88	0.76	28.0	1.42	0.95	1.0	1.00	37.6	0.89	33.4		33.4		0.91	1	NON-LIQ.
8	41	2	18	SPT	5125	2875	0.84		18.0	1.42	1.00	1.2	1.00	30.6	0.83	25.5				0.88	1	
9	51	2	28	MC	6375	3500	0.74		18.2	1.42	1.00	1.0	1.00	25.8	0.75	19.2				0.83	1	
10	61	2	37	MC	7625	4125	0.65		24.1	1.42	1.00	1.0	1.00	34.1	0.67	23.0				0.77	1	
11	71	2	55	MC	8875	4750	0.59		35.8	1.42	1.00	1.0	1.00	50.6	0.62	31.2				0.71	1	
12	81	2	40	MC	10125	5375	0.54		26.0	1.42	1.00	1.0	1.00	36.8	0.57	20.8				0.70	1	

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME ***I-80 INTEGRATED MOBILITY PROJECT***
PROJECT NO. ***2011-114-SGN***
SIGN ***SS13-2***
BORING NO. ***AS-BUILT BORING B92-61***

BOREHOLE DIA (in)= 5
GW DEPTH (ft)= 9

SOIL GROUPS
1. GRAVELS, SANDS AND NONPLASTIC SILTS
2. CLAYS AND PLASTIC SILTS

HAMMER ENERGY = 60%

FAULT INFO
HAYWARD FAULT ZONE
a_{max} (g)= 0.75
FAULT M_w = 7.3

MSF = 1.07

					CYCLIC STRESS RATIO (CSR)				*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)*											*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α*		
Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	σ_v (psf)	σ_v' (psf)	r_d	CSR	Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60, CS}$	$CRR_{7.5}$	Kσ	Kα	F.S.
1	5	1	34	SPT	625	625	0.99	0.48	34.0	1.00	0.75	1.2	1.00	30.6	1.45	44.5		44.5		1.00	1	
2	10	1	15	SPT	1250	1188	0.98	0.50	15.0	1.00	0.80	1.2	1.00	14.4	1.23	17.7		17.7	0.19	1.00	1	(0.40)
3	15	2	1	SPT	1875	1500	0.97		1.0	1.00	0.80	1.2	1.00	1.0	1.13	1.1				1.00	1	
4	20	2	5	SPT	2500	1813	0.96		5.0	1.00	0.80	1.2	1.00	4.8	1.04	5.0				1.00	1	
5	25	2	14	SPT	3125	2125	0.94		14.0	1.00	0.85	1.2	1.00	14.3	0.97	13.9				0.98	1	
6	30	1	37	SPT	3750	2438	0.92	0.69	37.0	1.00	0.95	1.2	1.00	42.2	0.91	38.4		38.4		0.92	1	NON-LIQ.
7	35	2	25	SPT	4375	2750	0.89		25.0	1.00	0.95	1.2	1.00	28.5	0.85	24.3	20%			0.88	1	
8	40	1	50	SPT	5000	3063	0.85	0.68	50.0	1.00	1.00	1.2	1.00	60.0	0.81	48.3		48.3		0.84	1	NON-LIQ.
9	45	2	33	SPT	5625	3375	0.80		33.0	1.00	1.00	1.2	1.00	39.6	0.76	30.2				0.81	1	
10	50	2	18	SPT	6250	3688	0.75		18.0	1.00	1.00	1.2	1.00	21.6	0.72	15.6				0.81	1	
11	55	2	18	SPT	6875	4000	0.70		18.0	1.00	1.00	1.2	1.00	21.6	0.69	14.9				0.80	1	
12	65	1	47	SPT	8125	4625	0.62		47.0	1.00	1.00	1.2	1.00	56.4	0.63	35.3		35.3		0.72	1	NON-LIQ.
12	100	1	100	SPT	12500	6813	0.50		100.0	1.00	1.00	1.2	1.00	120.0	0.48	57.3		57.3		0.61	2	NON-LIQ.

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME	***I-80 INTEGRATED MOBILITY PROJECT***	*SOIL GROUPS*	*FAULT INFO*
PROJECT NO.	***2011-114-SGN***	1. GRAVELS, SANDS AND NONPLASTIC SILTS	*HAYWARD FAULT ZONE*
SIGN	***SS16-1***	2. CLAYS AND PLASTIC SILTS	*a_{max} (g)=* 0.75
BORING NO.	***A-11-009***		*FAULT M_w =* 7.3
BOREHOLE DIA (in)=	5	*HAMMER ENERGY =* 85%	
GW DEPTH (ft)=	40		*MSF =* 1.07
ELEV (ft)=			

					CYCLIC STRESS RATIO (CSR)				*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)*											*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α*		
Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	σ_v (psf)	σ_v' (psf)	r_d	CSR	Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60, CS}$	$CRR_{7.5}$	Kσ	Kα	F.S.
1	6	1	40	MC	750	750	0.99	0.48	26.0	1.42	0.75	1.0	1.00	27.6	1.40	38.6		38.6		1.00	1	
2	11	1	32	MC	1375	1375	0.98	0.48	20.8	1.42	0.80	1.0	1.00	23.6	1.17	27.5		27.5		1.00	1	
3	16	2	33	MC	2000	2000	0.97		21.5	1.42	0.80	1.0	1.00	24.3	1.00	24.3				1.00	1	
4	21	1	100	MC	2625	2625	0.95	0.47	65.0	1.42	0.80	1.0	1.00	73.7	0.88	64.5		64.5		0.90	1	

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME	***I-80 INTEGRATED MOBILITY PROJECT***	*SOIL GROUPS*		*FAULT INFO*
PROJECT NO.	***2011-114-SGN***	1. GRAVELS, SANDS AND NONPLASTIC SILTS		*HAYWARD FAULT ZONE*
SIGN	***SS18-1***	2. CLAYS AND PLASTIC SILTS		*a_{max} (g)=* 0.75
BORING NO.	***A-11-018***			*FAULT M_w =* 7.3
BOREHOLE DIA (in)=	5	*HAMMER ENERGY =*	85%	
GW DEPTH (ft)=	25			*MSF =* 1.07

					CYCLIC STRESS RATIO (CSR)				*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)*											*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α*		
Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	σ_v (psf)	σ_v' (psf)	r_d	CSR	Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60, CS}$	$CRR_{7.5}$	Kσ	Kα	F.S.
1	2	2	25	MC	250	250	1.00		16.3	1.42	0.75	1.0	1.00	17.3	1.66	28.7				1.00	1	
2	5	2	21	MC	625	625	0.99		13.7	1.42	0.75	1.0	1.00	14.5	1.45	21.1				1.00	1	
3	12	2	9	SPT	1500	1500	0.97		9.0	1.42	0.80	1.2	1.00	12.2	1.13	13.8				1.00	1	
4	15	2	23	MC	1875	1875	0.97		15.0	1.42	0.80	1.0	1.00	16.9	1.03	17.4				1.00	1	
5	20	2	24	MC	2500	2500	0.96		15.6	1.42	0.80	1.0	1.00	17.7	0.90	15.9				0.93	1	
6	25	2	45	MC	3125	3125	0.94		29.3	1.42	0.85	1.0	1.00	35.2	0.80	28.1				0.84	1	
7	30	2	31	MC	3750	3438	0.92		20.2	1.42	0.95	1.0	1.00	27.1	0.75	20.4				0.83	1	
8	35	2	40	MC	4375	3750	0.89		26.0	1.42	0.95	1.0	1.00	35.0	0.72	25.0				0.79	1	
9	40	1	81	MC	5000	4063	0.85		52.7	1.42	1.00	1.0	1.00	74.6	0.68	50.8		50.8		0.75	1	NON-LIQ.
10	45	2	65	MC	5625	4375	0.80		42.3	1.42	1.00	1.0	1.00	59.9	0.65	38.9				0.73	1	
11	50	2	86	MC	6250	4688	0.75		55.9	1.42	1.00	1.0	1.00	79.2	0.62	49.2				0.71	1	
12	55	2	100	MC	6875	5000	0.70		65.0	1.42	1.00	1.0	1.00	92.1	0.59	54.8				0.69	1	

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME	***I-80 INTEGRATED MOBILITY PROJECT***	*SOIL GROUPS*	*FAULT INFO*
PROJECT NO.	***2011-114-SGN***	1. GRAVELS, SANDS AND NONPLASTIC SILTS	*HAYWARD FAULT ZONE*
SIGN	***SS21-1***	2. CLAYS AND PLASTIC SILTS	*a_{max} (g)=* 0.75
BORING NO.	***A-11-011***		*FAULT M_w =* 7.3
BOREHOLE DIA (in)=	5	*HAMMER ENERGY =* 85%	
GW DEPTH (ft)=	45		*MSF =* 1.07

					CYCLIC STRESS RATIO (CSR)				*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)*											*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α*		
Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	σ_v (psf)	σ_v' (psf)	r_d	CSR	Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60, CS}$	$CRR_{7.5}$	Kσ	Kα	F.S.
1	6	2	12	MC	750	750	0.99		7.8	1.42	0.75	1.0	1.00	8.3	1.40	11.6				1.00	1	
2	11	2	21	MC	1375	1375	0.98		13.7	1.42	0.80	1.0	1.00	15.5	1.17	18.0				1.00	1	
3	16	2	18	MC	2000	2000	0.97		11.7	1.42	0.80	1.0	1.00	13.3	1.00	13.3				1.00	1	
4	21	2	23	MC	2625	2625	0.95		15.0	1.42	0.80	1.0	1.00	16.9	0.88	14.8				0.91	1	
5	26	2	18	MC	3250	3250	0.94		11.7	1.42	0.85	1.0	1.00	14.1	0.78	11.0				0.87	1	
6	31	2	25	MC	3875	3875	0.92		16.3	1.42	0.95	1.0	1.00	21.9	0.70	15.3				0.81	1	
7	36	2	21	MC	4500	4500	0.88		13.7	1.42	0.95	1.0	1.00	18.4	0.64	11.7				0.79	1	
8	41	2	26	MC	5125	5125	0.84		16.9	1.42	1.00	1.0	1.00	23.9	0.58	14.0				0.75	1	
9	50	2	21	MC	6250	5938	0.75		13.7	1.42	1.00	1.0	1.00	19.3	0.53	10.2				0.74	1	
10	53	2	25	MC	6625	6125	0.72		16.3	1.42	1.00	1.0	1.00	23.0	0.52	11.9				0.72	1	

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME	***I-80 INTEGRATED MOBILITY PROJECT***	*SOIL GROUPS*		*FAULT INFO*	
PROJECT NO.	***2011-114-SGN***	1. GRAVELS, SANDS AND NONPLASTIC SILTS		*HAYWARD FAULT ZONE*	
SIGN	***SS23-1***	2. CLAYS AND PLASTIC SILTS		*a_{max} (g)=*	0.75
BORING NO.	***A-11-012***			*FAULT M_w =*	7.3
BOREHOLE DIA (in)=	5	*HAMMER ENERGY =*	85%		
GW DEPTH (ft)=	20			*MSF =*	1.07

					CYCLIC STRESS RATIO (CSR)				*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)*											*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α*		
Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	σ_v (psf)	σ_v' (psf)	r_d	CSR	Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60,CS}$	$CRR_{7.5}$	Kσ	Kα	F.S.
1	6	2	12	MC	750	750	0.99		7.8	1.42	0.75	1.0	1.00	8.3	1.40	11.6				1.00	1	
2	11	2	18	MC	1375	1375	0.98		11.7	1.42	0.80	1.0	1.00	13.3	1.17	15.5				1.00	1	
3	16	2	16	MC	2000	2000	0.97		10.4	1.42	0.80	1.0	1.00	11.8	1.00	11.8				1.00	1	
4	21	2	18	MC	2625	2563	0.95		11.7	1.42	0.80	1.0	1.00	13.3	0.89	11.8				0.93	1	
5	26	1	37	MC	3250	2875	0.94	0.52	24.1	1.42	0.85	1.0	1.00	29.0	0.83	24.2	8%	24.8	0.29	0.87	1	(0.52)
6	31	2	18	MC	3875	3188	0.92		11.7	1.42	0.95	1.0	1.00	15.7	0.79	12.4				0.87	1	
7	36	1	100	MC	4500	3500	0.88	0.55	65.0	1.42	0.95	1.0	1.00	87.5	0.75	65.2		65.2		0.80	1	NON-LIQ.
8	41	1	100	SPT	5125	3813	0.84	0.55	100.0	1.42	1.00	1.2	1.00	170.0	0.71	120.4		120.4		0.77	1	NON-LIQ.

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME	***I-80 INTEGRATED MOBILITY PROJECT***	*SOIL GROUPS*		*FAULT INFO*
PROJECT NO.	***2011-114-SGN***	1. GRAVELS, SANDS AND NONPLASTIC SILTS		*HAYWARD FAULT ZONE*
SIGN	***SS25-1***	2. CLAYS AND PLASTIC SILTS		*a_{max} (g)=* 0.75
BORING NO.	***A-11-013***			*FAULT M_w =* 7.3
BOREHOLE DIA (in)=	5	*HAMMER ENERGY =*	85%	
GW DEPTH (ft)=	30			*MSF =* 1.07

					CYCLIC STRESS RATIO (CSR)				*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)*											*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α*		
Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	σ_v (psf)	σ_v' (psf)	r_d	CSR	Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60, CS}$	$CRR_{7.5}$	Kσ	Kα	F.S.
1	6	2	25	MC	750	750	0.99		16.3	1.42	0.75	1.0	1.00	17.3	1.40	24.1				1.00	1	
2	11	2	24	MC	1375	1375	0.98		15.6	1.42	0.80	1.0	1.00	17.7	1.17	20.6				1.00	1	
3	16	2	32	MC	2000	2000	0.97		20.8	1.42	0.80	1.0	1.00	23.6	1.00	23.6				1.00	1	
4	21	2	26	MC	2625	2625	0.95		16.9	1.42	0.80	1.0	1.00	19.2	0.88	16.8				0.91	1	
5	26	2	46	MC	3250	3250	0.94		29.9	1.42	0.85	1.0	1.00	36.0	0.78	28.0				0.82	1	
6	31	2	37	MC	3875	3813	0.92		24.1	1.42	0.95	1.0	1.00	32.4	0.71	22.9				0.79	1	
7	36	2	21	MC	4500	4125	0.88		13.7	1.42	0.95	1.0	1.00	18.4	0.67	12.4				0.81	1	
8	46	2	16	SPT	5750	4750	0.79		16.0	1.42	1.00	1.2	1.00	27.2	0.62	16.7				0.77	1	

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME	***I-80 INTEGRATED MOBILITY PROJECT***	*SOIL GROUPS*	*FAULT INFO*
PROJECT NO.	***2011-114-SGN***	1. GRAVELS, SANDS AND NONPLASTIC SILTS	*HAYWARD FAULT ZONE*
SIGN	***SS3-1***	2. CLAYS AND PLASTIC SILTS	*a_{max} (g)=* 0.75
BORING NO.	***AS-BUILT BORINGS B-5 & B-6***		*FAULT M_w =* 7.3
BOREHOLE DIA (in)=	5	*HAMMER ENERGY =* 60%	
GW DEPTH (ft)=	5		*MSF =* 1.07

					CYCLIC STRESS RATIO (CSR)				*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)*											*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α*		
Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	σ_v (psf)	σ_v' (psf)	r_d	CSR	Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60,CS}$	$CRR_{7.5}$	Kσ	Kα	F.S.
1	5	1	7	SPT	625	625	0.99	0.48	7.0	1.00	0.75	1.2	1.00	6.3	1.45	9.2	10%	10.2	0.12	1.00	1	(0.26)
2	10	1	6	SPT	1250	938	0.98	0.64	6.0	1.00	0.80	1.2	1.00	5.8	1.32	7.6	10%	8.6	0.10	1.00	1	(0.17)
3	15	1	3	SPT	1875	1250	0.97	0.71	3.0	1.00	0.80	1.2	1.00	2.9	1.21	3.5	10%	4.4	0.07	1.00	1	(0.10)
4	20	1	11	SPT	2500	1563	0.96	0.75	11.0	1.00	0.80	1.2	1.00	10.6	1.11	11.7	10%	12.8	0.14	1.00	1	(0.20)
5	25	2	17	SPT	3125	1875	0.94		17.0	1.00	0.85	1.2	1.00	17.3	1.03	17.8				1.00	1	
6	30	2	12	SPT	3750	2188	0.92		12.0	1.00	0.95	1.2	1.00	13.7	0.96	13.1				0.97	1	
7	35	1	27	SPT	4375	2500	0.89	0.76	27.0	1.00	0.95	1.2	1.00	30.8	0.90	27.6	15%	31.5		0.91	1	NON-LIQ.
8	40	1	33	SPT	5000	2813	0.85	0.74	33.0	1.00	1.00	1.2	1.00	39.6	0.84	33.4	15%	37.5		0.87	1	NON-LIQ.
9	45	2	20	SPT	5625	3125	0.80		20.0	1.00	1.00	1.2	1.00	24.0	0.80	19.1				0.85	1	
10	50	2	20	SPT	6250	3438	0.75		20.0	1.00	1.00	1.2	1.00	24.0	0.75	18.1				0.83	1	
11	55	2	20	SPT	6875	3750	0.70		20.0	1.00	1.00	1.2	1.00	24.0	0.72	17.2				0.80	1	
12	60	2	20	SPT	7500	4063	0.66		20.0	1.00	1.00	1.2	1.00	24.0	0.68	16.3				0.78	1	

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME	***I-80 INTEGRATED MOBILITY PROJECT***	*SOIL GROUPS*	*FAULT INFO*
PROJECT NO.	***2011-114-SGN***	1. GRAVELS, SANDS AND NONPLASTIC SILTS	*HAYWARD FAULT ZONE*
SIGN	***SS13-1***	2. CLAYS AND PLASTIC SILTS	*a_{max} (g)=* 0.75
BORING NO.	***A-11-007***		*FAULT M_w =* 7.3
BOREHOLE DIA (in)=	5	*HAMMER ENERGY =* 85%	
GW DEPTH (ft)=	15		*MSF =* 1.07

					CYCLIC STRESS RATIO (CSR)				*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)*											*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α*		
Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	σ_v (psf)	σ_v' (psf)	r_d	CSR	Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60,CS}$	$CRR_{7.5}$	Kσ	Kα	F.S.
1	6	1	25	MC	750	750	0.99	0.48	16.3	1.42	0.75	1.0	1.00	17.3	1.40	24.1		24.1		1.00	1	
2	11	1	25	MC	1375	1375	0.98	0.48	16.3	1.42	0.80	1.0	1.00	18.4	1.17	21.5		21.5		1.00	1	
3	16	1	26	MC	2000	1938	0.97	0.49	16.9	1.42	0.80	1.0	1.00	19.2	1.01	19.4	8%	19.8	0.21	1.00	1	(0.47)
4	21	1	4	SPT	2625	2250	0.95	0.54	4.0	1.42	0.80	1.2	1.00	5.4	0.95	5.1		5.1	0.07	0.98	1	(0.14)
5	26	1	5	SPT	3250	2563	0.94	0.58	5.0	1.42	0.85	1.2	1.00	7.2	0.89	6.4	4%	6.4	0.08	0.95	1	(0.14)
6	31	2	6	SPT	3875	2875	0.92		6.0	1.42	0.95	1.2	1.00	9.7	0.83	8.1				0.92	1	
7	36	1	53	MC	4500	3188	0.88	0.61	34.5	1.42	0.95	1.0	1.00	46.4	0.79	36.5	27%	45.6		0.83	1	NON-LIQ.
8	41	2	26	MC	5125	3500	0.84		16.9	1.42	1.00	1.0	1.00	23.9	0.75	17.9				0.83	1	
9	51	2	32	MC	6375	4125	0.74		20.8	1.42	1.00	1.0	1.00	29.5	0.67	19.9				0.78	1	
10	61	2	16	MC	7625	4750	0.65		10.4	1.42	1.00	1.0	1.00	14.7	0.62	9.1				0.80	1	
11	71	2	39	MC	8875	5375	0.59		25.4	1.42	1.00	1.0	1.00	35.9	0.57	20.3				0.71	1	

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME	***I-80 INTEGRATED MOBILITY PROJECT***	*SOIL GROUPS*	*FAULT INFO*
PROJECT NO.	***2011-114-SGN***	1. GRAVELS, SANDS AND NONPLASTIC SILTS	*HAYWARD FAULT ZONE*
SIGN	***SS26-1***	2. CLAYS AND PLASTIC SILTS	*a_{max} (g)=* 0.75
BORING NO.	***AS-BUILT BORINGS B-1 & B-3***		*FAULT M_w =* 7.3
BOREHOLE DIA (in)=	3	*HAMMER ENERGY =* 60%	
GW DEPTH (ft)=	10		*MSF =* 1.07

					CYCLIC STRESS RATIO (CSR)				*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)*											*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α*		
Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	σ_v (psf)	σ_v' (psf)	r_d	CSR	Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60, CS}$	$CRR_{7.5}$	Kσ	Kα	F.S.
1	5	2	20	SPT	625	625	0.99		20.0	1.00	0.75	1.2	1.00	18.0	1.45	26.2				1.00	1	
2	10	2	20	SPT	1250	1250	0.98		20.0	1.00	0.80	1.2	1.00	19.2	1.21	23.1				1.00	1	
3	15	1	14	SPT	1875	1563	0.97	0.57	14.0	1.00	0.80	1.2	1.00	13.4	1.11	14.9	15%	18.1	0.19	1.00	1	(0.37)
4	20	2	15	SPT	2500	1875	0.96		15.0	1.00	0.80	1.2	1.00	14.4	1.03	14.8				1.00	1	
5	25	2	15	SPT	3125	2188	0.94		15.0	1.00	0.85	1.2	1.00	15.3	0.96	14.7				0.97	1	
6	30	2	15	SPT	3750	2500	0.92		15.0	1.00	0.95	1.2	1.00	17.1	0.90	15.4				0.93	1	
7	35	2	15	SPT	4375	2813	0.89		15.0	1.00	0.95	1.2	1.00	17.1	0.84	14.4				0.89	1	
8	40	1	30	SPT	5000	3125	0.85	0.66	30.0	1.00	1.00	1.2	1.00	36.0	0.80	28.7	15%	32.5		0.84	1	NON-LIQ.
9	45	1	30	SPT	5625	3438	0.80	0.64	30.0	1.00	1.00	1.2	1.00	36.0	0.75	27.1	15%	30.9		0.81	1	NON-LIQ.
10	50	1	80	SPT	6250	3750	0.75	0.61	80.0	1.00	1.00	1.2	1.00	96.0	0.72	68.7		68.7		0.78	1	NON-LIQ.

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME	***I-80 INTEGRATED MOBILITY PROJECT***	*SOIL GROUPS*	*FAULT INFO*
PROJECT NO.	***2011-114-SGN***	1. GRAVELS, SANDS AND NONPLASTIC SILTS	*HAYWARD FAULT ZONE*
SIGN	***SS37-1***	2. CLAYS AND PLASTIC SILTS	*a_{max} (g)=* 0.75
BORING NO.	***A-11-015***		*FAULT M_w =* 7.3
BOREHOLE DIA (in)=	5	*HAMMER ENERGY =* 85%	
GW DEPTH (ft)=	10 Assumed		*MSF =* 1.07

					CYCLIC STRESS RATIO (CSR)				*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)*											*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α*		
Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	σ_v (psf)	σ_v' (psf)	r_d	CSR	Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60, CS}$	$CRR_{7.5}$	Kσ	Kα	F.S.
1	6	2	19	MC	750	750	0.99		12.4	1.42	0.75	1.0	1.00	13.1	1.40	18.3				1.00	1	
2	11	2	65	MC	1375	1313	0.98		42.3	1.42	0.80	1.0	1.00	47.9	1.19	56.8				1.00	1	
3	16	2	22	MC	2000	1625	0.97		14.3	1.42	0.80	1.0	1.00	16.2	1.09	17.7				1.00	1	
4	21	2	37	MC	2625	1938	0.95		24.1	1.42	0.80	1.0	1.00	27.3	1.01	27.6				1.00	1	
5	26	2	48	MC	3250	2250	0.94		31.2	1.42	0.85	1.0	1.00	37.6	0.95	35.6				0.95	1	
6	31	2	100	MC	3875	2563	0.92		65.0	1.42	0.95	1.0	1.00	87.5	0.89	77.6				0.91	1	
7	36	2	100	MC	4500	2875	0.88		65.0	1.42	0.95	1.0	1.00	87.5	0.83	73.0				0.86	1	

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

LIQUEFACTION POTENTIAL ANALYSIS (SPT procedures per Youd et al, 2001)

PROJECT NAME	***I-80 INTEGRATED MOBILITY PROJECT***	*SOIL GROUPS*	*FAULT INFO*
PROJECT NO.	***2011-114-SGN***	1. GRAVELS, SANDS AND NONPLASTIC SILTS	*HAYWARD FAULT ZONE*
SIGN	***SS50-1***	2. CLAYS AND PLASTIC SILTS	*a_{max} (g)=* 0.75
BORING NO.	***A-11-016***		*FAULT M_w =* 7.3
BOREHOLE DIA (in)=	5	*HAMMER ENERGY =* 85%	
GW DEPTH (ft)=	15		*MSF =* 1.07

					CYCLIC STRESS RATIO (CSR)				*LIQUEFACTION RESISTANCE ($CRR_{7.5}$)*											*F.S.=($CRR_{7.5}$/CSR)*MSF*K σ*K α*		
Sample No	Depth (ft)	Soil Type	Blow Count	Sampler Type	σ_v (psf)	σ_v' (psf)	r_d	CSR	Eqiv. SPT-N	C_E	C_R	C_S	C_B	N_{60}	C_N	$(N_1)_{60}$	F.C.	$(N_1)_{60, CS}$	$CRR_{7.5}$	Kσ	Kα	F.S.
1	6	2	11	MC	750	750	0.99		7.2	1.42	0.75	1.0	1.00	7.6	1.40	10.6				1.00	1	
2	11	2	11	MC	1375	1375	0.98		7.2	1.42	0.80	1.0	1.00	8.1	1.17	9.4				1.00	1	
3	16	2	27	MC	2000	1938	0.97		17.6	1.42	0.80	1.0	1.00	19.9	1.01	20.2				1.00	1	
4	21	2	17	MC	2625	2250	0.95		11.1	1.42	0.80	1.0	1.00	12.5	0.95	11.9				0.96	1	
5	26	2	19	MC	3250	2563	0.94		12.4	1.42	0.85	1.0	1.00	14.9	0.89	13.2				0.93	1	
6	31	2	22	MC	3875	2875	0.92		14.3	1.42	0.95	1.0	1.00	19.2	0.83	16.1				0.89	1	
7	36	2	30	MC	4500	3188	0.88		19.5	1.42	0.95	1.0	1.00	26.2	0.79	20.7				0.85	1	
8	41	2	30	MC	5125	3500	0.84		19.5	1.42	1.00	1.0	1.00	27.6	0.75	20.6				0.82	2	

Note:

1. The correction factors C_E (Energy Ratio), C_B (Borehole Diameter), C_R (Rod Length) and C_S (Sampling Method-liner) are per Youd et al. (2001).
2. For correction of overburden, $C_N = 2.2/(1.2 + \sigma_v'/P_a)$ with a maximum value of 1.7 per Kayen et al. (1992) as cited in Youd et al. (2001).
3. The influence of Fines Contents are expressed by the following correction: $(N_1)_{60cs} = \alpha + \beta\ (N_1)_{60}$

   where α and β = coefficients determined from the following relationships

   for FC $\leq$ 5% $\alpha = 0$, $\beta = 1.0$

   for 5% < FC < 35% $\alpha = \exp(1.76-(190/FC^2))$, $\beta = (0.99+(FC^{1.5}/1000))$

   for FC $\geq$ 35% $\alpha = 5.0$, $\beta = 1.2$
4. For $(N_1)_{60,cs}$ greater than 30, clean granular soils are too dense to liquefy and are classed as non-liquefiable.
5. PGA of 0.75 g was based on USGS 2008 Deaggregation.

Reference:

Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER Workshops on Evaluation of Liquefaction Resistance of Soils, Youd, et al., ASCE Journal of Geotechnical and Geoenvironmental Engineering, October 2001, Vol. 127 No. 10

APPENDIX D

CALCULATIONS OF PILE COMPRESSIVE CAPACITIES

ATM SS3-2 (Based on A-11-002)

Residual Shear Strength
$Sr=2116 \exp(-8.444+0.109N_{160}+5.379(\sigma_v'/\sigma_p')^{0.1})$

Elev. 7 to 3 feet
$N_{160} = 5.5$; $\sigma_v' = 1438$ psf
Sr = 147 psf

Elev. -8 to -20 feet
$N_{160} = 15$; $\sigma_v' = 2315$ psf
Sr = 530 psf

Down Drag Force
Silty Sand Layer (Elev. 15 to 7 feet)
σ_v' = 4'(125 psf) = 500 psf ; $\beta = 0.35$
F=0.35(500 psf)(8')(5π) = 22 kips

Sandy Clay Layer (Elev. 7 to 5 feet)
σ_v' = 10'(125 psf) = 1250 psf ; $\beta = 0.25$
F=0.25(1250 psf)(2')(5π) = 9.8 kips

Sandy Clay Layer (Elev. 5 to 3 feet)
σ_v' = 10'(125 psf) + 1(125-62.4)psf = 1313 psf ; $\beta = 0.25$
F=0.25(1313 psf)(2')(5π) = 10.3 kips

Fat Clay Layer (Elev. -3 to -8 feet)
σ_v' = 10'(125 psf) + 10.5'(125-62.4)psf = 1907 psf ; $\beta = 0.25$
F=0.25(1907 psf)(5')(5π) = 37.5 kips

Total Down Drag Force = 80 kips

Vertical Capacity (Skin friction calculated from Clayey Sand Layer at Elev. -20' to -30')
Ultimate Load = 100 kips; Down Drag Force = 80 kips; Total Load = 180 kips

σ_v' = 10'(125 psf) + 30'(125-62.4)psf = 3128 psf
$\sigma_p' = 2116\,(0.47)(N_{60})^m = 2116\,(0.47)(37)^{0.6} = 8680$ psf
$OCR = \sigma_p'/\sigma_v'$ = 8680 psf / 3128 psf = 2.8
$K_o=(1-\sin\Phi')OCR^{\sin\Phi'} = (1-\sin 34°)2.8^{\sin 34°} = 0.78$
$\beta = K_o\tan\delta = 0.78\tan(34°) = 0.526$
$f_{sn} = \sigma_v'\,\beta$ = 3128 psf (0.526) = 1646 psf

Shoulder (5' Diameter Pile):
f_{sn} (Perimeter) = 1646 psf (5π) = 25.9 kips/ft for 5' diameter pile
L = 180 kips / 25.9 kips/ft = 7 ft min. @ Elev. -27' for 5' diameter pile use -32 ft

Median (3.5' Diameter Pile):
f_{sn} (Perimeter) = 1646 psf (3.5π) = 18.1 kips/ft for 3.5' diameter pile
L = 180 kips / 18.1 kips/ft = 10 ft min @ Elev. -30' for 3.5' diameter pile use -35 ft

Check Torsion (Long Span: 400 kip-ft)
5' diameter pile: 1646 psf (5π)(2.5')(7') = 452.5 kip-ft > 400 kip-ft → Good
3.5' diameter pile: 0.55 (500 psf)(3.5π)(1.75')(4') + 0.55 (150 psf)(3.5π)(1.75')(6') + 0.55 (850 psf)(3.5π)(1.75')(5') + 0.55 (500 psf)(3.5π)(1.75')(12') + 1646 psf (3.5π)(1.75')(10') = 453 kip-ft > 400 kip-ft → Good (For simplicity, calculating Torsion in Clay Layers, liquefiable layers and neglected silty sand layer above Elev. 7)

For constructability, pile tip should penetrate to Lean Clay layer @ Elev. -35' for 3.5' and 5' diameter piles

ATM SS6-2 (Based on A-11-003)

Residual Shear Strength
$Sr=2116 \exp(-8.444+0.109N_{160}+5.379(\sigma_v'/\sigma_p')^{0.1})$

Elev. 14.5 to 9.5 feet
$N_{160} = 5$; $\sigma_v' = 563$ psf
Sr = 87 psf

Elev. 9.5 to 5.5 feet
$N_{160} = 18$; $\sigma_v' = 1251$ psf
Sr = 533 psf

Down Drag Force

Silty Sand Layer (Elev. 14.5 to 9.5 feet)
$\sigma_v' = 2.5'(125 \text{ psf}) = 313$ psf ; $\beta = 0.35$
$F=0.35(313 \text{ psf})(5')(5\pi) = 8.6$ kips

Vertical Capacity (Skin friction calculated from Lean Clay Layer at Elev. -5' to -13.5')
Ultimate Load = 100 kips; Down Drag Force = 10 kips; Total Load = 110 kips

Su = 1500 psf; $\alpha = 0.55$

Shoulder (5' Diameter Pile):
Nominal side resistance: $R_{SN,1} = 0.55$ (1500 psf) (5π) = 13 kips/ft for 5' diameter pile
L = 110 kips / 13 kips/ft = 8.5 ft min. @ Elev. -15' for 5' diameter pile use -20 ft

Median (3.5' Diameter Pile):
Nominal side resistance: $R_{SN,1} = 0.55$ (1500 psf) (3.5π) = 9.07 kips/ft for 3.5' diameter pile
Skin Friction: 9.07 kips/ft (8.5') = 77 kips

Vertical Capacity (Skin friction calculated from Lean Clay Layer at Elev. -13.5' to -18.5)
Su = 2000 psf; $\alpha = 0.55$

Median (3.5' Diameter Pile):
Nominal side resistance: $R_{SN,1} = 0.55$ (2000 psf) (3.5π) = 12.9 kips/ft for 3.5' diameter pile
L = (110 – 77) kips / 12.9 kips/ft = 3 ft
L_{total} = 8.5' + 3' = 11.5' @ Elev. -16.5' for 3.5' diameter pile use -21.5

Check Torsion (Long Span: 400 kip-ft)
5' diameter pile: 0.55 (100 psf)(5π)(2.5')(5') + 0.55 (100 psf)(5π)(2.5')(4') + 0.55 (500 psf)(5π)(2.5')(10.5') + 0.55 (1500 psf)(5π)(2.5')(8.5') + 0.55(2000 psf) (5π) (2.5')(5') = 624.2 kips-ft > 400 kip-ft → Good (For simplicity, calculated up to Elev. -18.5' only)

Poorly-Graded Sand Layer
$\sigma_v' = 10'(125 \text{ psf}) + 26'(125-62.4)\text{psf} = 2878$ psf
$\sigma_p' = 2116\ (0.47)(N_{60})^m = 2116\ (0.47)(100)^{0.6} = 15762$ psf
$OCR = \sigma_p'/\sigma_v' = 15762 \text{ psf} / 2878 \text{ psf} = 5.48$
$K_o=(1-\sin\Phi')OCR^{\sin\Phi'} = (1-\sin 38°)5.48^{\sin 38°} = 1.09$
$\beta = K_o\tan\delta = 1.09 \tan(38°) = 0.86$
$f_{sn} = \sigma_v' \beta = 2878 \text{ psf } (0.86) = 2462$ psf

3.5' diameter pile: 0.55 (100 psf)(3.5π)(1.75')(5') + 0.55 (100 psf)(3.5π)(1.75')(4') + 0.55 (500 psf)(3.5π)(1.75')(10.5') + 0.55 (1500 psf)(3.5π)(1.75')(8.5') + 0.55(2000 psf) (3.5π) (1.75')(5') + 2462 psf (3.5π)(1.75')(6') + 0.55(1750 psf) (3.5π) (1.75')(8.5') = 748 kip-ft>400 kip-ft → Good

Pile Tip @ Elev. -22' for 5' diameter pile (governed by structural plan)

Pile Tip @ Elev. -34' for 3.5' diameter pile (governed by structural plan)

ATM SS8-1 (Based on A-11-004)

Residual Shear Strength
$Sr=2116 \exp(-8.444+0.109N_{160}+5.379(\sigma_v'/\sigma_p')^{0.1})$

Elev. 15 to -3 feet
$N_{160} = 10$; $\sigma_v' = 875$ psf
Sr = 186 psf

Elev. -10 to -18 feet
$N_{160} = 20$; $\sigma_v' = 2127$ psf
Sr = 875 psf → use 750 psf

Down Drag Force

Silty Sand Layer (Elev. 14.5 to 9.5 feet)
$\sigma_v' = 2.5'(125 \text{ psf}) = 313$ psf ; $\beta = 0.35$
$F=0.35(313 \text{ psf})(5')(5\pi) = 8.6$ kips

Clayey Sand Layer (Elev. -3 to -10 feet)
$\sigma_v' = 5'(125 \text{ psf}) + 16.5' (125-62.4) \text{ psf} = 1658$ psf ; $\beta = 0.35$
$F=0.35(1658 \text{ psf})(7')(3.5\pi) =$ 44.6 kips

Vertical Capacity (Skin friction calculated from Lean Clay Layer at Elev. -18' to -40')

Ultimate Load = 100 kips; Down Drag Force = 45 kips; Total Load = 145 kips

Su = 1500 psf; $\alpha = 0.55$

Shoulder & Median (3.5' Diameter Pile):
Nominal side resistance: $R_{SN,1} = 0.55 (1500 \text{ psf}) (3.5\pi) = 9.07$ kips/ft for 3.5' diameter pile
L = 145 kips / 9.07 kips/ft = 16 ft min. @ Elev. -34 ft for 3.5' diameter pile use -39 ft

Check Torsion (Short Span: 280 kip-ft)
*For simplicity, neglected Clayey Sand layer at Elev. -3 to -10
3.5' diameter pile: $0.55 (200 \text{ psf}) (3.5\pi)(1.75')(18') + 0.55 (750 \text{ psf}) (3.5\pi)(1.75')(8') + 0.55 (750 \text{ psf}) (3.5\pi)(1.75')(8') + 0.55 (1500 \text{ psf}) (3.5\pi)(1.75')(17') = 435$ kip-ft > 280 kip-ft → Good

Pile Tip @ Elev. -40.5' for 3.5' diameter pile (governed by structural plan)

ATM SS9-2 (Based on A-11-005)

Residual Shear Strength

$Sr=2116 \exp(-8.444+0.109N_{160}+5.379(\sigma_v'/\sigma_p')^{0.1})$

Elev. 15 to 7.5 feet
$N_{160} = 12$; $\sigma_v' = 234$ psf
Sr = 126 psf

Elev. 7.5 to -2 feet
$N_{160} = 7$; $\sigma_v' = 750$ psf
Sr = 124 psf

Elev. 7.5 to -2 feet
$N_{160} = 26$; $\sigma_v' = 1875$ psf
Sr = 1574 psf
$\sigma_v' \tan \Phi = 1875 \tan(34°) = 1264$ psf → Use Sr = 750 psf for Liquefiable case

Down Drag Force

Clayey Gravel Layer (Elev. -2 to -13 feet)
$\sigma_v' = 22.5'(125-62.4)$ psf = 1409 psf ; $\beta = 0.35$
$F=0.35(1409 \text{ psf})(11')(5\pi) = 85.2$ kips

Vertical Capacity (Skin friction calculated from Lean Clay Layer at Elev. -17')

Ultimate Load = 100 kips; Down Drag Force = 85 kips; Total Load = 180 kips

Su = 2500 psf; $\alpha = 0.55$

Shoulder (5' Diameter Pile):
Nominal side resistance: $R_{SN,1} = 0.55\,(2500 \text{ psf})\,(5\pi) = 21.6$ kips/ft for 5' diameter pile
L = 180 kips / 21.6 kips/ft = 8.5 ft min. @ Elev. -25.5 ft for 5' diameter pile use -30 ft

Median (3.5' Diameter Pile):
Nominal side resistance: $R_{SN,1} = 0.55\,(2500 \text{ psf})\,(3.5\pi) = 15.1$ kips/ft for 3.5' diameter pile
L = 180 kips / 15.1 kips/ft = 12 ft min. @ Elev. -29 ft for 3.5' diameter pile use -34 ft

Check Torsion (Long Span: 400 kip-ft)

5' diameter pile: $0.55\,(2500 \text{ psf})\,(5\pi)(2.5')(8.5') = 459$ kip-ft > 400 kip-ft → Good

Clayey Gravel Layer
$\sigma_v' = 5'(125 \text{ psf}) + 17.5'(125-62.4)\text{psf} = 1720$ psf
$\sigma_p' = 2116\,(0.47)(N_{60})^m = 2116\,(0.47)(30)^{0.6} = 7654$ psf
$OCR = \sigma_p'/\sigma_v' = 7654 \text{ psf} / 1720 \text{ psf} = 4.45$
$K_o=(1-\sin\Phi')OCR^{\sin\Phi'} = (1-\sin 34°)4.45^{\sin 34°} = 1.0$
$\beta = K_o \tan\delta = 1.0 \tan(34°) = 0.69$
$f_{sn} = \sigma_v' \beta = 1720 \text{ psf}\,(0.69) = 1178$ psf

3.5' diameter pile: $0.55\,(150 \text{ psf})\,(3.5\pi)(1.75')(9.5') + 0.55\,(750 \text{ psf})\,(3.5\pi)(1.75')(4') + 1178 \text{ psf}\,(3.5\pi)(1.75')(11') + 0.55\,(2500 \text{ psf})\,(3.5\pi)(1.75')(12') = 614$ kip-ft > 400 kip-ft → Good

Pile Tip @ Elev. -30 ft for 5' diameter pile (governed by structural plan)

Pile Tip @ Elev. -36 ft for 3' diameter pile (governed by structural plan)

ATM SS12-1 (Based on A-11-006)

Residual Shear Strength
$Sr=2116 \exp(-8.444+0.109N_{160}+5.379(\sigma_v'/\sigma_p')^{0.1})$

Elev. 26 to 23 feet
$N_{160} = 7$; $\sigma_v' = 250$ psf
Sr = 75 psf

Elev. 23 to 18 feet
$N_{160} = 17.5$; $\sigma_v' = 969$ psf
Sr = 443 psf

Elev. 18 to 8 feet
$N_{160} = 13$; $\sigma_v' = 1438$ psf
Sr = 330 psf

Elev. 8 to 3 feet
$N_{160} = 14$; $\sigma_v' = 1906$ psf
Sr = 430 psf

Down Drag Force
Silty Sand Layer (Elev. 31 to 26 feet)
$\sigma_v' = 2.5'$ (125) psf = 313 psf ; $\beta = 0.35$
$F=0.35(313 \text{ psf})(5')(5\pi) = \boxed{8.6 \text{ kips}}$

Vertical Capacity (Skin friction calculated from Lean Clay Layer at Elev. 3')
Ultimate Load = 100 kips; Down Drag Force = 10 kips; Total Load = 110 kips
Su = 1250 psf; $\alpha = 0.55$

Shoulder (5' Diameter Pile):
Nominal side resistance: $R_{SN,1} = 0.55$ (1250 psf) (5π) =10.8 kips/ft for 5' diameter pile
10.4 kips/ft (5 ft) = 54 kips

Median (3' Diameter Pile):
Nominal side resistance: $R_{SN,1} = 0.55$ (1250 psf) (3.5π) = 7.6 kips/ft for 3.5' diameter pile
7.6 kips/ft (5 ft) = 38 kips

Vertical Capacity (Skin friction calculated from Silty Sand Layer at Elev. -2')
$\sigma_v' = 5'(125 \text{ psf}) + 31.5'(125-62.4)\text{psf} = 2597$ psf
$\sigma_p' = 2116\ (0.47)(N_{60})^m = 2116\ (0.47)(37.6)^{0.6} = 8764$ psf
$OCR = \sigma_p'/\sigma_v' = 8764 \text{ psf} / 2597 \text{ psf} = 3.4$
$K_o=(1-\sin\Phi')OCR^{\sin\Phi'} = (1-\sin 34°)3.4^{\sin 34°} = 0.87$
$\beta = K_o\tan\delta = 0.87\tan(34°) = 0.587$
$f_{sn} = \sigma_v'\ \beta = 2597 \text{ psf } (0.587) = 1524$ psf

Shoulder (5' Diameter Pile):
f_{sn} (Perimeter) = 1524 psf (5π) = 23.9 kips/ft for 5' diameter pile
L = (110-54) kips / 23.9 kips/ft = 2.5 ft min.
L_{total} = 5'+ 2.5' = 7.5' min. @ Elev. -4.5' for 5' diameter pile use -9.5 ft

Median (3.5' Diameter Pile):
f_{sn} (Perimeter) = 1524 psf (3.5π) = 16.75 kips/ft for 3.5' diameter pile
L = (110-38) kips / 16.75 kips/ft = 4.5 ft min.
L_{total} = 5'+ 4.5' = 9.5' min. @ Elev. -6.5' for 3.5' diameter pile use -11.5 ft

Check Torsion (Short Span: 280 kip-ft)
5' diameter pile: 0.55 (1250 psf) $(5\pi)(2.5')(5')$ + 1524 psf $(5\pi)(2.5')(2.5')$ = 285 kip-ft > 280 kip-ft → Good
3.5' diameter pile: 0.55 (100 psf) $(3.5\pi)(1.75')(3')$ + 0.55 (400 psf) $(3.5\pi)(1.75')(5')$ + 0.55 (300 psf) $(3.5\pi)(1.75')(10')$ + 0.55 (400 psf) $(3.5\pi)(1.75')(5')$ + 0.55 (1250 psf) $(3.5\pi)(1.75')(5')$ + 1524 psf $(3.5\pi)(1.75')(5')$ + 0.55 (2250 psf) $(3.5\pi)(1.75')(16')$ = 381 kip-ft > 280 kip-ft → Good

Pile Tip @ Elev. -22' for 5' diameter pile (governed by structural plan)

Pile Tip @ Elev. -22.5' for 3.5' diameter pile (governed by structural plan)

SS13-2 station 357+89

Boring B92-61 As-built LOTB (Bridge No. 33-RWB, 11-5-93) Ele. 14'

ATM Base plate Ele. 23.51 3.5 ϕ in median
Grade ele. 17.51'

The GP layer from ele. 5 – 2' could be liquefiable

Downdrag force: at ele. 11' dense sand, $N_{60}=34$, $\varphi=34°$

$\sigma_v' = 125 \times (17.51-11) = 813$ psf
$\beta = 0.45$ (sand
$\therefore f = 0.45 \times 813 \times (17.51-5) \times 3.5 \times 3.14 = 50.26$ kips

Total load = 100 + 50.26 = 150.26 kips

From ele. 5 to −13.5', Baymud, liquefiable, and fat clay. Ignore portion above −13.5'.

from ele. −13.5 to −30, dense sand, $N_{60}=25$, $\varphi=34°$

at ele. −22 $\sigma_v' = (17.5-5)\times 125 + (100-62.4)\times 15 + (120-62.4)\times 12$
$= 2818$ psf
$\sigma_p' = 2116 \times 0.47 (25)^{0.6} = 6861$ psf

OCR = 6861/2818 = 2.43
$K_0 = (1-\sin 34)\, 2.43^{\sin 34} = 0.72$
$\beta = 0.72 \times \tan 34 = 0.49$
$\therefore f_{sn} = 0.49 \times 2818 = 1381$ psf

$\therefore L = 150260/(1381 \times 3.5 \times 3.14) = 9.9 = 10$ ft
use 15 ft

∴ Tip ele. = −13.5 + 15 = −28.5 ft
use −37.5' governed by structural plan.

ATM SS16-1 (Based on A-11-009)

Down Drag Force - None

Vertical Capacity (Skin friction calculated from Clayey Sand with Gravel Layer at Elev. 47' to 34')

Shoulder (5' Diameter Pile):
Ultimate Load = 100 kips

Su = 1000 psf; $\alpha = 0.55$
Nominal side resistance: $R_{SN,1} = 0.55$ (1000 psf) (5π) = 8.6 kips/ft for 5' diameter pile
L = 100 kips / 8.6 kips/ft = 11.6 ft min. @ Elev. 35.5' for 5' diameter pile use 30.5 ft

Median (3.5' Diameter Pile):
Ultimate Load = 100 kips

Su = 1000 psf; $\alpha = 0.55$
Nominal side resistance: $R_{SN,1} = 0.55$ (1000 psf) (3.5π) = 6.0 kips/ft for 3.5' diameter pile
6.0 kips/ft (13 ft) = 78 kips

Vertical Capacity (Skin friction calculated from Clayey Gravel Layer at Elev. 34' to 24')

σ_v' = 19'(125 psf) = 2375 psf
σ_p' = 2116 (0.47)$(N_{60})^m$ = 2116 (0.47)$(30)^{0.6}$ = 7654 psf
OCR = σ_p'/ σ_v' = 7654 psf / 2375 psf = 3.2
K_o=(1-sinΦ')$OCR^{\sin \Phi'}$ = (1-sin 34°)$3.2^{\sin 34°}$ = 0.85
$\beta = K_o \tan\delta$ = 0.85tan(34°) = 0.57
$f_{sn} = \sigma_v' \beta$ = 2375 psf (0.57) = 1358 psf

Median (3.5' Diameter Pile):
f_{sn} (Perimeter) = 1358 psf (3.5π) = 14.9 kips/ft for 3.5' diameter pile
L = (100-78) kips / 14.9 kips/ft = 1.5 ft
Total L = 13' + 1.5' = 14.5' min @ Elev. 32.5' for 3.5' diameter pile use 27.5 ft

Check Torsion (Short Span: 280 kip-ft)

5' diameter pile: 0.55 (1000 psf)(5π)(2.5')(13') + 0.55 (2000 psf)(5π)(2.5')(12') + 0.55 (3500 psf)(5π)(2.5')(10') = 1555 kip-ft > 280 kip-ft → Good (For simplicity, neglected vertical capacity in sedimentary rock)
3.5' diameter pile: 0.55 (1000 psf)(3.5π)(1.75')(13') + 1358 psf(3.5π)(1.75')(6.5') = 307 kip-ft > 280 kip-ft → Good (For simplicity, neglected vertical capacity in sedimentary rock)

Pile Tip @ Elev. 5' for 5' diameter pile (governed by structural plan)

Pile Tip @ Elev. 4' for 3.5' diameter pile (governed by structural plan)

PARIKH
Practicing in the Geosciences

JOB 2011-114-SGN
SHEET NO 1 OF 1
CALCULATED BY peter wei DATE 9-21-11
CHECKED BY DATE
SCALE

SS 18-1 Station 428+40

Boring A-11-018 on shoulder pavement. Ele. 29'

ATM Base plate Ele. 24.36 3.5' φ in shoulder slope
29.87 3.5' φ in median
load = 100 kips ultimate

Above ele. 4', stiff clay, su = 2000 psf

for cl α = 0.55

L = 100,000 / (0.55 x 2000 x 3.5 x 3.14) = 8.27 = 8.5 ft
use 13.5 ft

Tip Ele. shoulder 24 - 6 - 13.5 = 4.5 ft

median 30 - 6 - 13.5 = 10.5 ft

use -33.22 shoulder
-25.13 median } Governed by structural plan

ATM SS21-1 (Based on A-11-011)

Down Drag Force - None

Vertical Capacity (Skin friction calculated from Sandy Lean Clay Layer at Elev. 36' to 28')

Shoulder (5' Diameter Pile):
Ultimate Load = 100 kips

Su = 1000 psf; $\alpha = 0.55$
Nominal side resistance: $R_{SN,1} = 0.55$ (1000 psf) (5π) = 8.6 kips/ft for 5' diameter pile
8.6 kips/ft (8 ft) = 69.1 kips

Median (3.5' Diameter Pile):
Ultimate Load = 100 kips

Su = 1000 psf; $\alpha = 0.55$
Nominal side resistance: $R_{SN,1} = 0.55$ (1000 psf) (3.5π) = 6.0 kips/ft for 3' diameter pile
6.0 kips/ft (8 ft) = 48 kips

Vertical Capacity (Skin friction calculated from Lean Clay Layer at Elev. 28')

Shoulder (5' Diameter Pile):
Su =1500 psf; $\alpha = 0.55$
Nominal side resistance: $R_{SN,1} = 0.55$ (1500 psf) (5π) = 13 kips/ft for 5' diameter pile
L = (100-69.1) kips / 13 kips/ft = 2.5 ft min.
L_{total} = 8'+ 2.5' = 10.5' @ Elev. 25' for 5' diameter pile use 20 ft

Median (3.5' Diameter Pile):
Su =1500 psf; $\alpha = 0.55$
Nominal side resistance: $R_{SN,1} = 0.55$ (1500 psf) (3.5π) = 9.0 kips/ft for 3.5' diameter pile
L = (100-48) kips / 9.0 kips/ft = 5.8 ft min.
L_{total} = 8'+ 6' = 14' @ Elev. 22' for 3.5' diameter pile use 17 ft

Check Torsion (Short Span: 280 kip-ft)

5' diameter pile: 0.55 (1000 psf)(5π)(2.5')(8') + 0.55 (1500 psf)(5π)(2.5')(28') = 1080 kip-ft > 280 kip-ft → Good
3.5' diameter pile: 0.55 (1000 psf)(3.5π)(1.75')(8') + 0.55 (1500 psf)(3.5π)(1.75')(50') = 878 kip-ft > 280 kip-ft → Good

Pile Tip @ Elev. 0' for 5' diameter pile (governed by Caltrans plan)

Pile Tip @ Elev. -15' for 3' diameter pile (governed by structural plan)

ATM SS23-1 (Based on A-11-012)

Residual Shear Strength
$Sr=2116 \exp(-8.444+0.109N_{160}+5.379(\sigma_v'/\sigma_p')^{0.1})$

Elev. 29 to 24' feet
$N_{160} = 24$; $\sigma_v' = 2844$ psf
Sr = 1622 psf
$\sigma_v' \tan\Phi = 2844 \tan(34°) = 1918$ psf → Use Sr = 750 psf for Liquefiable case

Down Drag Force
Lean Clay Layer (Elev. 54 to 32 feet)
$\sigma_v' = 11'$ (125 psf) = 500 psf ; $\beta = 0.25$
F=0.25(1375 psf)(22')(5π) = 118.8 kips

Lean Clay Layer (Elev. 32 to 29 feet)
$\sigma_v' = 20'$ (125 psf) + 1.5 (125-62.4) psf = 2594 psf ; $\beta = 0.25$
F=0.25(2594 psf)(3')(5π) = 30.6 kips

Total Down Drag Force = 149.4 kips

Vertical Capacity (Skin friction calculated from Lean Clay Layer at Elev. 24' to 19')
Ultimate Load = 100 kips; Down Drag Force = 150 kips; Total Load = 250 kips

Shoulder (5' Diameter Pile):
Su = 1500 psf; $\alpha = 0.55$
Nominal side resistance: $R_{SN,1} = 0.55$ (1500 psf) (5π) = 13 kips/ft
13 kips/ft (5 ft) = 64.8 kips

Median (3.5' Diameter Pile):
Su = 1500 psf; $\alpha = 0.55$
Nominal side resistance: $R_{SN,1} = 0.55$ (1500 psf) (3.5π) = 9.0 kips/ft
9.0 kips/ft (5 ft) = 45 kips

Vertical Capacity (Skin friction calculated from Clayey Gravel Layer at Elev.19')
$\sigma_v' = 20'$(125 psf) + 10.5'(125-62.4) psf = 3157 psf
$\sigma_p' = 3157\ (0.47)(N_{60})^m = 2116\ (0.47)(87.5)^{0.6} = 14548$ psf
$OCR = \sigma_p'/\sigma_v' = 14548$ psf / 3157 psf = 4.6
$K_o=(1-\sin\Phi')OCR^{\sin\Phi'} = (1-\sin 38°)4.6^{\sin 38°} = 0.98$
$\beta = K_o\tan\delta = 0.98\tan(38°) = 0.77$
$f_{sn} = \sigma_v'\ \beta = 3157$ psf (0.77) = 2428 psf

Shoulder (5' Diameter Pile):
f_{sn} (Perimeter) = 2428 psf (5π) = 38.1 kips/ft for 5' diameter pile
L= (250-64.8) kips/ 38.1 kips/ft = 4.9 ft min.
L_{total} = 5'+ 5' = 10' @ Elev. 14' for 5' diameter pile use 9 ft

Median (3.5' Diameter Pile):
f_{sn} (Perimeter) = 2428 psf (3.5π) = 26.7 kips/ft for 3.5' diameter pile
L= (250-45) kips/ 26.7 kips/ft = 8 ft min.
L_{total} = 5'+ 8' = 13' @ Elev. 11' for 3.5' diameter pile use 6 ft

Check Torsion (Short Span: 280 kip-ft)
5' diameter pile: 0.55 (1500 psf) (5π)(2.5')(23') + 0.55 (750 psf) (5π)(2.5')(5') + 0.55 (1500 psf) (5π)(2.5')(5') + 2428 psf (5π)(2.5')(5') = 1465 kip-ft > 280 kip-ft → Good
3.5' diameter pile: 0.55 (1500 psf) (3.5π)(1.75')(23') + 0.55 (750 psf) (3.5π)(1.75')(5') + 0.55 (1500 psf) (3.5π)(1.75')(5') + 2428 psf (3.5π)(1.75')(8') = 858 kip-ft > 280 kip-ft → Good

Pile Tip @ Elev. 2.5 ft for 5' diameter pile (governed by structural plan)

Pile Tip @ Elev. 5 ft for 3.5' diameter pile(governed by structural plan)

ATM SS25-1 (Based on A-11-013)

Down Drag Force - None

Vertical Capacity (Skin friction calculated from Lean Clay Layer at Elev. 66' to 43')

Shoulder & Median (5' Diameter Pile):
Ultimate Load = 100 kips

Su = 2000 psf; $\alpha = 0.55$
Nominal side resistance: $R_{SN,1} = 0.55$ (2000 psf) (5π) = 17.3 kips/ft for 5' diameter pile
100 kips / 17.3 kips/ft = 5.8 ft min. @ Elev. 60' use 55 ft

Check Torsion (Long Span: 400 kip-ft)

5' diameter pile: 0.55 (2000 psf)(5π)(2.5')(23') + 0.55 (2500 psf)(5π)(2.5')(10') + 0.55 (1500 psf)(5π)(2.5')(4') = 1663 kip-ft > 400 kip-ft → Good

Pile Tip @ Elev. 28' for 5' diameter pile (governed by structural plan)

Pile Tip @ Elev. 28.5 ft for 3.5' diameter pile (governed by structural plan)

IDB SS3-1 (As-built LOTB – Powell Street)

Residual Shear Strength

$Sr=2116 \exp(-8.444+0.109N_{160}+5.379(\sigma_v'/\sigma_p')^{0.1})$

Elev. 5 to -14 feet
$N_{160} = 7$; $\sigma_v' = 1220$ psf (vertical effective stress taken from as-built OG)
Sr = 150 psf

Down Drag Force

Fill Layer (Elev. 29 to 10 feet)
$\sigma_v' = 9.5'(125 \text{ psf}) = 1188$ psf ; $\beta = 0.25$
$F=0.25(1188 \text{ psf})(19')(5\pi) = 88.6$ kips

Sand Layer (Elev. 10 to 5 feet)
$\sigma_v' = 2.5'(125 \text{ psf}) = 313$ psf ; $\beta = 0.35$
$F=0.35(313 \text{ psf})(5')(5\pi) = 8.6$ kips

Total Down Drag Force = 97.2 kips

Vertical Capacity (Skin friction calculated from Lean Clay Layer at Elev. -14' to -24')
Ultimate Load = 25 kips; Down Drag Force = 97.2 kips; Total Load = 125 kips

Su = 1750 psf; $\alpha = 0.55$
Nominal side resistance: $R_{SN,1} = 0.55 (1750 \text{ psf}) (5\pi) = 16$ kips/ft
125 kips / 16 kips/ft = 7.8 feet @ Elev. -22' use -27 ft

Check Torsion (360 kip-ft)

5' diameter pile: $0.55 (1750 \text{ psf}) (5\pi)(2.5')(13') = 491$ kip-ft > 360 kip-ft → Good (For simplicity, neglected everything above the liquefiable layer)(Calculation to Elev. -27)

Pile Tip @ Elev. -27' for 5' diameter pile

IDB SS13-1 (Based on A-11-007)

Residual Shear Strength

$Sr=2116 \exp(-8.444+0.109N_{160}+5.379(\sigma_v'/\sigma_p')^{0.1})$

Elev. 10 to -3 feet
$N_{160} = 6$; $\sigma_v' = 2282$ psf
Sr = 200 psf

Down Drag Force

Poorly-Graded Sand Layer (Elev. 25 to 10 feet)
$\sigma_v' = 7.5'(125 \text{ psf}) = 937.5$ psf ; $\beta = 0.35$
$F=0.35(937.5 \text{ psf})(15')(5\pi) = 77.3$ kips

Vertical Capacity (Skin friction calculated from Sandy Lean Clay Layer at Elev. -3' to -8')
Ultimate Load = 25 kips; Down Drag Force = 77.3 kips; Total Load = 105 kips

Su = 750 psf; $\alpha = 0.55$
Nominal side resistance: $R_{SN,1} = 0.55 (750 \text{ psf}) (5\pi) = 6.5$ kips/ft
6.5 kips/ft (5 ft) = 32.4 kips

Vertical Capacity (Skin friction calculated from Clayey Sand Layer at Elev. -8' to -14')

$\sigma_v' = 15'(125 \text{ psf}) + 21'(125-62.4)\text{psf} = 3189$ psf
$\sigma_p' = 2116 (0.47)(N_{60})^m = 2116 (0.47)(46.4)^{0.6} = 9943$ psf
$OCR = \sigma_p'/\sigma_v' = 9943 \text{ psf} / 3189 \text{ psf} = 3.1$
$K_o=(1-\sin\Phi')OCR^{\sin\Phi'} = (1-\sin 36°)3.1^{\sin 36°} = 0.8$
$\beta = K_o\tan\delta = 0.8\tan(36°) = 0.58$
$f_{sn} = \sigma_v' \beta = 3189 \text{ psf } (0.58) = 1857$ psf

f_{sn} (Perimeter) = 1857 psf $(5\pi) = 29.2$ kips/ft for 5' diameter pile
L = (105-32.4) kips / 29.2 kips/ft = 3 ft min.
L_{total} = 5' + 3' = 8' min. @ Elev. -11' use -16 ft

Check Torsion (360 kip-ft)

5' diameter pile: 0.55 (750 psf) $(5\pi)(2.5')(5')$ + 1857 psf $(5\pi)(2.5')(6')$ = 519 kip-ft > 360 kip-ft → Good (For simplicity, neglected everything above the liquefiable layer)(Calculation to Elev. -18)

Pile Tip @ Elev. -20.5' for 5' diameter pile (governed by structural plan)

IDB SS26-1 (As-built LOTB – Cutting Blvd.)

Residual Shear Strength

$Sr=2116 \exp(-8.444+0.109N_{160}+5.379(\sigma_v'/\sigma_p')^{0.1})$

Elev. 40 to 32.5 feet
$N_{160} = 15$; σ_v' = 1485 psf (vertical effective stress taken from as-built OG)
Sr = 400 psf

Down Drag Force

Fill Layer (Elev. 70 to 50 feet)
σ_v' = 10'(125 psf) = 1250 psf ; $\beta = 0.25$
F=0.25(1250 psf)(20')(5π) = 98.2 kips

Silty Clay Layer (Elev. 50 to 40 feet)
σ_v' = 25'(125 psf) = 3125 psf ; $\beta = 0.25$
F=0.25(3125 psf)(10')(5π) = 122.7 kips

Total Down Drag Force = 220.9 kips

Vertical Capacity (Skin friction calculated from Lean Clay Layer at Elev. 32.5' to 12.5')
Ultimate Load = 25 kips; Down Drag Force = 220.9 kips; Total Load = 250 kips

Su = 1500 psf; $\alpha = 0.55$
Nominal side resistance: $R_{SN,1}$ = 0.55 (1500 psf) (5π) = 13 kips/ft
250 kips / 16 kips/ft = 16 feet @ Elev. 16.5' use 11.5

Check Torsion (360 kip-ft)

5' diameter pile: 0.55 (1500 psf) (5π)(2.5')(16') = 518 kip-ft > 360 kip-ft → Good (For simplicity, neglected everything above the liquefiable layer)

Pile Tip @ Elev. 11.5' for 5' diameter pile

IDB SS37-1 (Based on A-11-015)

Vertical Capacity (Skin friction calculated from Lean Clay Layer at Elev. 192' to 179')
Ultimate Load = 25 kips

Su = 2500 psf; $\alpha = 0.55$
Nominal side resistance: $R_{SN,1} = 0.55$ (2500 psf) (5π) = 21.6 kips/ft
25 kips / 21.6 kips/ft = 2 feet @ Elev. 190' use 182 ft

Check Torsion (360 kip-ft)

5' diameter pile: 0.55 (2500 psf) (5π)(2.5')(13') = 702 kip-ft > 360 kip-ft → Good (For simplicity, neglected the liquefiable layer & everything above)

Pile Tip @ Elev. 164' for 5' diameter pile (governed by structural plan)

IDB SS50-1 (Based on A-11-016)

Vertical Capacity (Skin friction calculated from Lean Clay Layer at Elev. 146' to 138')
Ultimate Load = 25 kips

Su = 900 psf; $\alpha = 0.55$
Nominal side resistance: $R_{SN,1} = 0.55\ (900\ psf)\ (5\pi) = 7.8$ kips/ft
25 kips / 7.8 kips/ft = 4 feet @ Elev. 142' use 136 ft

Check Torsion (360 kip-ft)

5' diameter pile: 0.55 (900 psf) (5π)(2.5')(8') + 0.55 (1000 psf) (5π)(2.5')(6') + 0.55 (2000 psf) (5π)(2.5')(2')= 371 kip-ft > 360 kip-ft → Good (For simplicity, neglected everything below Elev. 131')

Pile Tip @ Elev. 111' for 5' diameter pile (governed by structural plan)

IDB SS56-1 (Based on A-11-017)

All competent material with Unconfined Strength of 690 psi = 49.7 tsf

Pile Tip @ Elev. 89 for 5’ diameter pile (governed by structural plan)

APPENDIX E

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. ALBERT ZEPEDA
District Branch Chief
Office of Design East - Alameda

Date: September 13, 2011

Attention: J.T. Teng

File: 04-Ala-80, PM 2.3/8.0
04-CC-80, PM 0.00/13.1
04-3A7771
E-fis: 0400002044
I-80 ICM ATM Project

From: DAVID NESBITT
Transportation Engineer
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

M. Momenzedah.

MAHMOOD MOMENZEDAH
Chief, Branch C
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject : Review of Consultant Geotechnical Design & Materials Report Submittal.

Per your request, we have reviewed the Geotechnical Design & Materials Report submittal prepared by Parikh Consultants dated July 2011 for the ICM Active Traffic Management (ATM) Project along Route 80 in Alameda and Contra Costa Counties.

After reviewing the submittal, we have the following comments for the proposed project.

- Referring to Table 5A – Foundation Design Recommendations (Active Traffic Management Gantry), the CIDH pile diameters for the Overhead Sign Trust – Two Post Type are shown on the table as 3 ft-6 inches and 5 ft. The 2006 Caltrans Standard Plans (Sheet S14 & S15) show the CIDH pile diameter as 5 ft-0 inch for the post types V-S and VI-S. This is a non-standard design according to the 2006 Caltrans Standard Plans. Any non-standard CIDH pile design will require a full review of design calculations by Caltrans Structure Design and Geotechnical Services.

- Referring to Table 5A – Foundation Design Recommendations (Active Traffic Management Gantry), the table includes "CIDH Pile Tip Elevations" gives the median and shoulder pile tip elevations, but does not give the foundation depth. Please include the CIDH pile length in the table.

- CIDH pile excavation in the freeway median will require temporary casing to prevent damage to traffic lanes.

- Referring to Table 5B – Foundation Design Recommendations (Information Display Board), please include the pile length in the table. Also, provide information for the post type.

- Log-Of-Test-Borings (LOTB) - I have attached a copy of the LOTB's with red line comments that require additional information or corrections.

If you have any questions, please contact David Nesbitt at (510) 622-0104 or Mahmood Momenzadeh at (510) 286-5732.

Attachments:

c: MMomenzadeh, TJPokrywka, Daily File, Route File

DNesbitt/mm

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.0/8.0 0.0/13.5		

GEOTECHNICAL PROFESSIONAL X DATE

PLANS APPROVAL DATE

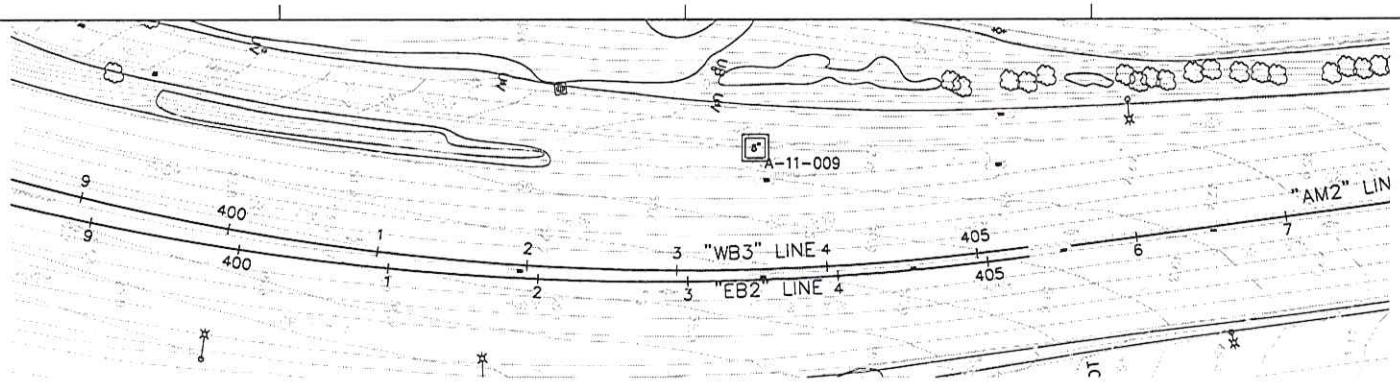
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER GARY PARIKH No. G.E. 666 Exp. 12/31/11 GEOTECHNICAL STATE OF CALIFORNIA

ALAMEDA COUNTY CONGESTION MANAGEMENT
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

DRAFT



PLAN
1"=40'

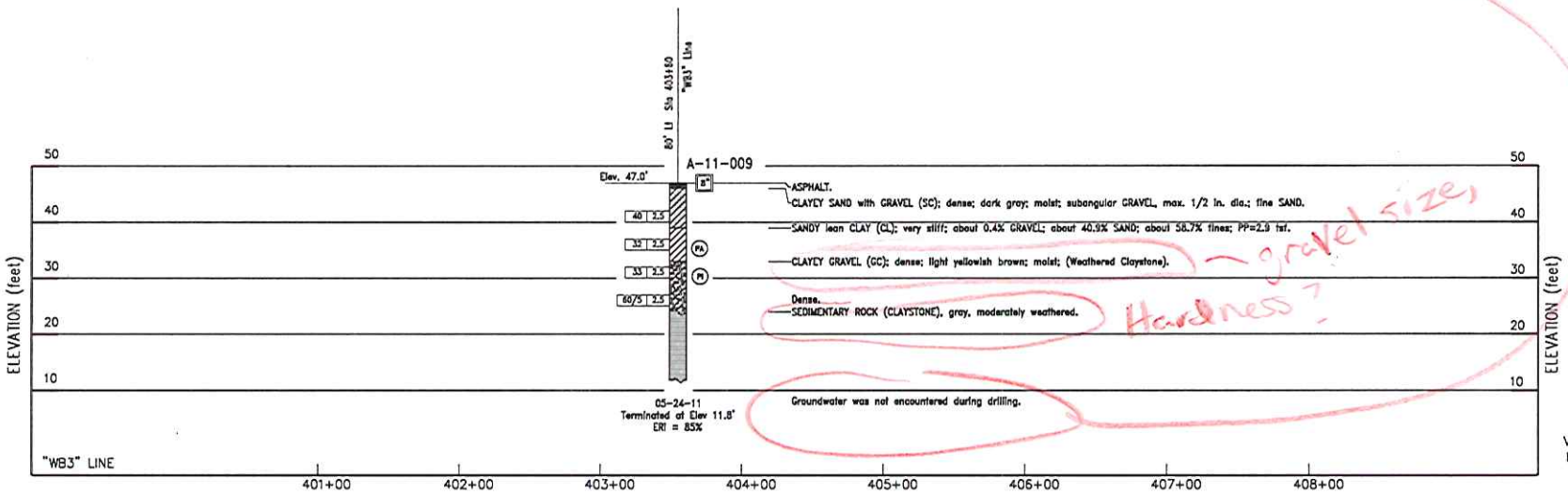
Include Bench Mark information for all borings.

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (June 2010)

All dimensions are in feet unless otherwise shown

Note:



gravel size

Hardness?

PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS17-1

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH	BRIDGE NO. -	I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
SIGN OFF DATE	CHECKED BY	G. PARIKH	FIELD INVESTIGATION BY: DATE: APRIL & MAY 2011		PROJECT ENGINEER	POST MILES -	LOG OF TEST BORINGS
GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)			ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3		UNIT: X PROJECT NUMBER & PHASE: X	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES 01/01/11 SHEET OF
					FILE => $REQUEST		CONTRACT NO.: X PROJECT ID: X

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.0/8.0 0.0/13.5		

GEOTECHNICAL PROFESSIONAL X DATE

PLANS APPROVAL DATE

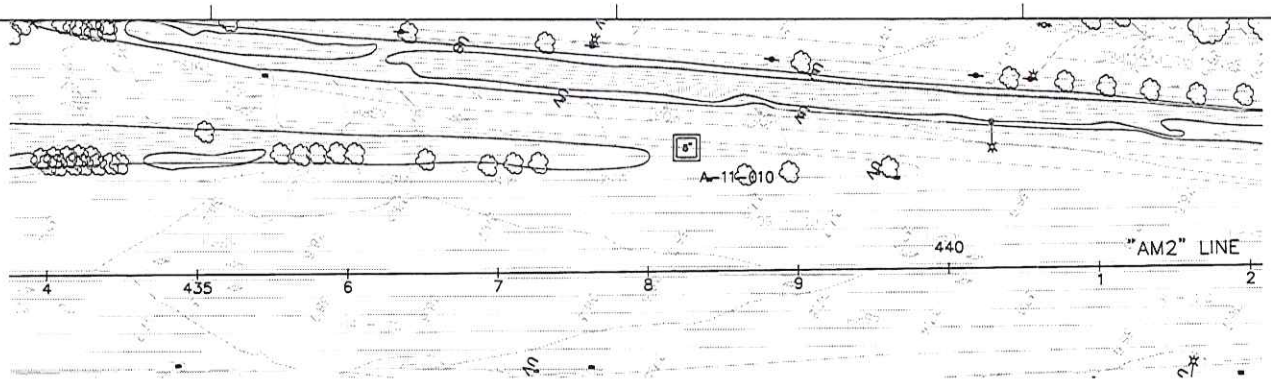
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER GARY PARIKH No. G.E. 666 Exp. 12/31/11 GEOTECHNICAL STATE OF CALIFORNIA

ALAMEDA COUNTY CONGESTION MANAGEMENT
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

DRAFT



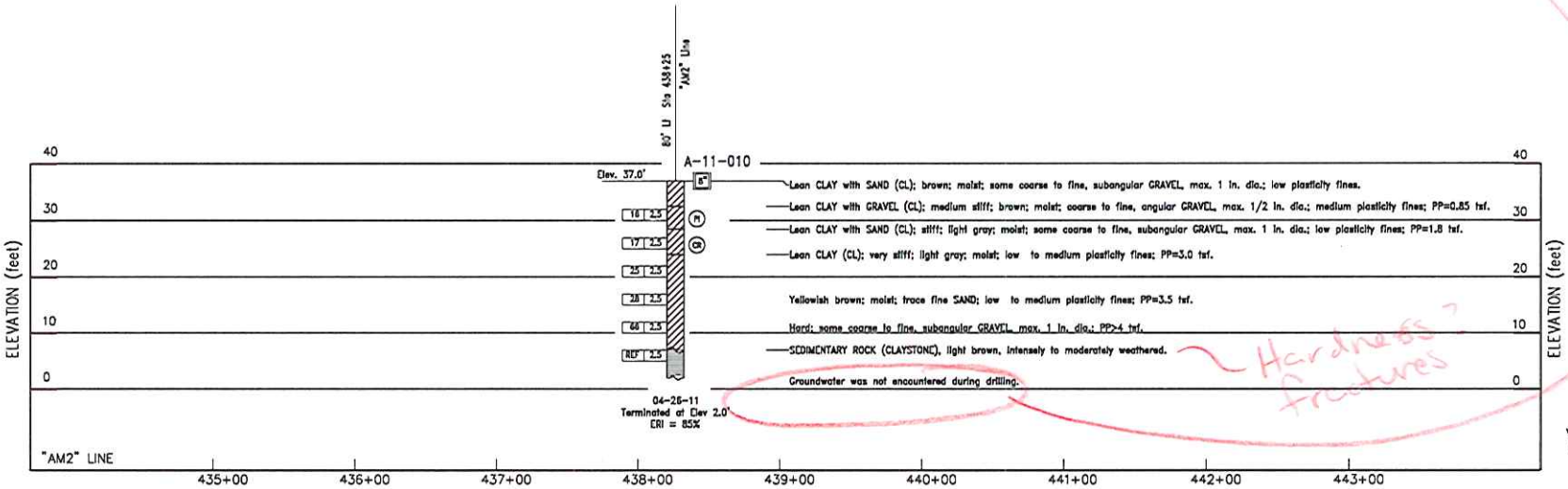
PLAN
1"=40'

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (June 2010)

All dimensions are in feet unless otherwise shown

Notes



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS20-1

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER	BRIDGE NO. –
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011			POST MILES –

I-80 INTEGRATED CORRIDOR MOBILITY PROJECT

LOG OF TEST BORINGS

05 GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: X
PROJECT NUMBER & PHASE: X

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 8/8/11

SHEET OF

CONTRACT NO.: X PROJECT ID: X

FILE => $REQUEST

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.0/8.0 0.0/13.5		

GEOTECHNICAL PROFESSIONAL X DATE

PLANS APPROVAL DATE

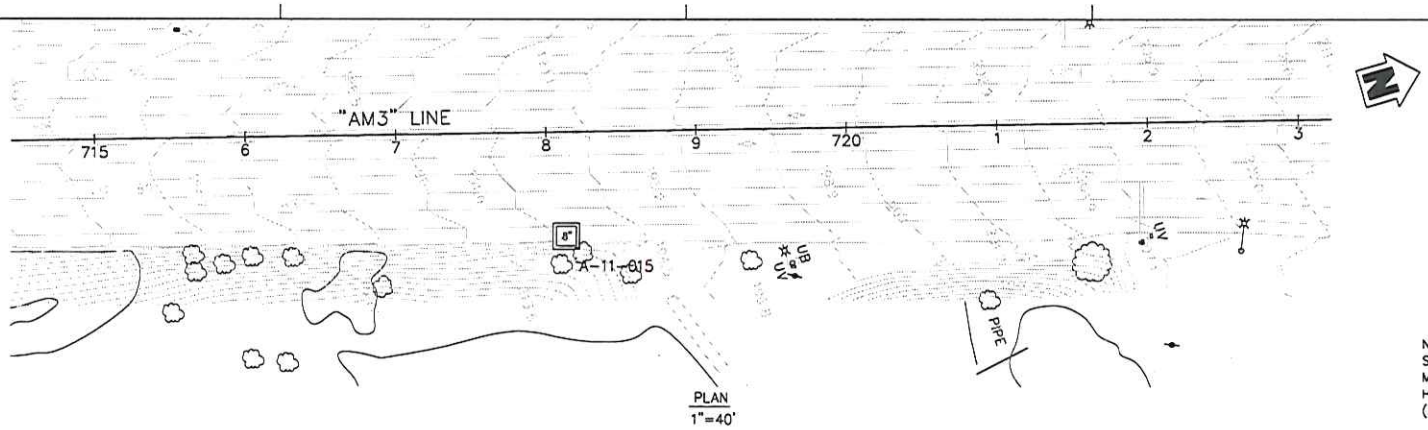
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER GARY PARIKH No. G.E. 666 Exp. 12/31/11 GEOTECHNICAL STATE OF CALIFORNIA

ALAMEDA COUNTY CONGESTION MANAGEMENT
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

DRAFT

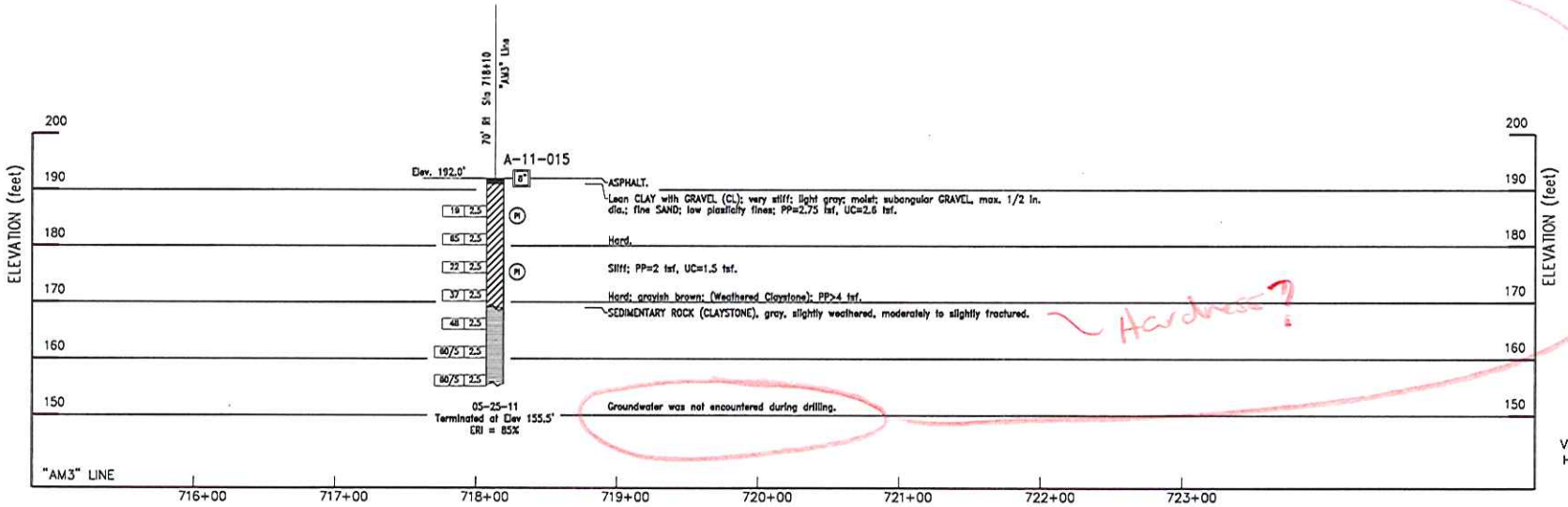


Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (June 2010)

All dimensions are in feet unless otherwise shown

Notes



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS13-2

DESIGN OVERSIGHT	DRAWN BY	L. TRAN	A. BAKANE FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER	BRIDGE NO. –	I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
SIGN OFF DATE	CHECKED BY	G. PARIKH	DATE: APRIL & MAY 2011			POST MILES –	LOG OF TEST BORINGS

GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/18/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: X
PROJECT NUMBER & PHASE: X

DISREGARD PRINTS BEARING EARLIER REVISION DATES 8/8/11

REVISION DATES | SHEET | OF

CONTRACT NO.: X PROJECT ID: X

FILE => $REQUEST

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA, CC	80	2.0/8.0 0.0/13.5		

GEOTECHNICAL PROFESSIONAL X DATE

PLANS APPROVAL DATE

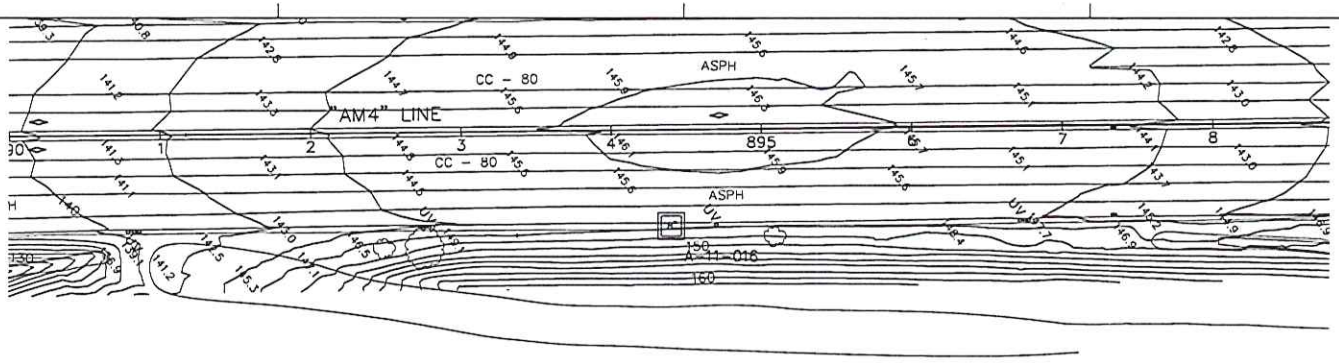
REGISTERED PROFESSIONAL ENGINEER GARY PARIKH No. G.E. 666 Exp. 12/31/11 GEOTECHNICAL STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

ALAMEDA COUNTY CONGESTION MANAGEMENT
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

DRAFT

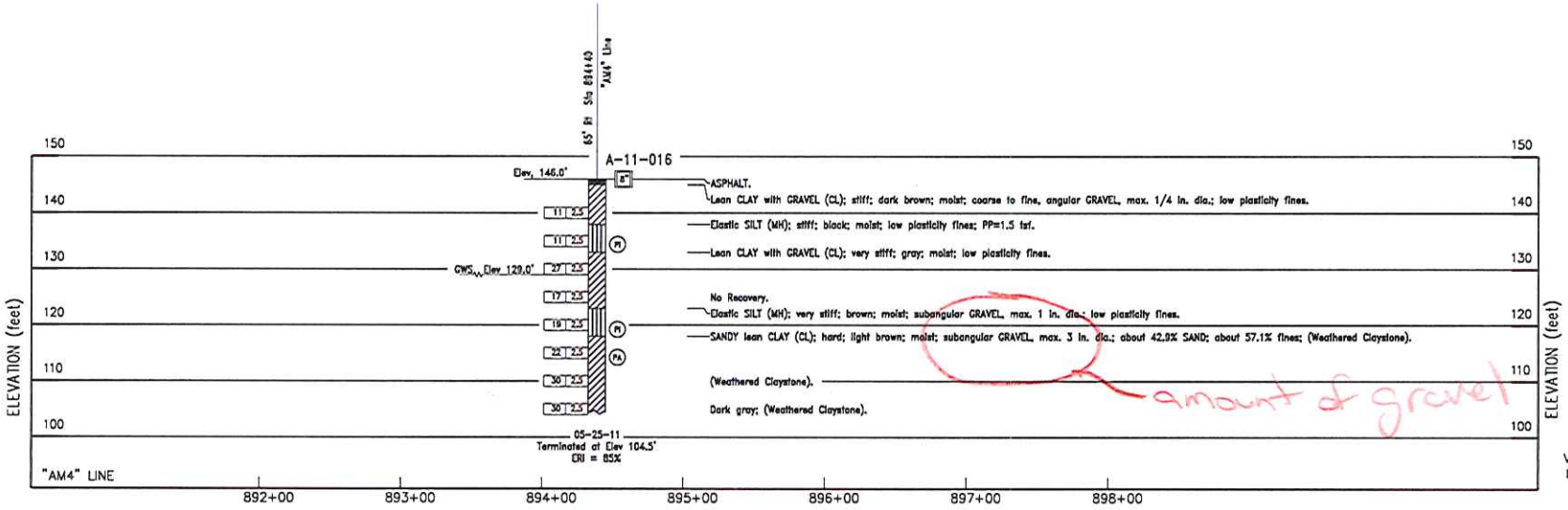


PLAN
1"=40'

Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"
Hammer Assembly: A 140 lb hammer with a 30" drop (Automatic Hammer)

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock, Logging, Classification, and Presentation Manual (June 2010)

All dimensions are in feet unless otherwise shown



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 40'

SS54-1

DESIGN OVERSIGHT	DRAWN BY: L. TRAN	A. BAKANE FIELD INVESTIGATION BY	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. PARIKH PROJECT ENGINEER	BRIDGE NO. – / POST MILES –	I-80 INTEGRATED CORRIDOR MOBILITY PROJECT
SIGN OFF DATE	CHECKED BY: G. PARIKH	DATE: APRIL & MAY 2011				LOG OF TEST BORINGS

GS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 7/15/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: X
PROJECT NUMBER & PHASE: X

DISREGARD PRINTS BEARING EARLIER REVISION DATES 8/8/11

REVISION DATES | SHEET | OF

FILE => $REQUEST

CONTRACT NO.: X PROJECT ID: X

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

LIMITED SITE INVESTIGATION REPORT

I-80 MOBILITY PROJECT, ACTIVE TRAFFIC MANAGEMENT
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

PREPARED FOR:
KIMLEY-HORN AND ASSOCIATES. INC.
555 12TH STREET, SUITE 1230
OAKLAND, CA 94607

PREPARED BY:
GEOCON CONSULTANTS, INC.
6671 BRISA STREET
LIVERMORE, CA 94550

GEOCON

GEOCON PROJECT NO. E8583-06-01

October 2011

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. E8583-06-01
October 10, 2011

Mr. Randy Durrenberger
Kimley-Horn and Associates, Inc.
555 12th Street, suite 1230
Oakland, California 94607-4095

Subject: I-80 MOBILITY PROJECT
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA
LIMITED SITE INVESTIGATION REPORT

Dear Mr. Durrenberger:

Geocon has performed environmental engineering services at the subject site in general accordance with the scope of services outlined in our *Limited Site Investigation Workplan* dated June 17, 2011. The accompanying report summarizes the services performed including limited soil and groundwater sample collection and laboratory testing.

The I-80 Mobility Project site extends along the I-80 corridor in Alameda and Contra Costa Counties from 0.1 mile west of the Powell Street Undercrossing to 0.5 mile west of Cummings Skyway Undercrossing. The proposed improvement project includes the installation of an active traffic management (ATM) system within the project limits. Our limited investigation was performed at 16 locations where the ATM sign bridge structures and Information Display Boards (IDB) may require deeper foundations.

If there are any questions concerning the contents of this report, or if Geocon may be of further service, please contact the undersigned at 925-371-5900.

Sincerely,

GEOCON CONSULTANTS, INC.

Luann Beadle
Senior Staff Scientist

Richard Day, CEG, CHG
Vice President

PROFESSIONAL GEOLOGIST
RICHARD W. DAY
No. 5479
Exp. 09-30-13
STATE OF CALIFORNIA

TABLE OF CONTENTS

Page

1.0 INTRODUCTION 1
1.1 Purpose 1

2.0 BACKGROUND 1
2.1 Hazardous Waste Determination Criteria 1
2.2 Environmental Screening Levels 2

3.0 SCOPE OF SERVICES 3
3.1 Pre-field Activities 3
3.2 Field Activities 3

4.0 INVESTIGATIVE METHODS 3
4.1 Sampling Procedures 3
4.2 Laboratory Analyses 4
4.3 Quality Assurance/Quality Control Procedures 5

5.0 INVESTIGATIVE RESULTS 5
5.1 Soil Analytical Results 5
5.2 Groundwater Analytical Results 6
5.3 Laboratory Quality Assurance/Quality Control 6
5.4 Statistical Evaluation for Lead Detected in Soil Samples 7

6.0 CONCLUSIONS AND RECOMMENDATIONS 9
6.1 Lead in Soil 9
6.2 CAM17 Metals in Soil 9
6.3 Petroleum Hydrocarbons in Soil 11
6.4 Pesticides in Soil 11
6.5 CAM17 Metals in Grab-Groundwater 11
6.6 Petroleum Hydrocarbons in Grab-Groundwater 11
6.7 Worker Protection 11

7.0 REPORT LIMITATIONS 12

FIGURES
1. Vicinity Map
2a-d. Site Plans

TABLES
1. Summary of Lead and Chromium Results - Soil
2. Summary of CAM17 Metals Results - Soil
3. Summary of Organics Results - Soil
4. Summary of Pesticides Results – Soil
5. Summary of CAM17 Metals Results – Groundwater
6. Summary of Organics Results - Groundwater

APPENDICES
A. Laboratory Analytical Reports and Chain-of-custody Documentation
B. Lead Statistics

LIMITED SITE INVESTIGATION REPORT

1.0 INTRODUCTION

This *Limited Site Investigation Report* was prepared for the Interstate 80 (I-80) Mobility Project in Alameda and Contra Costa Counties, California. The site investigation was performed at 16 locations within existing California Department of Transportation (Caltrans) right-of-way (ROW) along the I-80 corridor from 0.1 mile west of the Powell Street Undercrossing to 0.5 mile west of Cummings Skyway Undercrossing. The project limits are depicted on the Vicinity Map, Figure 1.

This report documents the limited site investigation for metals, petroleum hydrocarbons, and organochlorine pesticides in shallow soil and groundwater within the limits of I-80 Mobility Project site boundaries. The approximate soil boring locations advanced during the site investigation are depicted on the Site Plans, Figures 2a through 2d.

1.1 Purpose

The purpose of the scope of services was to evaluate whether impacts due to metals, including aerially-deposited lead (ADL), petroleum hydrocarbons, or pesticides exist in the site soil and groundwater at 16 locations where active traffic management (ATM) sign structures may require deeper foundations, including locations where Lane Use Signals and Full Color Graphic Variable Message Signs will be mounted on gantries and locations for Full Color Graphic Information Display Boards. The investigation results will be used to coordinate I-80 Mobility project activities, evaluate soil reuse/disposal options, groundwater disposal options, soil handling practices, and worker health and safety precautions.

2.0 BACKGROUND

2.1 Hazardous Waste Determination Criteria

Regulatory criteria to classify a waste as California hazardous for handling and disposal purposes are contained in the CCR, Title 22, Division 4.5, Chapter 11, Article 3, §66261.24. Criteria to classify a waste as Resource, Conservation, and Recovery Act (RCRA) hazardous are contained in Chapter 40 of the Code of Federal Regulations (40 CFR), Section 261.

For waste containing metals, the waste is classified as California hazardous when: 1) the total metal content exceeds the respective Total Threshold Limit Concentration (TTLC); or 2) the soluble metal content exceeds the respective Soluble Threshold Limit Concentration (STLC) based on the standard Waste Extraction Test (WET). A waste has the potential of exceeding the STLC when the waste's total

metal content is greater than or equal to ten times the respective STLC value since the WET uses a 1:10 dilution ratio. Hence, when a total metal is detected at a concentration greater than or equal to ten times the respective STLC, and assuming that 100 percent of the total metals are soluble, soluble metal analysis is required. A material is classified as RCRA hazardous, or Federal hazardous, when the soluble metal content exceeds the Federal regulatory level based on the Toxicity Characteristic Leaching Procedure (TCLP).

The above regulatory criteria are based on chemical concentrations. Wastes may also be classified as hazardous based on other criteria such as ignitability and corrosivity; however, for the purposes of this investigation, toxicity (i.e., lead concentrations) is the primary factor considered for waste classification since waste generated during the construction activities would not likely warrant testing for ignitability or other criteria. Waste that is classified as either California hazardous or RCRA hazardous requires management as a hazardous waste.

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

2.2 Environmental Screening Levels

The San Francisco Bay Regional Water Quality Control Board (SFRWQCB) has prepared a technical report entitled *Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater, Interim Final - November 2007 (Revised May 2008)*, which presents Environmental Screening Levels (ESLs) for soil, groundwater, soil gas, and surface water, to assist in evaluating sites impacted by releases of hazardous chemicals. The ESLs are conservative values for more than 100 commonly detected contaminants, which may be used to compare with environmental data collected at a site. ESLs are strictly risk assessment tools and "not regulatory clean up standards." The presence of a chemical at concentrations in excess of an ESL does not necessarily indicate that adverse impacts to

human health or the environment are occurring; this simply indicates that a potential for adverse risk may exist and that additional evaluation is or may be warranted (SFRWQCB, 2008).

This report includes comparisons to ESL Tables A and K-3 (Table A – Shallow Soil [≤3 meters below ground surface; bgs] - Groundwater is a Current or Potential Source of Drinking Water; Table K-3 – Direct Exposure Screening Levels – Construction/Trench Worker Scenario. The respective ESLs are listed at the end of Tables 2 through 6.

3.0 SCOPE OF SERVICES

The following sections present the scope of services performed by Geocon.

3.1 Pre-field Activities

- Prepared the *Limited Site Investigation Workplan, I-80 Mobility Project, Alameda Contra Costa Counties, California,* dated June 17, 2011. Caltrans concurred with the workplan and proposed scope of service on June 20, 2011.
- Prepared a health and safety plan (HSP) for the project that provided guidelines on the use of personal protective equipment and the health and safety procedures to be implemented during the investigation activities.
- Retained the services of Advanced Technology Laboratories (ATL) to perform the analyses of the soil samples.

3.2 Field Activities

The field activities were conducted between April 20 and August 8, 2011. Geocon accompanied Parikh Consultants, Inc. (i.e., project geotechnical engineer) during the advancement of 16 geotechnical borings along the I-80 shoulders within the project limits. The borings were advanced using hollow-stem and hand auger drilling methods. Geocon collected soil samples at depth intervals of 1 to 1.5 feet and 5 to 5.5 feet at each boring location. Where encountered (at 12 locations), grab-groundwater samples were collected at the geotechnical boring locations. Completed soil borings were backfilled by Parikh in accordance regulatory guidelines and permits. Approximate boring locations are depicted on the Site Plans, Figures 2a-2d.

4.0 INVESTIGATIVE METHODS

4.1 Sampling Procedures

The soil samples were retrieved using hand-auger methods. Soil samples were collected in stainless steel tubes secured with Teflon tape and plastic end caps, labeled, and placed in a chilled cooler for transport to the analytical laboratory. Following soil sample collection, a hollow-stem auger drill rig was used to advance the soil borings to groundwater. When encountered, groundwater samples were

collected using a disposable bailer, transferred to glass or polyethylene bottles, sealed, labeled and placed in a chilled cooler for transport to the laboratory.

Sampling equipment was cleansed by washing the equipment with a Liquinox solution followed by two successive rinses with distilled water. The decontamination water was returned to the site surface away from storm drains and inlets in a manner not to create runoff.

The soil and groundwater samples were transported to ATL for analysis, under standard chain-of-custody documentation.

4.2 Laboratory Analyses

Laboratory analyses were performed under a standard turn-around-time (TAT). Reproductions of the laboratory reports and chain-of-custody documentation are presented as Appendix A. The laboratory analyses performed are summarized below:

- 34 soil samples were analyzed CAM17 metals following Environmental Protection Agency (EPA) Test Methods 6010/7471A.
- 7 soil samples were further analyzed for WET lead using EPA Method 6010B.
- 2 soil samples were further analyzed for DI-WET lead using EPA Test Method 7420.
- 1 soil sample was further analyzed for TCLP lead using EPA Test Method 1311/7420.
- 6 soil samples were further analyzed for WET chromium using EPA Test Method 6010B.
- 22 soil samples were analyzed for TPH as gasoline (TPHg) using EPA Test Method 8015M.
- 17 soil samples were analyzed for TPH as diesel (TPHd), and as motor oil (TPHmo) using EPA Method 8015M.
- 22 soil samples were analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX) and methyl tert-butyl ether (MTBE) using EPA Test Method 8021.
- 17 soil samples were analyzed for organochlorine pesticides using EPA Test Method 8081.
- 12 grab-groundwater samples were analyzed for CAM17 metals.
- 12 grab-groundwater samples were analyzed for TPHg, TPHd and TPHmo using EPA Test Method 8015M.
- 12 grab-groundwater samples were analyzed for BTEX and MTBE using EPA Test Method 8021B.
- 12 grab-groundwater samples were analyzed for volatile organic compounds (VOCs) using EPA Test Method 8260.

4.3 Quality Assurance/Quality Control Procedures

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

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

Prior to submitting the soil samples to the laboratory, the chain-of-custody documentation was reviewed for accuracy and completeness.

5.0 INVESTIGATIVE RESULTS

5.1 Soil Analytical Results

Analytical results of the soil samples are summarized in Tables 1 through 4.

- Beryllium, molybdenum, selenium, silver, and thallium were not detected above their respective laboratory reporting limits in the soil samples. Antimony, arsenic, barium, cadmium, chromium, cobalt, copper, mercury, nickel, vanadium, and zinc were reported in the soil samples at concentrations below ten times their respective STLC values.
- Total lead was reported at concentrations ranging from 1.2 to 240 mg/kg.
- WET lead was reported at concentrations ranging from 1.6 to 5.6 mg/l.
- DI-WET lead was not detected at or above the laboratory reporting limit of 0.25 mg/l.
- TCLP lead was reported in one sample at 0.69 mg/l.
- Total chromium was reported at concentrations ranging from 1.2 to 58 mg/kg.
- WET chromium was not detected at or above the laboratory reporting limit of 1.0 mg/l.
- TPHg, BTEX, or MTBE were not detected above the laboratory reporting limits in the soil samples.
- TPHd was reported at concentrations ranging from 5.2 to 1,300 mg/kg.
- TPHmo was reported at concentrations between 23 and 8,200 mg/kg.

- Pesticides were reported in the soil samples as follows:
  - 4,4'-DDD in three samples at concentrations between 2.5 and 38 µg/kg;
  - 4,4'-DDE in samples A-11-003-1 and A-11-005-1 at 2.7 and 2.5 µg/kg, respectively;
  - 4,4'-DDT in four samples at concentrations ranging from 5.3 to 44 µg/kg;
  - Alpha-chlordane in samples A-11-005-1 and A-11-017-1 at concentrations of 1.4 and 1.1 µg/kg, respectively;
  - Gamma-chlordane in samples A-11-005-1 and A-11-017-1 at concentrations of 1.5 and 1.1 µg/kg, respectively;
  - Chlordane in samples A-11-005-1 and A-11-017-1 at concentrations of 13 and 15 µg/kg, respectively;
  - Dieldrin in samples-11-005-1 and A-11-010-1 at concentrations of 4.8 µg/kg.

5.2 Groundwater Analytical Results

Analytical results of the groundwater samples are summarized in Tables 5 and 6.

- Silver and thallium were not detected above their respective laboratory reporting limits in the groundwater samples. The remaining CAM 17 metals were reported in grab-groundwater samples at concentrations above their Environmental Screening Levels (ESLs) for groundwater as a current or potential source of drinking water values;
- TPHg was reported at concentrations ranging from below the laboratory detection limit of 0.05 mg/l to 0.30 mg/l;
- TPHd was reported at concentrations from below the laboratory reporting of 0.053 mg/l to 20 mg/l;
- TPHmo was reported at concentrations from below the laboratory reporting of 0.053 mg/l to 18 mg/l;
- BTEX compounds were reported in one sample, A-11-002-GW with m,p-xylene at a concentration of 1.5 µg/l and o-xylene at 2.9 µg/l;
- MTBE was reported in one sample, A-11-018, at a concentration of 16 µg/l;
- VOCs were reported in the groundwater samples as follows:
  - 1,2,4-Trimethylbenzene and o-xylene were reported in sample A-11-002-GW at concentrations of 2.5 and 3.3 µg/l, respectively;
  - Chloromethane was reported in sample A-11-006-GW at 0.62 µg/l;

5.3 Laboratory Quality Assurance/Quality Control

We reviewed the QA/QC results provided with the laboratory analytical reports. The data indicate non-detect results for the method blanks. All samples and internal laboratory QA/QC samples showed acceptable recoveries and relative percent differences (RPDs) and/or were validated by laboratory control samples. Based on this limited data review, no additional qualifications of the soil data are necessary, and the data are of sufficient quality for the purposes of this report.

5.4 Statistical Evaluation for Lead Detected in Soil Samples

Statistical methods were applied to the total lead data to evaluate: 1) the upper confidence limits (UCLs) of the arithmetic means of the total lead concentrations for each sampling depth; and 2) if an acceptable correlation between total and WET lead concentrations exists that would allow the prediction of WET lead concentrations based on calculated UCLs. The lead data for the site were treated as a single sample population for statistical evaluation.

5.4.1 Calculating the UCLs for the Arithmetic Mean

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

Non-parametric bootstrap techniques were used to calculate the UCLs. For those samples in which total lead was not detected, a value equal to one-half of the detection limit was used in the UCL calculation. The bootstrap test results are included in Appendix B. The following table presents the calculated UCLs and statistics for the data sets.

Borings A-11-002 to A-11-013 and A-11-015 to A-11-018

SAMPLE INTERVAL (feet)	90% TOTAL LEAD UCL (mg/kg)	95% TOTAL LEAD UCL (mg/kg)	TOTAL LEAD MEAN (mg/kg)	MINIMUM VALUE (mg/kg)	MAXIMUM VALUE (mg/kg)
1.0 to1.5	69.87	76.66	50.05	2.2	240
5.0 to 5.5	32.1	34.48	25.02	1.2	82

5.4.2 Correlation of Total and WET Lead

Total and corresponding WET lead concentrations are bivariate data with a linear structure. This linear structure should allow for the prediction of WET lead concentrations based on the maximum total lead concentrations presented in the tables above.

To estimate the degree of interrelation between total and corresponding WET lead values (x and y, respectively), the *correlation coefficient [r]* is used. The correlation coefficient is a ratio that ranges from +1 to –1. A *correlation coefficient* of +1 indicates a perfect direct relationship between two variables; a *correlation coefficient* of –1 indicates that one variable changes inversely with relation to the other. Between the two extremes is a spectrum of less-than-perfect relationships, including zero, which indicates the lack of any sort of linear relationship at all. The *correlation coefficient* was calculated for the seven (x, y) data points (i.e., soil samples analyzed for both total lead [x] and WET lead [y]). The resulting *coefficient of determination* (r^2) equaled 0.7487, which yields a corresponding *correlation coefficient* (r) of 0.865.

For the *correlation coefficient* that indicates a linear relationship between total and WET lead concentrations, it is possible to compute the line of dependence or a best-fit line between the two variables. A least squares method was used to find the equation of a best-fit line (regression line) by forcing the y-intercept equal to zero since that is a known point. The equation of the regression line was determined to be $y = 0.0483(x)$, where x represents total lead concentrations and y represents predicted WET lead concentrations.

This equation was used to estimate the expected WET lead concentrations for the total lead UCLs for the data set (see Section 5.4.1). Regression analysis results and a scatter plot depicting the (x, y) data points along with the regression line are included in Appendix B.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Waste classifications are evaluated based on the 90% UCL of the lead content for the relevant excavation depths; this has historically been considered sufficient to satisfy a good faith effort by the EPA as discussed in SW-846. Risk assessment characterization is based on the 95% UCL of the lead content in the waste for the relevant depths; this is in accordance with the Risk Assessment Guidance for Superfund (RAGS) Volume 1 Documentation for Exposure Assessment. Per Caltrans, the 90% UCLs are to be used to evaluate onsite reuse and the 95% UCLs are to be used to evaluate offsite disposal.

6.1 Lead in Soil

The following table summarizes the predicted waste classification for excavated soil based on the calculated UCLs and predicted WET lead concentrations for data collected at the Site.

Sample Interval	90% UCL Total Lead (mg/kg)	90% UCL Predicted WET Lead (mg/kg)	95% UCL Total Lead (mg/kg))	Waste Classification
1 to 1.5 ft	69.87	3.38	76.66	Non-Hazardous
5 to 5.5 ft	32.1	1.55	34.48	Non-Hazardous
Combined 1 to 1.5 ft and 5 to 5.5 ft	48.5	2.34	51.75	Non-Hazardous

90% UCL applicable for waste classification and onsite reuse; 95% UCL applicable for risk assessment and offsite disposal

Based on the data presented in the above table, soil from CIDH and footing excavations would be classified as non-hazardous (as Caltrans Type X) since the predicted WET lead concentrations are less than 5.0 mg/l.

6.2 CAM17 Metals in Soil

Based on a comparison of the total CAM17 metals concentrations to their respective STLCs and TTLCs, soil excavated from the Site should not be considered a hazardous waste based on metal content.

The maximum CAM17 metals concentrations in soil were compared to ESLs (SFRWQCB, May 2008, Tables A and K-3) and with published background levels typically present in California soils as presented in *Background Concentrations of Trace and Major Elements in California Soils* (Kearney Foundation of Soil Science, Division of Agriculture and Natural Resources, University of California, March 1996.

The maximum reported arsenic concentration was 7.2 mg/kg, which exceeds the residential and commercial/industrial land use ESLs for shallow soil of 0.39 mg/kg and 1.6 mg/kg, respectively. However, reported arsenic concentrations are below the worker direct exposure ESL of 15 mg/kg.

The maximum reported lead concentration was 240 mg/kg, which exceeds the residential land use ESL for shallow soil of 200 mg/kg. Reported lead concentrations are less than the ESLs for commercial land use and worker direct exposure of 750 mg/kg.

The maximum reported vanadium concentration was 120 mg/kg, which exceeds the residential land use ESL for shallow soil of 16 mg/kg. Reported vanadium concentrations are less than the ESLs for commercial land use and worker direct exposure of 200 mg/kg and 770 mg/kg, respectively.

The reported means and maximums, ESLs and published background concentrations for arsenic, lead, and vanadium are summarized in the table below:

Metal	Mean	Maximum	Shallow Soil Residential ESL	Shallow Soil Commercial/ Industrial ESL	Worker Direct Exposure ESL	PUBLISHED BACKGROUND MEAN[1]	PUBLISHED BACKGROUND RANGE [1]
Arsenic	2.86	7.2	0.39	1.6	15	3.5	0.6 to 11.0
Lead	37.53	240	200	750	750	23.9	12.4 to 97.1
Vanadium	29.94	120	16	200	770	112	39 to 288

Concentrations reported in milligrams per kilogram (mg/kg); [1] Kearney Foundation of Soil Science, March 1996

The reported arsenic concentrations in the soil samples collected at the Site exceed the shallow soil ESLs; however, they are within the published background concentration range. The SFRWQCB *Update to Environmental Screening Levels (ESLs) Technical Document* (*November 2007, Revised May 2008)* states that ambient background concentrations of arsenic typically exceed risk-based screening levels. In such instances, it may be more appropriate to compare site data to regionally-specific established background levels.

The reported lead concentrations for the soil samples collected at the Site are greater than the residential ESL and are less than the Commercial/Industrial land use ESL and Direct Exposure – Construction/Trench Worker ESL. The maximum lead concentration is greater than the published background concentration range.

The reported vanadium concentrations for the soil samples collected at the Site are greater than the residential ESL and are less than the Commercial/Industrial land use ESL and Direct Exposure – Construction/Trench Worker ESL, and are within the published background concentration range.
Based on the reported results for arsenic, lead, and vanadium, and comparisons to ESLs and published background concentrations, offsite reuse or disposal of soil may be restricted based on metals content, depending on proposed use.

6.3 Petroleum Hydrocarbons in Soil

TPHd and TPHmo were reported at concentrations exceeding their respective residential and commercial/industrial land use ESLs for shallow soil. Accordingly, offsite disposal or reuse of soil excavated from those areas with elevated TPHd and TPHmo concentrations may be restricted based on petroleum hydrocarbon content.

6.4 Pesticides in Soil

The reported pesticide concentrations are less than their respective residential land use ESLs and offsite disposal or reuse of excavated soil should not be restricted based on pesticide content.

6.5 CAM17 Metals in Grab-Groundwater

With the exception of silver and thallium, CAM 17 metals concentrations in the grab-groundwater samples exceeded one or more ESL. Accordingly, groundwater generated during CIDH dewatering may require filtering and treatment to reduce metal content prior to discharge or reuse.

6.6 Petroleum Hydrocarbons in Grab-Groundwater

The reported concentrations of TPHg, TPHd, TPHmo, and MTBE in grab-groundwater samples exceeded one or more ESL. Accordingly, groundwater generated during CIDH dewatering may require treatment to reduce petroleum hydrocarbon content prior to discharge or reuse.

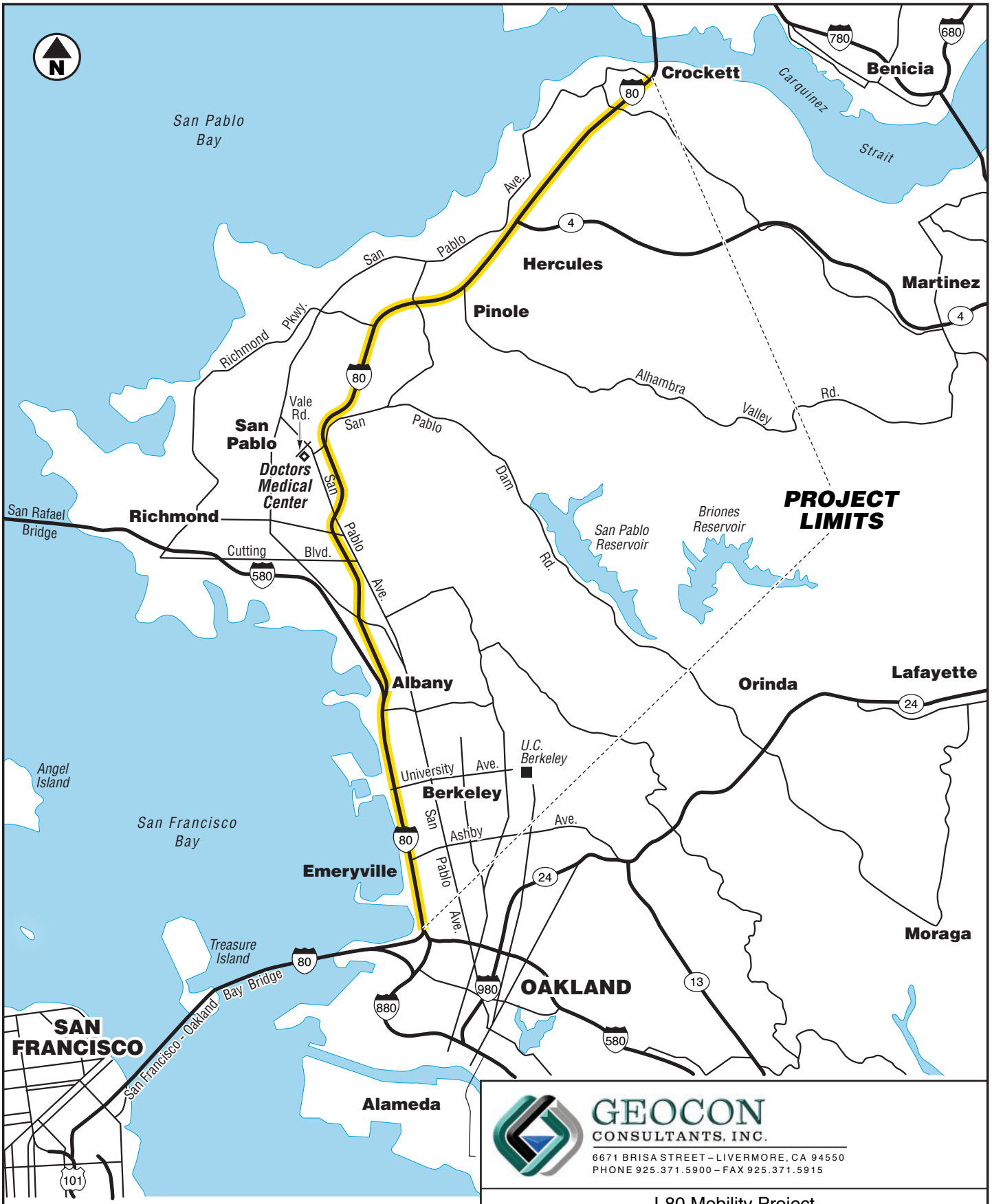
6.7 Worker Protection

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

7.0 REPORT LIMITATIONS

This report has been prepared exclusively for Kimley-Horn and Associates, Inc. and for use in the I-80 ICM project. The information contained herein is only valid as of the date of the field sampling and will require an update to reflect additional information obtained.

This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein. Therefore, the report should be deemed conclusive with respect to only the information obtained. We make no warranty, express or implied, with respect to the content of this report or any subsequent reports, correspondence or consultation. Geocon strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.



GEOCON CONSULTANTS, INC.
6671 BRISA STREET – LIVERMORE, CA 94550
PHONE 925.371.5900 – FAX 925.371.5915

I-80 Mobility Project

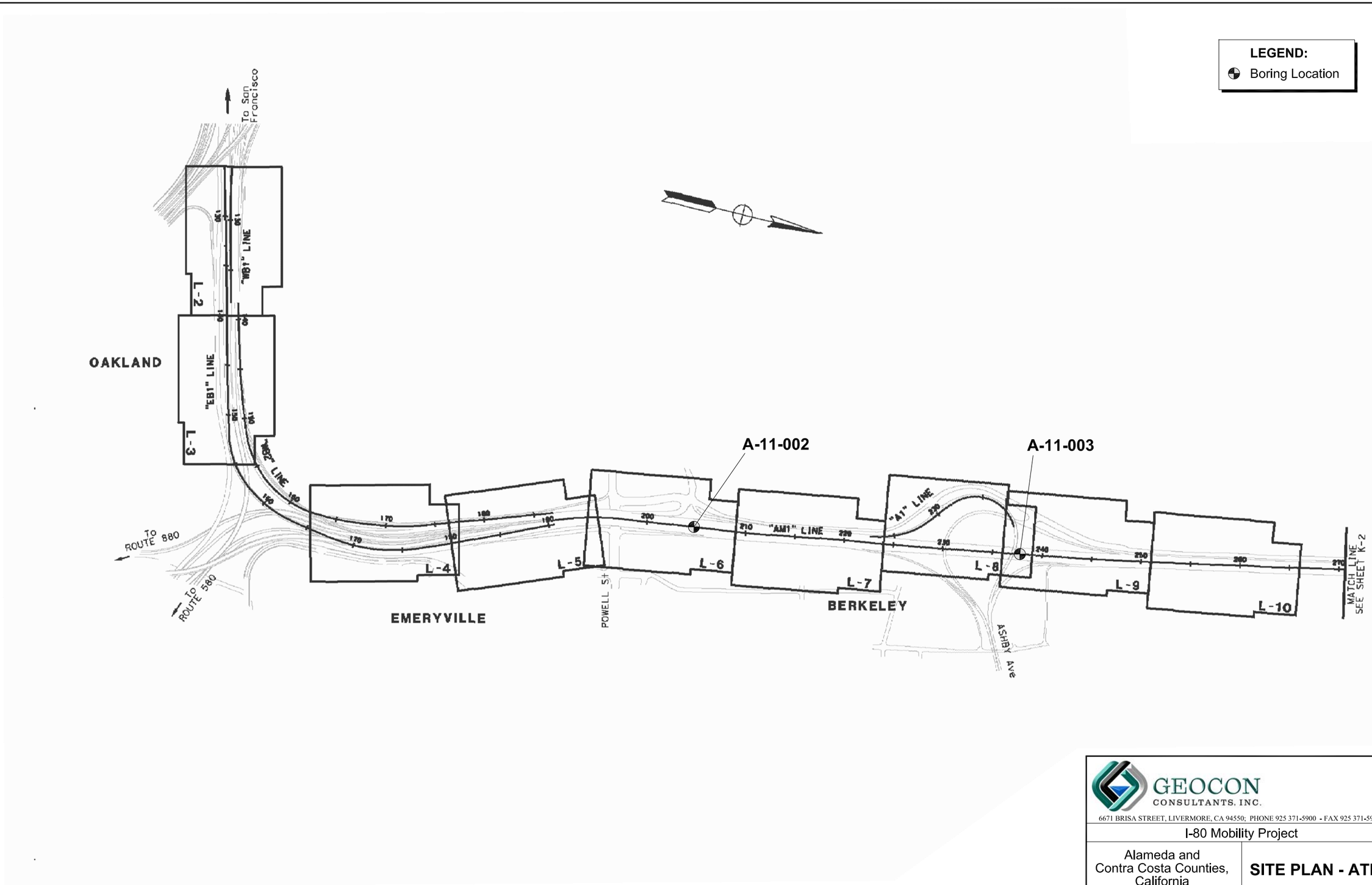
Alameda & Contra Costa Counties, California

GEOCON Proj. No. E8583-06-01

VICINITY MAP

July 2011

Figure 1



GEOCON CONSULTANTS, INC.

6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915

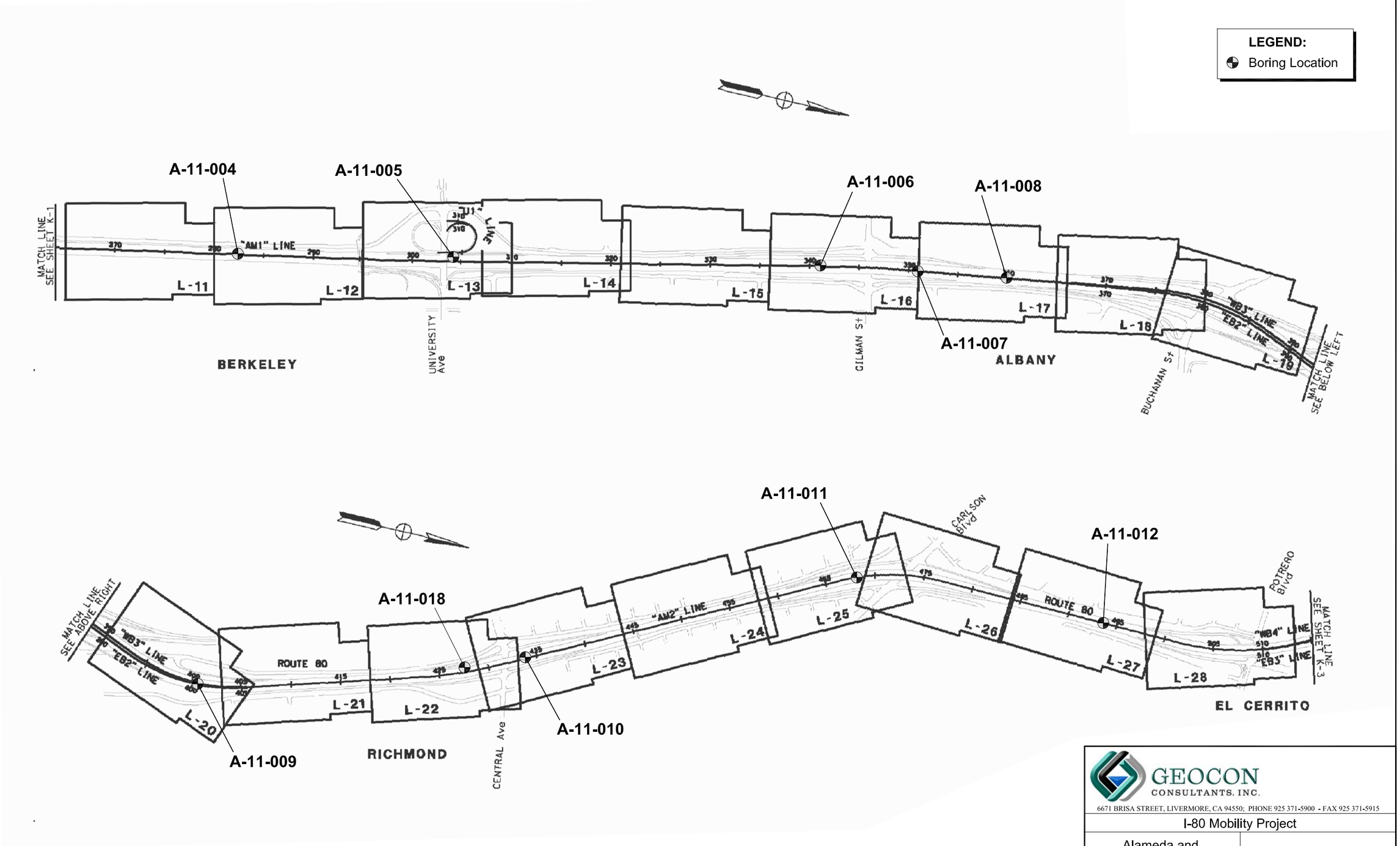
I-80 Mobility Project

Alameda and Contra Costa Counties, California

SITE PLAN - ATM

GEOCON Proj. No. E8583-06-01 | October 2011 | Figure 2a

SITE1011.DWG



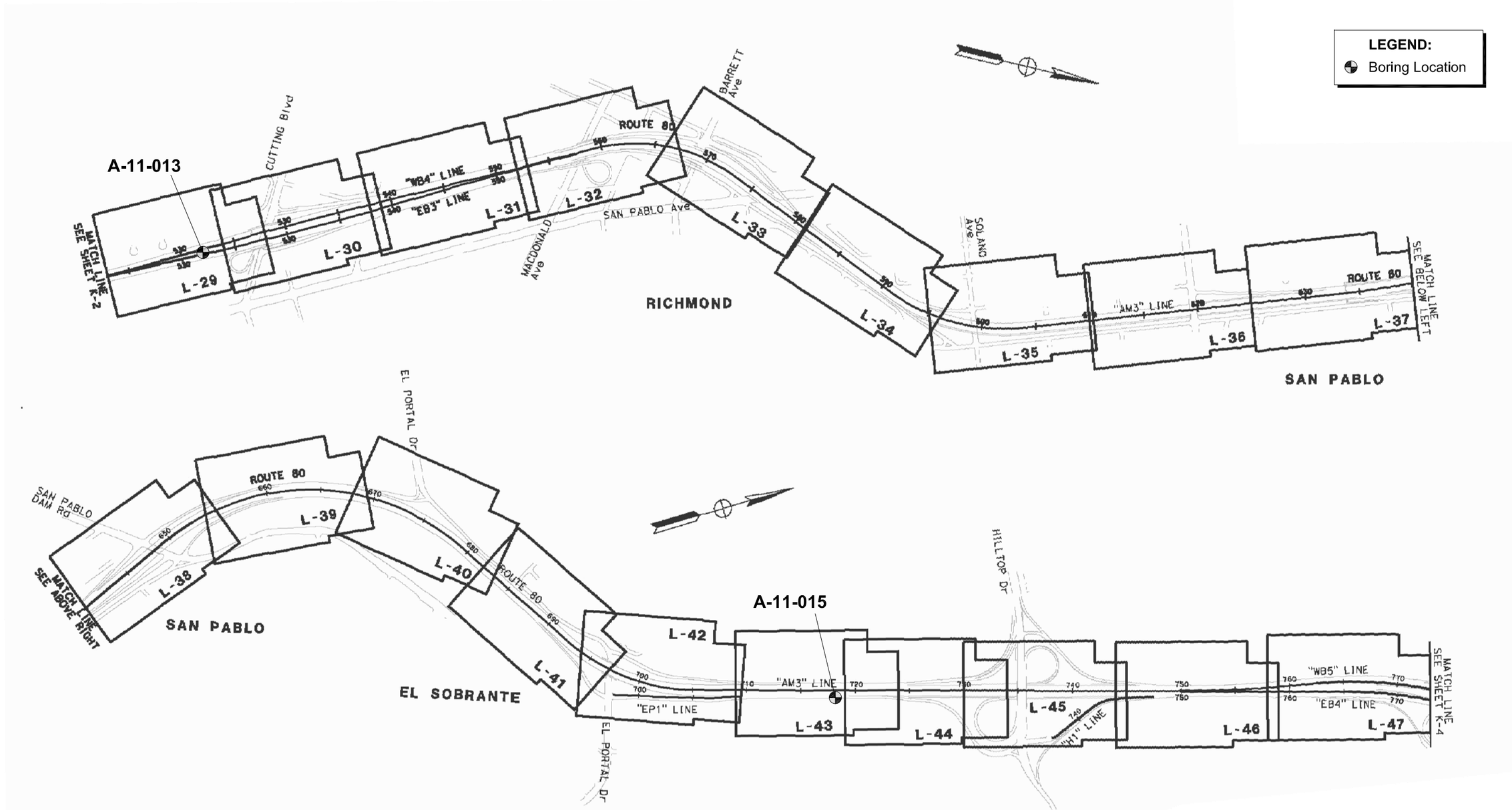
GEOCON CONSULTANTS, INC.

6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915

I-80 Mobility Project

Alameda and Contra Costa Counties, California	SITE PLAN - ATM	
GEOCON Proj. No. E8583-06-01	October 2011	Figure 2b

SITE1011.DWG



GEOCON CONSULTANTS, INC.

6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915

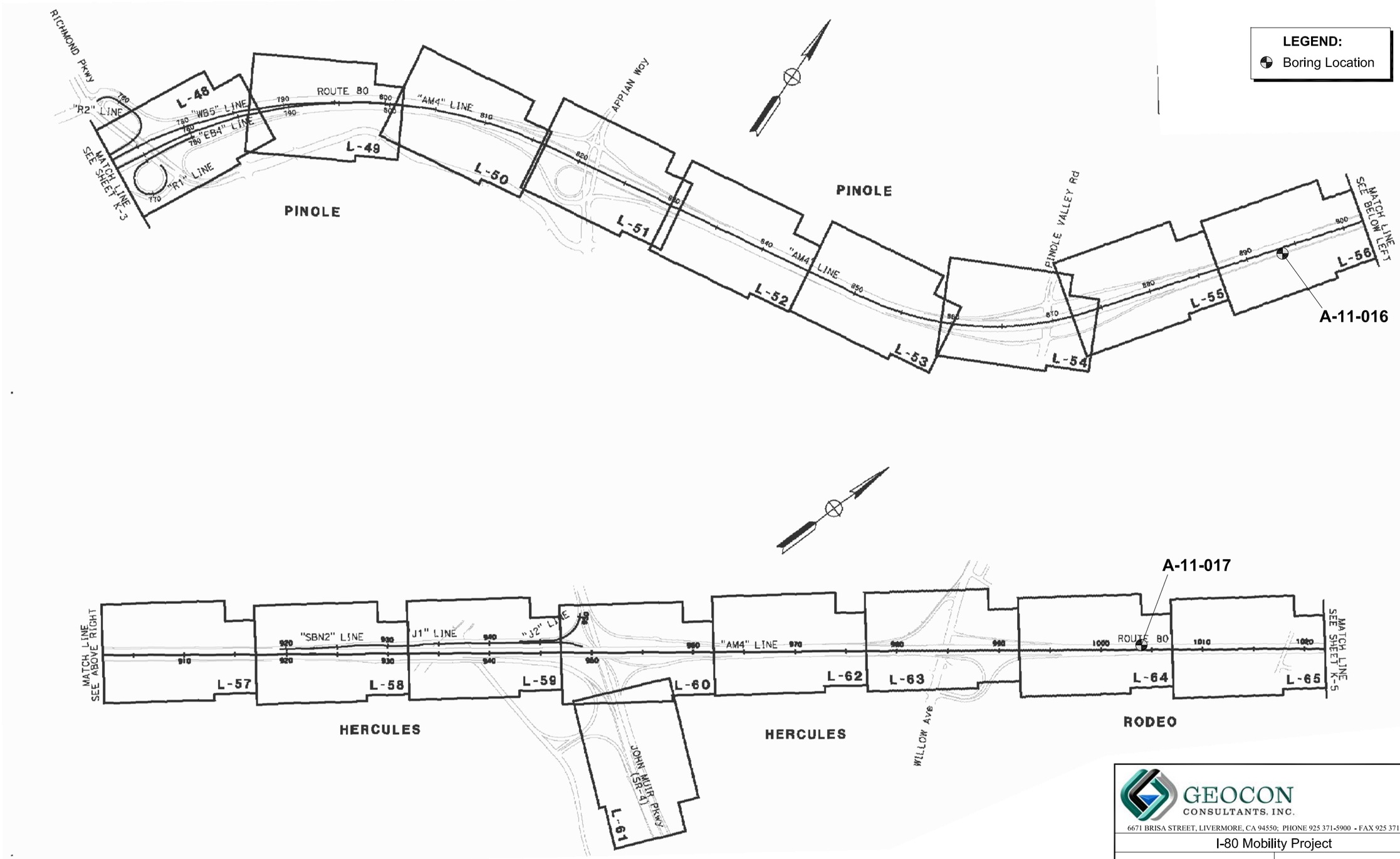
I-80 Mobility Project

Alameda and Contra Costa Counties, California

SITE PLAN - ATM

GEOCON Proj. No. E8583-06-01 | October 2011 | Figure 2c

SITE1011.DWG



GEOCON CONSULTANTS, INC.

6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915

I-80 Mobility Project

Alameda and Contra Costa Counties, California	SITE PLAN - ATM	
GEOCON Proj. No. E8583-06-01	October 2011	Figure 2d

SITE1011.DWG

TABLE 1
Summary of Lead and Chromium Results
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	Total Chromium (mg/kg)	WET Chromium (mg/l)
A-11-002-1	1	22	---	---	---	22	---
A-11-002-5	5	1.2	---	---	---	1.2	---
A-11-003-1	1	94	4.1	---	---	34	<1.0
A-11-003-5	5	39	---	---	---	25	---
A-11-004-1	1	5.1	---	---	---	22	---
A-11-004-5	5	1.5	---	---	---	20	---
A-11-005-1	1	180	5.3	<0.25	0.69	46	<1.0
A-11-005-5	5	3.0	---	---	---	20	---
A-11-006-1	1	74	4.1	---	---	33	<1.0
A-11-006-5	5	65	5.6	<0.25	---	34	<1.0
A-11-007-1	1	240	14	---	---	42	---
A-11-007-5	5	48	---	---	---	23	---
A-11-008-1	1	43	---	---	---	18	---
A-11-008-5	5	82	---	---	---	23	---
A-11-009-1	1	18	---	---	---	17	---
A-11-009-1	1	55	1.6	---	---	28	---
A-11-009-5	5	30	---	---	---	19	---
A-11-009-5	5	22	---	---	---	21	---
A-11-010-1	1	61	1.8	---	---	29	<1.0
A-11-010-5	5	21	---	---	---	58	<2.5
A-11-011-1	1	23	---	---	---	28	---
A-11-011-5	5	46	---	---	---	25	---
A-11-012-1	1	8.0	---	---	---	18	---
A-11-012-5	5	<20	---	---	---	43	---
A-11-013-1	1	6.5	---	---	---	26	---
A-11-013-5	5	26	---	---	---	24	---
A-11-015-1	1	2.2	---	---	---	14	---
A-11-015-5	5	4.8	---	---	---	27	---

TABLE 1
Summary of Lead and Chromium Results
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	Total Chromium (mg/kg)	WET Chromium (mg/l)
A-11-016-1	1	3.1	---	---	---	10	---
A-11-016-5	5	13	---	---	---	20	---
A-11-017-1	1	12	---	---	---	21	---
A-11-017-5	5	7.2	---	---	---	14	---
A-11-018-1	1	3.9	---	---	---	6.5	---
A-11-018-5	5	5.6	---	---	---	17	---
Hazardous Waste Criteria							
TTLC (mg/kg)		1,000	---	---	---	2,500	---
STLC (mg/l)		---	5.0	---	---	---	5.0
TCLP (mg/l)		---	---	---	5.0	---	---

Notes:

mg/kg = Milligrams per kilogram
mg/l = Milligrams per liter
--- = Not analyzed
<5.0 = Not detected above the laboratory reporting limit
WET = Waste Extraction Test using citric acid as the extraction fluid
DI-WET = Waste Extraction Test using deionized water as the extraction fluid
TCLP = Toxicity Characteristic Leaching Procedure
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration

TABLE 2
Summary of CAM17 Metals Results - Soil
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Sample Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
A-11-002-1	1	<2.0	<1.0	35	<1.0	<1.0	24	6.6	11	22	<0.10	<1.0	28	<1.0	<1.0	<1.0	24	41
A-11-002-5	5	<2.0	<1.0	33	<1.0	<1.0	27	4.0	2.6	1.2	<0.10	<1.0	22	<1.0	<1.0	<1.0	17	13
A-11-003-1	1	<2.0	1.6	67	<1.0	<1.0	34	7.3	16	94	<0.10	<1.0	39	<1.0	<1.0	<1.0	23	65
A-11-003-5	5	<2.0	<1.0	44	<1.0	<1.0	25	5.3	8.4	39	<0.10	<1.0	26	<1.0	<1.0	<1.0	18	36
A-11-004-1	1	<2.0	<1.0	22	<1.0	<1.0	22	3.7	2.4	5.1	<0.10	<1.0	20	<1.0	<1.0	<1.0	16	15
A-11-004-5	5	<2.0	<1.0	12	<1.0	<1.0	20	3.7	2.1	1.5	<0.10	<1.0	21	<1.0	<1.0	<1.0	15	12
A-11-005-1	1	<2.0	6.8	130	<1.0	1.2	46	11	60	180	0.58	<1.0	43	<1.0	<1.0	<1.0	32	280
A-11-005-5	5	<2.0	<1.0	65	<1.0	<1.0	20	5.1	8.3	3.0	<0.10	<1.0	20	<1.0	<1.0	<1.0	12	22
A-11-006-1	1	<2.0	<1.0	37	<1.0	<1.0	33	6.0	11	74	<0.10	<1.0	38	<1.0	<1.0	<1.0	18	42
A-11-006-5	5	<2.0	<1.0	41	<1.0	<1.0	34	5.2	8.1	65	<0.10	<1.0	34	<1.0	<1.0	<1.0	19	37
A-11-007-1	1	2.5	2.9	130	<1.0	1.1	42	9.5	35	240	0.26	<1.0	49	<1.0	<1.0	<1.0	29	150
A-11-007-5	5	<2.0	<1.0	29	<1.0	<1.0	23	4.2	5.5	48	<0.10	<1.0	20	<1.0	<1.0	<1.0	16	31
A-11-008-1	1	<2.0	<1.0	140	<1.0	<1.0	18	6.5	13	43	0.13	<1.0	27	<1.0	<1.0	<1.0	21	41
A-11-008-5	5	<2.0	<1.0	33	<1.0	<1.0	23	3.9	6.7	82	<0.10	<1.0	20	<1.0	<1.0	<1.0	16	37
A-11-009-1	1	<2.0	<1.0	86	<1.0	<1.0	17	6.1	12	18	0.31	<1.0	26	<1.0	<1.0	<1.0	21	35
A-11-009-1	1	<2.0	<1.0	100	<1.0	<1.0	28	7.4	12	55	0.87	<1.0	28	<1.0	<1.0	<1.0	23	58
A-11-009-5	5	<2.0	2.9	110	<1.0	<1.0	19	6.4	14	30	<0.10	<1.0	25	<1.0	<1.0	<1.0	21	43
A-11-009-5	5	<2.0	<1.0	110	<1.0	<1.0	21	6.8	11	22	<0.1	<1.0	24	<1.0	<1.0	<1.0	24	37
A-11-010-1	1	<2.0	<1.0	87	<1.0	<1.0	29	11	43	61	0.11	<1.0	44	<1.0	<1.0	<1.0	29	64
A-11-010-5	5	<2.0	3.7	130	<1.0	<1.0	58	13	17	21	0.11	<1.0	63	<1.0	<1.0	<1.0	37	42
A-11-011-1	1	<2.0	3.1	100	<1.0	<1.0	28	6.7	18	23	<0.10	<1.0	36	<1.0	<1.0	<1.0	21	40
A-11-011-5	5	<2.0	3.9	160	<1.0	1.4	25	8.6	14	46	<0.10	<1.0	35	<1.0	<1.0	<1.0	23	81
A-11-012-1	1	<2.0	<1.0	190	<1.0	<1.0	18	8.5	16	8.0	<0.10	<1.0	29	<1.0	<1.0	<1.0	21	39
A-11-012-5	5	<40	<20	140	<20	<20	43	<20	<40	<20	<0.10	<20	63	<20	<20	<20	36	120

TABLE 2
Summary of CAM17 Metals Results - Soil
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Sample Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
A-11-013-1	1	<2.0	3.4	120	<1.0	<1.0	26	8.2	12	6.5	<0.10	<1.0	34	<1.0	<1.0	<1.0	24	30
A-11-013-5	5	<2.0	5.0	110	<1.0	<1.0	24	6.5	15	26	<0.10	<1.0	32	<1.0	<1.0	<1.0	22	38
A-11-015-1	1	<2.0	<1.0	36	<1.0	1.1	14	17	34	2.2	0.10	<1.0	26	<1.0	<1.0	<1.0	110	48
A-11-015-5	5	<2.0	1.2	100	<1.0	<1.0	27	7.8	14	4.8	<0.1	<1.0	37	<1.0	<1.0	<1.0	20	36
A-11-016-1	1	<2.0	<1.0	15	<1.0	1.1	10	27	31	3.1	<0.1	<1.0	27	<1.0	<1.0	<1.0	120	54
A-11-016-5	5	<2.0	<1.0	36	<1.0	<1.0	20	18	27	13	0.18	<1.0	27	<1.0	<1.0	<1.0	89	53
A-11-017-1	1	<2.0	1.9	60	<1.0	<1.0	21	6.5	5.9	12	<0.1	<1.0	15	<1.0	<1.0	<1.0	31	43
A-11-017-5	5	<2.0	<1.0	58	<1.0	<1.0	14	6.4	5.3	7.2	<0.1	<1.0	12	<1.0	<1.0	<1.0	33	34
A-11-018-1	1	<2.0	<1.0	37	<1.0	<1.0	6.5	6.9	8.1	3.9	1.0	<1.0	20	<1.0	<1.0	<1.0	25	23
A-11-018-5	5	<2.0	7.2	76	<1.0	<1.0	17	6.2	15	5.6	<0.10	<1.0	28	<1.0	<1.0	<1.0	12	36
ESLs																		
Residential Land Use		6.3	0.39	750	4.0	1.7	750	40	230	200	1.3	40	150	10	20	1.3	16	600
Comm/Ind Land Use		40	1.6	1500	8.0	7.4	750	80	230	750	10	40	150	10	40	16	200	600
Construction Exposure		310	15	2,600	98	39	1,200,000	94	310,000	750	58	3,900	260	3,900	3,900	62	770	230,000
Hazardous Waste Criteria																		
TTLC		500	500	10,000	75	100	2,500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000
STLC		15	5.0	100	0.75	1.0	5.0	80	25	5.0	0.2	350	20	1.0	5.0	7.0	24	250
TCLP		---	5.0	100	---	1.0	6.0	---	---	5.0	0.2	---	---	1.0	5.0	---	---	---

Notes:

Total metal results are shown in milligrams per kilogram (mg/kg)

< = Analyte was not detected above the laboratory reporting limit.

ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, Revised May 2008.

ESL and Hazardous Waste Criteria Values listed for chromium are for Chromium III, as there is no standard for total chromium.

TTLC = total threshold limit concentration

STLC = soluble threshold limit concentration

TCLP = toxicity characteristic leaching procedure

--- = no standard

TABLE 3
Summary of Petroleum Hydrocarbons Results - Soil
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Sample Depth (feet)	TPHg (mg/kg)	TPHd (mg/kg)	TPHmo (mg/kg)	BTEX (µg/kg)	MTBE (µg/kg)
A-11-002-1	1	<1.0	260	1,400	ND	<5.0
A-11-002-5	5	<1.0	---	---	ND	<5.0
A-11-003-1	1	<1.0	36	170	ND	<5.0
A-11-003-5	5	<1.0	---	---	ND	<5.0
A-11-004-1	1	---	28	150	---	---
A-11-004-5	5	<1.0	---	---	ND	<5.0
A-11-005-1	1	<1.0	120	570	ND	<5.0
A-11-005-5	5	<1.0	---	---	ND	<5.0
A-11-006-1	1	<1.0	27	120	ND	<5.0
A-11-006-5	5	<1.0	---	---	ND	<5.0
A-11-007-1	1	---	190	860	---	---
A-11-007-5	5	<1.0	---	---	ND	<5.0
A-11-008-1	1	---	500	2,700	---	---
A-11-008-5	5	<1.0	---	---	ND	<5.0
A-11-009-1	1	---	730	4,500	---	---
A-11-009-1	1	---	610	4,200	---	---
A-11-009-5	5	<1.0	---	---	ND	<5.0
A-11-009-5	5	<1.0	---	---	ND	<5.0
A-11-010-1	1	<1.0	52	390	ND	<5.0
A-11-010-5	5	<1.0	---	---	ND	<5.0
A-11-011-1	1	---	46	260	---	---
A-11-011-5	5	<1.0	---	---	ND	<5.0
A-11-012-1	1	---	34	150	---	---
A-11-012-5	5	<1.0	---	---	ND	<5.0
A-11-013-1	1	---	5.2	23	---	---
A-11-013-5	5	<1.0	---	---	ND	<5.0

TABLE 3
Summary of Petroleum Hydrocarbons Results - Soil
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Sample Depth (feet)	TPHg (mg/kg)	TPHd (mg/kg)	TPHmo (mg/kg)	BTEX (µg/kg)	MTBE (µg/kg)
A-11-015-1	1	---	1,300	8,200	---	---
A-11-015-5	5	<1.0	---	---	ND	<5.0
A-11-016-1	1	---	560	3,600	---	---
A-11-016-5	5	<1.0	---	---	ND	<5.0
A-11-017-1	1	---	5.9	24	---	---
A-11-017-5	5	<1.0	---	---	ND	<5.0
A-11-018-1	1	---	880	5,700	---	---
A-11-018-5	5	<1.0	---	---	ND	<5.0
ESLs						
Residential		83	83	370	---	23
Commercial/Industrial		83	83	2,500	---	23
Construction Exposure		4,200	4,200	12,000	---	2.8E+06

Notes:
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
TPHg = Total petroleum hydrocarbons as gasoline
TPHd = Total petroleum hydrocarbons as diesel
TPHmo = Total petroleum hydrocarbons as motor oil
BTEX = Benzene, toluene, ethylbenzene, and xylenes
MTBE = Methyl tert-butyl ether
--- = Not Analyzed
< = Not detected above the stated laboratory reporting limit
ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, May 2008.
ND = None Detected

TABLE 4
Summary of Pesticides Results - Soil
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Sample Depth (feet)	4,4'-DDD (µg/kg)	4,4'-DDE (µg/kg)	4,4'-DDT (µg/kg)	alpha-Chlordane (µg/kg)	gamma-Chlordane (µg/kg)	Chlordane (µg/kg)	Dieldrin (µg/kg)	Other Pesticides (µg/kg)
A-11-002-1	1	<2.0	<2.0	<2.0	<1.0	<1.0	<8.5	<2.0	ND
A-11-003-1	1	<2.0	2.7	11	<1.0	<1.0	<8.5	<2.0	ND
A-11-004-1	1	<2.0	<2.0	<2.0	<1.0	<1.0	<8.5	<2.0	ND
A-11-005-1	1	2.5	2.5	10	1.4	1.5	13	4.8	ND
A-11-006-1	1	<2.0	<2.0	5.3	<1.0	<1.0	<8.5	<2.0	ND
A-11-007-1	1	38	<20	<20	<10	<10	<85	<20	ND
A-11-008-1	1	<20	<20	<20	<10	<10	<85	<20	ND
A-11-009-1	1	<20	<20	<20	<10	<10	<85	<20	ND
A-11-009-1	1	<20	<20	<20	<10	<10	<85	<20	ND
A-11-010-1	1	5.8	<2.0	44	<1.0	<1.0	<8.5	4.8	ND
A-11-011-1	1	<2.0	<2.0	<2.0	<1.0	<1.0	<8.5	<2.0	ND
A-11-012-1	1	<2.0	<2.0	<2.0	<1.0	<1.0	<8.5	<2.0	ND
A-11-013-1	1	<2.0	<2.0	<2.0	<1.0	<1.0	<8.5	<2.0	ND
A-11-015-1	1	<40	<40	<40	<20	<20	<170	<40	ND
A-11-016-1	1	<20	<20	<20	<10	<10	<85	<20	ND
A-11-017-1	1	<2.0	<2.0	<2.0	1.1	1.1	15	<2.0	ND
A-11-018-1	1	<20	<20	<20	<10	<10	<85	<20	ND
ESLs									
Residential		2,400	1,700	1,700	---	---	440	2.3	---
Commercial/Industrial		10,000	4,000	4,000	---	---	1,700	2.3	---
Construction Exposure		120,000	87,000	87,000	---	---	21,000	1,600	---

Notes:
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
TPHg = Total petroleum hydrocarbons as gasoline
TPHd = Total petroleum hydrocarbons as diesel
BTEX = Benzene, toluene, ethylbenzene, and xylenes
< = Not detected above the stated laboratory reporting limit
ND = None detected
ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, May 2008.
--- ESL does not exist for this compound

TABLE 5
Summary of CAM 17 Metals Results - Groundwater
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
A-11-002-GW	0.059	0.16	4.7	<0.030	<0.030	1.6	0.32	0.97	4.2	5.9	<0.050	1.5	<0.10	<0.030	<0.15	1.5	4.4
A-11-003-GW	<0.050	<0.10	2.4	<0.030	<0.030	0.86	0.22	0.95	0.25	<0.20	<0.050	0.88	<0.10	<0.030	<0.15	0.53	1.5
A-11-004	0.079	<0.10	8.7	<0.03	0.036	3.9	0.84	2.8	0.76	2.1	<0.050	4.0	<0.10	<0.030	<0.15	2.6	4.6
A-11-005-GW	0.078	0.16	13	<0.030	0.089	3.0	1.0	2.8	2.2	3.4	<0.050	4.0	<0.10	<0.030	<0.15	3.4	7.7
A-11-006-GW	0.099	<0.10	7.5	<0.030	0.070	4.3	0.79	7.5	1.9	8.7	0.056	4.0	<0.10	<0.030	<0.15	3.4	10
A-11-007	0.087	<0.10	4.3	<0.030	0.030	2.5	0.48	0.90	2.4	2.9	<0.050	2.6	<0.10	<0.030	<0.15	1.7	3.8
A-11-008	0.054	0.19	3.2	<0.030	<0.030	1.2	0.56	0.86	1.6	4.0	<0.050	1.9	<0.10	<0.030	<0.15	1.1	2.3
A-11-011	0.11	0.22	9.6	0.017	0.042	4.3	0.68	1.8	0.33	9.2	<0.025	5.3	<0.050	<0.015	<0.075	2.9	2.9
A-11-012	0.04	0.17	72	<0.015	0.021	2.1	1.7	0.8	0.31	3.3	0.075	5.6	0.18	<0.015	<0.075	1.2	1.4
A-11-013	0.17	0.35	7.8	0.024	0.059	7.6	1.1	2.8	0.34	7.5	<0.025	12	<0.050	<0.015	<0.075	3.1	4.2
A-11-016	<0.025	0.093	12	<0.015	0.21	0.57	0.22	0.28	0.12	1.3	0.078	0.83	<0.050	<0.015	<0.075	0.44	1.6
A-11-018	0.12	0.35	18	0.046	0.075	8.0	2.0	2.0	0.54	68	<0.05	14	<0.10	<0.03	<0.15	3.8	4.0
ESLs																	
GW is current/potential source	0.006	0.036	1.0	0.00053	0.00025	0.05	0.003	0.0031	0.0025	0.025	0.035	0.0082	0.005	0.00019	0.002	0.015	0.081
GW not current/potential source	0.030	0.036	1.0	0.00053	0.00025	0.18	0.003	0.0031	0.0025	0.025	0.24	0.0082	0.005	0.00019	0.004	0.019	0.081
Surface Water - Freshwater	0.006	0.00014	1.0	0.0027	0.00025	0.05	0.003	0.009	0.0025	0.025	0.035	0.052	0.005	0.00034	0.002	0.015	0.12
Surface Water - Marine	0.5	0.00014	1.0	0.00053	0.0093	0.18	0.003	0.0031	0.0056	0.025	0.24	0.0082	0.071	0.00019	0.004	0.019	0.081
Surface Water - Estuarine	0.03	0.00014	1.0	0.00053	0.00025	0.18	0.003	0.0031	0.0025	0.025	0.24	0.0082	0.005	0.00019	0.004	0.019	0.081

Notes:

Data are shown in units of milligrams per liter (mg/l), with the exception of mercury, shown in micrograms per liter (µg/l).

< = Not detected above the stated laboratory reporting limit

ESLs = Environmental Screening Levels, Tables A, B, & F, SFRWQCB, May 2008.

TABLE 6
Summary of Organics Results - Groundwater
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	TPHg (mg/l)	TPHd (mg/l)	TPHmo (mg/l)	BTEX (µg/l)	MTBE (µg/l)	VOCs (µg/l)
A-11-002-GW	0.30	5.0	3.1	m,p-Xylene=1.5 o-Xylene=2.9	<5.0	Trimethylbenzene=2.5 o-Xylene=3.3
A-11-003-GW	0.17	0.46	0.35	ND	<5.0	ND
A-11-004	0.20	0.40	0.35	ND	<5.0	ND
A-11-005-GW	0.13	20	18	ND	<5.0	ND
A-11-006-GW	0.25	4.8	2.8	ND	<5.0	Chloromethane=0.62
A-11-007	<0.05	0.33	0.43	ND	<5.0	ND
A-11-008	<0.05	0.14	0.21	ND	<5.0	ND
A-11-011	0.25	0.31	0.19	ND	<5.0	ND
A-11-012	0.17	0.13	0.07	ND	<5.0	ND
A-11-013	0.15	0.17	0.08	ND	<5.0	ND
A-11-016	0.18	<0.053	<0.053	ND	<5.0	ND
A-11-018	0.071	0.28	0.19	ND	16	ND
ESLs						
GW is current/potential source	0.10	0.10	0.10	---	5.0	---
GW not current/potential source	0.21	0.21	0.21	---	1,800	---
Surface Water - Freshwater	0.10	0.10	0.10	---	5.0	---
Surface Water - Marine	0.21	0.21	0.21	---	180	---
Surface Water - Estuarine	0.21	0.21	0.21	---	180	---

Notes:

TPHg = Total petroleum hydrocarbons as gasoline
TPHd = Total petroleum hydrocarbons as diesel
TPHmo = Total petroleum hydrocarbons as motor oil
BTEX = Benzene, toluene, ethylbenzene and xylenes
MTBE = Methyl tert-butyl ether
VOCs = Volatile organic compounds
ESLs = Environmental Screening Levels, Tables A, B, & F, SFRWQCB, May 2008.

mg/l = milligrams per liter
µg/l = micrograms per liter
< = Not detected above the stated laboratory reporting limit
ND = None Detected
--- = Not Applicable

APPENDIX A

April 29, 2011

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Workorder No.: 117519

Rick Day, L. Vigliotti, C. Merritt
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

TEL: (925) 371-5900
FAX: (925) 371-5915

RE: I-80 ICM, E8583-06-01

Attention: Rick Day, L. Vigliotti, C. Merritt

Enclosed are the results for sample(s) received on April 23, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

Eddie F. Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Project: I-80 ICM, E8583-06-01
Lab Order: 117519

CASE NARRATIVE

Analytical Comments for Method 6010

Dilution was necessary for samples 117519-003C, 117519-006C, 117519-009C and 117519-012C, due to dirty matrix.

RPD for Duplicate (DUP) is outside criteria for sample 117519-014ADUP; however, the Laboratory Control Sample (LCS) validated the analytical batch.

Analytical Comments for Method 8015 (DRO/ORO)

Dilution was necessary for samples 117519-001A, 117519-006D, 117519-007A, 117519-009D, 117519-010A and 117519-012D, due to sample matrix.

Surrogate recovery was diluted out for samples 117519-007A and 117519-012D.

RPD for Duplicate (DUP) and/or Matrix Spike (MS)/Matrix Spike Duplicate (MSD) is outside criteria for samples 117519-001ADUP and 117519-004AMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Analytical Comments for Method 8260

Dilution was necessary for sample 117519-012A, due to oily matrix.

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-001

Client Sample ID: A-11-003-1
Collection Date: 4/20/2011 2:50:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_110427A	QC Batch: 72484			PrepDate:	4/26/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	4/27/2011 11:39 AM
Arsenic	1.6	1.0		mg/Kg	1	4/27/2011 11:39 AM
Barium	67	1.0		mg/Kg	1	4/27/2011 11:39 AM
Beryllium	ND	1.0		mg/Kg	1	4/27/2011 11:39 AM
Cadmium	ND	1.0		mg/Kg	1	4/27/2011 11:39 AM
Chromium	34	1.0		mg/Kg	1	4/27/2011 11:39 AM
Cobalt	7.3	1.0		mg/Kg	1	4/27/2011 11:39 AM
Copper	16	2.0		mg/Kg	1	4/27/2011 11:39 AM
Lead	94	1.0		mg/Kg	1	4/27/2011 11:39 AM
Molybdenum	ND	1.0		mg/Kg	1	4/27/2011 11:39 AM
Nickel	39	1.0		mg/Kg	1	4/27/2011 11:39 AM
Selenium	ND	1.0		mg/Kg	1	4/27/2011 11:39 AM
Silver	ND	1.0		mg/Kg	1	4/27/2011 11:39 AM
Thallium	ND	1.0		mg/Kg	1	4/27/2011 11:39 AM
Vanadium	23	1.0		mg/Kg	1	4/27/2011 11:39 AM
Zinc	65	1.0		mg/Kg	1	4/27/2011 11:39 AM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3550B			**EPA 8015B(M)**		
RunID: GC16_110427G	QC Batch: 72463			PrepDate:	4/26/2011	Analyst: **CBR**
DRO	36	4.0		mg/Kg	2	4/28/2011 09:48 AM
ORO	170	4.0		mg/Kg	2	4/28/2011 09:48 AM
Surr: p-Terphenyl	94.4	30-128		%REC	2	4/28/2011 09:48 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
	EPA 3550B			**EPA 8081A**		
RunID: GC9_110428A	QC Batch: 72534			PrepDate:	4/28/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	4/28/2011 09:02 PM
4,4´-DDE	2.7	2.0		µg/Kg	1	4/28/2011 09:02 PM
4,4´-DDT	11	2.0		µg/Kg	1	4/28/2011 09:02 PM
Aldrin	ND	1.0		µg/Kg	1	4/28/2011 09:02 PM
alpha-BHC	ND	1.0		µg/Kg	1	4/28/2011 09:02 PM
alpha-Chlordane	ND	1.0		µg/Kg	1	4/28/2011 09:02 PM
beta-BHC	ND	1.0		µg/Kg	1	4/28/2011 09:02 PM
Chlordane	ND	8.5		µg/Kg	1	4/28/2011 09:02 PM
delta-BHC	ND	1.0		µg/Kg	1	4/28/2011 09:02 PM
Dieldrin	ND	2.0		µg/Kg	1	4/28/2011 09:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-001

Client Sample ID: A-11-003-1
Collection Date: 4/20/2011 2:50:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110428A	QC Batch: 72534			PrepDate:	4/28/2011	Analyst: **HL**
Endosulfan I	ND	1.0		µg/Kg	1	4/28/2011 09:02 PM
Endosulfan II	ND	2.0		µg/Kg	1	4/28/2011 09:02 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	4/28/2011 09:02 PM
Endrin	ND	2.0		µg/Kg	1	4/28/2011 09:02 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	4/28/2011 09:02 PM
Endrin ketone	ND	2.0		µg/Kg	1	4/28/2011 09:02 PM
gamma-BHC	ND	1.0		µg/Kg	1	4/28/2011 09:02 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	4/28/2011 09:02 PM
Heptachlor	ND	1.0		µg/Kg	1	4/28/2011 09:02 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	4/28/2011 09:02 PM
Methoxychlor	ND	5.0		µg/Kg	1	4/28/2011 09:02 PM
Toxaphene	ND	50		µg/Kg	1	4/28/2011 09:02 PM
Surr: Decachlorobiphenyl	71.0	31-107		%REC	1	4/28/2011 09:02 PM
Surr: Tetrachloro-m-xylene	85.8	35-108		%REC	1	4/28/2011 09:02 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110428A	QC Batch: 72483			PrepDate:	4/26/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	4/28/2011 09:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-002

Client Sample ID: A-11-003-5
Collection Date: 4/20/2011 2:55:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110427A	QC Batch: 72484			PrepDate: 4/26/2011		Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	4/27/2011 11:42 AM
Arsenic	ND	1.0		mg/Kg	1	4/27/2011 11:42 AM
Barium	44	1.0		mg/Kg	1	4/27/2011 11:42 AM
Beryllium	ND	1.0		mg/Kg	1	4/27/2011 11:42 AM
Cadmium	ND	1.0		mg/Kg	1	4/27/2011 11:42 AM
Chromium	25	1.0		mg/Kg	1	4/27/2011 11:42 AM
Cobalt	5.3	1.0		mg/Kg	1	4/27/2011 11:42 AM
Copper	8.4	2.0		mg/Kg	1	4/27/2011 11:42 AM
Lead	39	1.0		mg/Kg	1	4/27/2011 11:42 AM
Molybdenum	ND	1.0		mg/Kg	1	4/27/2011 11:42 AM
Nickel	26	1.0		mg/Kg	1	4/27/2011 11:42 AM
Selenium	ND	1.0		mg/Kg	1	4/27/2011 11:42 AM
Silver	ND	1.0		mg/Kg	1	4/27/2011 11:42 AM
Thallium	ND	1.0		mg/Kg	1	4/27/2011 11:42 AM
Vanadium	18	1.0		mg/Kg	1	4/27/2011 11:42 AM
Zinc	36	1.0		mg/Kg	1	4/27/2011 11:42 AM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110427C	QC Batch: E11VS169			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	4/28/2011 07:21 AM
Surr: Bromofluorobenzene (FID)	120	62-153		%REC	1	4/28/2011 07:21 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110427C	QC Batch: E11VS169			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	4/28/2011 07:21 AM
Ethylbenzene	ND	5.0		µg/Kg	1	4/28/2011 07:21 AM
m,p-Xylene	ND	10		µg/Kg	1	4/28/2011 07:21 AM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	4/28/2011 07:21 AM
o-Xylene	ND	5.0		µg/Kg	1	4/28/2011 07:21 AM
Toluene	ND	5.0		µg/Kg	1	4/28/2011 07:21 AM
Surr: Bromofluorobenzene (PID)	120	65-140		%REC	1	4/28/2011 07:21 AM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110428A	QC Batch: 72483			PrepDate: 4/26/2011		Analyst: **VV**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-003-5
Lab Order:	117519	**Collection Date:**	4/20/2011 2:55:00 PM
Project:	I-80 ICM, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117519-002		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA5_110428A	QC Batch: 72483			PrepDate:	4/26/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	4/28/2011 09:13 AM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-003

Client Sample ID: A-11-003-GW
Collection Date: 4/20/2011 3:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3010A			**EPA 6010B**		
RunID: ICP8_110425C	QC Batch: 72441			PrepDate: 4/25/2011		Analyst: **IL**
Antimony	ND	0.050		mg/L	10	4/25/2011 04:23 PM
Arsenic	ND	0.10		mg/L	10	4/25/2011 04:23 PM
Barium	2.4	0.030		mg/L	10	4/25/2011 04:23 PM
Beryllium	ND	0.030		mg/L	10	4/25/2011 04:23 PM
Cadmium	ND	0.030		mg/L	10	4/25/2011 04:23 PM
Chromium	0.86	0.030		mg/L	10	4/25/2011 04:23 PM
Cobalt	0.22	0.030		mg/L	10	4/25/2011 04:23 PM
Copper	0.95	0.050		mg/L	10	4/25/2011 04:23 PM
Lead	0.25	0.050		mg/L	10	4/25/2011 04:23 PM
Molybdenum	ND	0.050		mg/L	10	4/25/2011 04:23 PM
Nickel	0.88	0.050		mg/L	10	4/25/2011 04:23 PM
Selenium	ND	0.10		mg/L	10	4/25/2011 04:23 PM
Silver	ND	0.030		mg/L	10	4/25/2011 04:23 PM
Thallium	ND	0.15		mg/L	10	4/25/2011 04:23 PM
Vanadium	0.53	0.030		mg/L	10	4/25/2011 04:23 PM
Zinc	1.5	0.10		mg/L	10	4/25/2011 04:23 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3510C			**EPA 8015B(M)**		
RunID: GC16_110427A	QC Batch: 72448			PrepDate: 4/25/2011		Analyst: **CBR**
DRO	0.46	0.056		mg/L	1	4/27/2011 12:43 PM
ORO	0.35	0.056		mg/L	1	4/27/2011 12:43 PM
Surr: p-Terphenyl	121	36-126		%REC	1	4/27/2011 12:43 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC19_110427A	QC Batch: M11VW082			PrepDate:		Analyst: **DDL**
GRO	0.17	0.050		mg/L	1	4/27/2011 04:15 PM
Surr: Bromofluorobenzene (FID)	99.1	70-130		%REC	1	4/27/2011 04:15 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC19_110427A	QC Batch: M11VW082			PrepDate:		Analyst: **DDL**
Benzene	ND	0.50		µg/L	1	4/27/2011 04:15 PM
Ethylbenzene	ND	0.50		µg/L	1	4/27/2011 04:15 PM
m,p-Xylene	ND	1.0		µg/L	1	4/27/2011 04:15 PM
Methyl tert-butyl ether	ND	0.50		µg/L	1	4/27/2011 04:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-003

Client Sample ID: A-11-003-GW
Collection Date: 4/20/2011 3:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
EPA 8021B						
RunID: GC19_110427A QC Batch: M11VW082 PrepDate: Analyst: **DDL**						
o-Xylene	ND	0.50		µg/L	1	4/27/2011 04:15 PM
Toluene	ND	0.50		µg/L	1	4/27/2011 04:15 PM
Surr: Bromofluorobenzene (PID)	92.2	70-130		%REC	1	4/27/2011 04:15 PM
MERCURY BY COLD VAPOR TECHNIQUE						
EPA 7470A						
RunID: AA5_110426A QC Batch: 72440 PrepDate: 4/25/2011 Analyst: **VV**						
Mercury	ND	0.20		µg/L	1	4/26/2011 11:40 AM
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
EPA 8260B						
RunID: MS2_110429A QC Batch: Q11VW059 PrepDate: Analyst: **BD**						
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,1,1-Trichloroethane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,1,2-Trichloroethane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,1-Dichloroethane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,1-Dichloroethene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,1-Dichloropropene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,2,3-Trichloropropane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,2-Dibromoethane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,2-Dichlorobenzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,2-Dichloroethane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,2-Dichloropropane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,3-Dichlorobenzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,3-Dichloropropane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
1,4-Dichlorobenzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
2,2-Dichloropropane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
2-Chlorotoluene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
4-Chlorotoluene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
4-Isopropyltoluene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Benzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-003-GW
Lab Order:	117519	**Collection Date:**	4/20/2011 3:15:00 PM
Project:	I-80 ICM, E8583-06-01	**Matrix:**	GROUNDWATER
Lab ID:	117519-003		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
			EPA 8260B			
RunID: MS2_110429A	QC Batch: Q11VW059			PrepDate:		Analyst: **BD**
Bromobenzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Bromodichloromethane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Bromoform	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Bromomethane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Carbon tetrachloride	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Chlorobenzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Chloroethane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Chloroform	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Chloromethane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
cis-1,2-Dichloroethene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Dibromochloromethane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Dibromomethane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Dichlorodifluoromethane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Ethylbenzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Hexachlorobutadiene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Isopropylbenzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
m,p-Xylene	ND	1.0		µg/L	1	4/29/2011 12:53 PM
Methylene chloride	ND	1.0		µg/L	1	4/29/2011 12:53 PM
n-Butylbenzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
n-Propylbenzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Naphthalene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
o-Xylene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
sec-Butylbenzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Styrene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
tert-Butylbenzene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Tetrachloroethene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Toluene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
trans-1,2-Dichloroethene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Trichloroethene	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Trichlorofluoromethane	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Vinyl chloride	ND	0.50		µg/L	1	4/29/2011 12:53 PM
Surr: 1,2-Dichloroethane-d4	96.1	70-130		%REC	1	4/29/2011 12:53 PM
Surr: 4-Bromofluorobenzene	93.5	70-130		%REC	1	4/29/2011 12:53 PM
Surr: Dibromofluoromethane	93.4	70-130		%REC	1	4/29/2011 12:53 PM
Surr: Toluene-d8	88.3	70-130		%REC	1	4/29/2011 12:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-004

Client Sample ID: A-11-006-1
Collection Date: 4/20/2011 8:45:00 AM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110427A	QC Batch: 72484			PrepDate:	4/26/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	4/27/2011 11:45 AM
Arsenic	ND	1.0		mg/Kg	1	4/27/2011 11:45 AM
Barium	37	1.0		mg/Kg	1	4/27/2011 11:45 AM
Beryllium	ND	1.0		mg/Kg	1	4/27/2011 11:45 AM
Cadmium	ND	1.0		mg/Kg	1	4/27/2011 11:45 AM
Chromium	33	1.0		mg/Kg	1	4/27/2011 11:45 AM
Cobalt	6.0	1.0		mg/Kg	1	4/27/2011 11:45 AM
Copper	11	2.0		mg/Kg	1	4/27/2011 11:45 AM
Lead	74	1.0		mg/Kg	1	4/27/2011 11:45 AM
Molybdenum	ND	1.0		mg/Kg	1	4/27/2011 11:45 AM
Nickel	38	1.0		mg/Kg	1	4/27/2011 11:45 AM
Selenium	ND	1.0		mg/Kg	1	4/27/2011 11:45 AM
Silver	ND	1.0		mg/Kg	1	4/27/2011 11:45 AM
Thallium	ND	1.0		mg/Kg	1	4/27/2011 11:45 AM
Vanadium	18	1.0		mg/Kg	1	4/27/2011 11:45 AM
Zinc	42	1.0		mg/Kg	1	4/27/2011 11:45 AM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110427G	QC Batch: 72463			PrepDate:	4/26/2011	Analyst: **CBR**
DRO	27	2.0		mg/Kg	1	4/28/2011 01:35 AM
ORO	120	2.0		mg/Kg	1	4/28/2011 01:35 AM
Surr: p-Terphenyl	105	30-128		%REC	1	4/28/2011 01:35 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC9_110428A	QC Batch: 72534			PrepDate:	4/28/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	4/28/2011 09:55 PM
4,4´-DDE	ND	2.0		µg/Kg	1	4/28/2011 09:55 PM
4,4´-DDT	5.3	2.0		µg/Kg	1	4/28/2011 09:55 PM
Aldrin	ND	1.0		µg/Kg	1	4/28/2011 09:55 PM
alpha-BHC	ND	1.0		µg/Kg	1	4/28/2011 09:55 PM
alpha-Chlordane	ND	1.0		µg/Kg	1	4/28/2011 09:55 PM
beta-BHC	ND	1.0		µg/Kg	1	4/28/2011 09:55 PM
Chlordane	ND	8.5		µg/Kg	1	4/28/2011 09:55 PM
delta-BHC	ND	1.0		µg/Kg	1	4/28/2011 09:55 PM
Dieldrin	ND	2.0		µg/Kg	1	4/28/2011 09:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-006-1
Lab Order:	117519	**Collection Date:**	4/20/2011 8:45:00 AM
Project:	I-80 ICM, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117519-004		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110428A	QC Batch: 72534			PrepDate:	4/28/2011	Analyst: **HL**
Endosulfan I	ND	1.0		µg/Kg	1	4/28/2011 09:55 PM
Endosulfan II	ND	2.0		µg/Kg	1	4/28/2011 09:55 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	4/28/2011 09:55 PM
Endrin	ND	2.0		µg/Kg	1	4/28/2011 09:55 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	4/28/2011 09:55 PM
Endrin ketone	ND	2.0		µg/Kg	1	4/28/2011 09:55 PM
gamma-BHC	ND	1.0		µg/Kg	1	4/28/2011 09:55 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	4/28/2011 09:55 PM
Heptachlor	ND	1.0		µg/Kg	1	4/28/2011 09:55 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	4/28/2011 09:55 PM
Methoxychlor	ND	5.0		µg/Kg	1	4/28/2011 09:55 PM
Toxaphene	ND	50		µg/Kg	1	4/28/2011 09:55 PM
Surr: Decachlorobiphenyl	56.0	31-107		%REC	1	4/28/2011 09:55 PM
Surr: Tetrachloro-m-xylene	65.2	35-108		%REC	1	4/28/2011 09:55 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110428A	QC Batch: 72483			PrepDate:	4/26/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	4/28/2011 09:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-005

Client Sample ID: A-11-006-5
Collection Date: 4/20/2011 8:55:00 AM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110427A	QC Batch: 72484			PrepDate: 4/26/2011		Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	4/27/2011 11:48 AM
Arsenic	ND	1.0		mg/Kg	1	4/27/2011 11:48 AM
Barium	41	1.0		mg/Kg	1	4/27/2011 11:48 AM
Beryllium	ND	1.0		mg/Kg	1	4/27/2011 11:48 AM
Cadmium	ND	1.0		mg/Kg	1	4/27/2011 11:48 AM
Chromium	34	1.0		mg/Kg	1	4/27/2011 11:48 AM
Cobalt	5.2	1.0		mg/Kg	1	4/27/2011 11:48 AM
Copper	8.1	2.0		mg/Kg	1	4/27/2011 11:48 AM
Lead	65	1.0		mg/Kg	1	4/27/2011 11:48 AM
Molybdenum	ND	1.0		mg/Kg	1	4/27/2011 11:48 AM
Nickel	34	1.0		mg/Kg	1	4/27/2011 11:48 AM
Selenium	ND	1.0		mg/Kg	1	4/27/2011 11:48 AM
Silver	ND	1.0		mg/Kg	1	4/27/2011 11:48 AM
Thallium	ND	1.0		mg/Kg	1	4/27/2011 11:48 AM
Vanadium	19	1.0		mg/Kg	1	4/27/2011 11:48 AM
Zinc	37	1.0		mg/Kg	1	4/27/2011 11:48 AM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110427C	QC Batch: E11VS169			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	4/28/2011 07:36 AM
Surr: Bromofluorobenzene (FID)	127	62-153		%REC	1	4/28/2011 07:36 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110427C	QC Batch: E11VS169			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	4/28/2011 07:36 AM
Ethylbenzene	ND	5.0		µg/Kg	1	4/28/2011 07:36 AM
m,p-Xylene	ND	10		µg/Kg	1	4/28/2011 07:36 AM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	4/28/2011 07:36 AM
o-Xylene	ND	5.0		µg/Kg	1	4/28/2011 07:36 AM
Toluene	ND	5.0		µg/Kg	1	4/28/2011 07:36 AM
Surr: Bromofluorobenzene (PID)	127	65-140		%REC	1	4/28/2011 07:36 AM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110428A	QC Batch: 72483			PrepDate: 4/26/2011		Analyst: **VV**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-006-5
Lab Order:	117519	**Collection Date:**	4/20/2011 8:55:00 AM
Project:	I-80 ICM, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117519-005		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
EPA 7471A						
RunID: AA5_110428A QC Batch: 72483 PrepDate: 4/26/2011 Analyst: **VV**						
Mercury	ND	0.10		mg/Kg	1	4/28/2011 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-006

Client Sample ID: A-11-006-GW
Collection Date: 4/20/2011 9:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3010A			**EPA 6010B**		
RunID: ICP8_110425C	QC Batch: 72441			PrepDate:	4/25/2011	Analyst: **IL**
Antimony	0.099	0.050		mg/L	10	4/25/2011 04:27 PM
Arsenic	ND	0.10		mg/L	10	4/25/2011 04:27 PM
Barium	7.5	0.030		mg/L	10	4/25/2011 04:27 PM
Beryllium	ND	0.030		mg/L	10	4/25/2011 04:27 PM
Cadmium	0.070	0.030		mg/L	10	4/25/2011 04:27 PM
Chromium	4.3	0.030		mg/L	10	4/25/2011 04:27 PM
Cobalt	0.79	0.030		mg/L	10	4/25/2011 04:27 PM
Copper	7.5	0.050		mg/L	10	4/25/2011 04:27 PM
Lead	1.9	0.050		mg/L	10	4/25/2011 04:27 PM
Molybdenum	0.056	0.050		mg/L	10	4/25/2011 04:27 PM
Nickel	4.0	0.050		mg/L	10	4/25/2011 04:27 PM
Selenium	ND	0.10		mg/L	10	4/25/2011 04:27 PM
Silver	ND	0.030		mg/L	10	4/25/2011 04:27 PM
Thallium	ND	0.15		mg/L	10	4/25/2011 04:27 PM
Vanadium	3.4	0.030		mg/L	10	4/25/2011 04:27 PM
Zinc	10	0.10		mg/L	10	4/25/2011 04:27 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3510C			**EPA 8015B(M)**		
RunID: GC16_110427A	QC Batch: 72448			PrepDate:	4/25/2011	Analyst: **CBR**
DRO	4.8	0.12		mg/L	2	4/27/2011 01:12 PM
ORO	2.8	0.12		mg/L	2	4/27/2011 01:12 PM
Surr: p-Terphenyl	80.8	36-126		%REC	2	4/27/2011 01:12 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC19_110427A	QC Batch: M11VW082			PrepDate:		Analyst: **DDL**
GRO	0.25	0.050		mg/L	1	4/27/2011 05:32 PM
Surr: Bromofluorobenzene (FID)	102	70-130		%REC	1	4/27/2011 05:32 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC19_110427A	QC Batch: M11VW082			PrepDate:		Analyst: **DDL**
Benzene	ND	0.50		µg/L	1	4/27/2011 05:32 PM
Ethylbenzene	ND	0.50		µg/L	1	4/27/2011 05:32 PM
m,p-Xylene	ND	1.0		µg/L	1	4/27/2011 05:32 PM
Methyl tert-butyl ether	ND	0.50		µg/L	1	4/27/2011 05:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-006

Client Sample ID: A-11-006-GW
Collection Date: 4/20/2011 9:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
EPA 8021B						
RunID: GC19_110427A QC Batch: M11VW082 PrepDate: Analyst: **DDL**						
o-Xylene	ND	0.50		µg/L	1	4/27/2011 05:32 PM
Toluene	ND	0.50		µg/L	1	4/27/2011 05:32 PM
Surr: Bromofluorobenzene (PID)	92.2	70-130		%REC	1	4/27/2011 05:32 PM
MERCURY BY COLD VAPOR TECHNIQUE						
EPA 7470A						
RunID: AA5_110426A QC Batch: 72440 PrepDate: 4/25/2011 Analyst: **VV**						
Mercury	0.87	0.20		µg/L	1	4/26/2011 11:42 AM
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
EPA 8260B						
RunID: MS2_110429A QC Batch: Q11VW059 PrepDate: Analyst: **BD**						
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,1,1-Trichloroethane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,1,2-Trichloroethane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,1-Dichloroethane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,1-Dichloroethene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,1-Dichloropropene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,2,3-Trichloropropane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,2-Dibromoethane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,2-Dichlorobenzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,2-Dichloroethane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,2-Dichloropropane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,3-Dichlorobenzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,3-Dichloropropane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
1,4-Dichlorobenzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
2,2-Dichloropropane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
2-Chlorotoluene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
4-Chlorotoluene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
4-Isopropyltoluene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Benzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-006

Client Sample ID: A-11-006-GW
Collection Date: 4/20/2011 9:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
				EPA 8260B		
RunID: MS2_110429A	QC Batch:	Q11VW059			PrepDate:	Analyst: **BD**
Bromobenzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Bromodichloromethane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Bromoform	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Bromomethane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Carbon tetrachloride	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Chlorobenzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Chloroethane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Chloroform	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Chloromethane	0.62	0.50		µg/L	1	4/29/2011 01:13 PM
cis-1,2-Dichloroethene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Dibromochloromethane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Dibromomethane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Dichlorodifluoromethane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Ethylbenzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Hexachlorobutadiene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Isopropylbenzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
m,p-Xylene	ND	1.0		µg/L	1	4/29/2011 01:13 PM
Methylene chloride	ND	1.0		µg/L	1	4/29/2011 01:13 PM
n-Butylbenzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
n-Propylbenzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Naphthalene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
o-Xylene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
sec-Butylbenzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Styrene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
tert-Butylbenzene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Tetrachloroethene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Toluene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
trans-1,2-Dichloroethene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Trichloroethene	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Trichlorofluoromethane	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Vinyl chloride	ND	0.50		µg/L	1	4/29/2011 01:13 PM
Surr: 1,2-Dichloroethane-d4	99.1	70-130		%REC	1	4/29/2011 01:13 PM
Surr: 4-Bromofluorobenzene	101	70-130		%REC	1	4/29/2011 01:13 PM
Surr: Dibromofluoromethane	97.0	70-130		%REC	1	4/29/2011 01:13 PM
Surr: Toluene-d8	96.2	70-130		%REC	1	4/29/2011 01:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-002-1
Lab Order:	117519	**Collection Date:**	4/21/2011 11:40:00 AM
Project:	I-80 ICM, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117519-007		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110427A	QC Batch: 72484			PrepDate:	4/26/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	4/27/2011 11:51 AM
Arsenic	ND	1.0		mg/Kg	1	4/27/2011 11:51 AM
Barium	35	1.0		mg/Kg	1	4/27/2011 11:51 AM
Beryllium	ND	1.0		mg/Kg	1	4/27/2011 11:51 AM
Cadmium	ND	1.0		mg/Kg	1	4/27/2011 11:51 AM
Chromium	24	1.0		mg/Kg	1	4/27/2011 11:51 AM
Cobalt	6.6	1.0		mg/Kg	1	4/27/2011 11:51 AM
Copper	11	2.0		mg/Kg	1	4/27/2011 11:51 AM
Lead	22	1.0		mg/Kg	1	4/27/2011 11:51 AM
Molybdenum	ND	1.0		mg/Kg	1	4/27/2011 11:51 AM
Nickel	28	1.0		mg/Kg	1	4/27/2011 11:51 AM
Selenium	ND	1.0		mg/Kg	1	4/27/2011 11:51 AM
Silver	ND	1.0		mg/Kg	1	4/27/2011 11:51 AM
Thallium	ND	1.0		mg/Kg	1	4/27/2011 11:51 AM
Vanadium	24	1.0		mg/Kg	1	4/27/2011 11:51 AM
Zinc	41	1.0		mg/Kg	1	4/27/2011 11:51 AM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110427G	QC Batch: 72463			PrepDate:	4/26/2011	Analyst: **CBR**
DRO	260	20		mg/Kg	2	4/28/2011 02:03 AM
ORO	1400	20		mg/Kg	2	4/28/2011 02:03 AM
Surr: p-Terphenyl	0	30-128	SDO	%REC	2	4/28/2011 02:03 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC9_110428A	QC Batch: 72534			PrepDate:	4/28/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	4/28/2011 10:22 PM
4,4´-DDE	ND	2.0		µg/Kg	1	4/28/2011 10:22 PM
4,4´-DDT	ND	2.0		µg/Kg	1	4/28/2011 10:22 PM
Aldrin	ND	1.0		µg/Kg	1	4/28/2011 10:22 PM
alpha-BHC	ND	1.0		µg/Kg	1	4/28/2011 10:22 PM
alpha-Chlordane	ND	1.0		µg/Kg	1	4/28/2011 10:22 PM
beta-BHC	ND	1.0		µg/Kg	1	4/28/2011 10:22 PM
Chlordane	ND	8.5		µg/Kg	1	4/28/2011 10:22 PM
delta-BHC	ND	1.0		µg/Kg	1	4/28/2011 10:22 PM
Dieldrin	ND	2.0		µg/Kg	1	4/28/2011 10:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-002-1
Lab Order:	117519	**Collection Date:**	4/21/2011 11:40:00 AM
Project:	I-80 ICM, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117519-007		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110428A	QC Batch: 72534			PrepDate:	4/28/2011	Analyst: **HL**
Endosulfan I	ND	1.0		µg/Kg	1	4/28/2011 10:22 PM
Endosulfan II	ND	2.0		µg/Kg	1	4/28/2011 10:22 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	4/28/2011 10:22 PM
Endrin	ND	2.0		µg/Kg	1	4/28/2011 10:22 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	4/28/2011 10:22 PM
Endrin ketone	ND	2.0		µg/Kg	1	4/28/2011 10:22 PM
gamma-BHC	ND	1.0		µg/Kg	1	4/28/2011 10:22 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	4/28/2011 10:22 PM
Heptachlor	ND	1.0		µg/Kg	1	4/28/2011 10:22 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	4/28/2011 10:22 PM
Methoxychlor	ND	5.0		µg/Kg	1	4/28/2011 10:22 PM
Toxaphene	ND	50		µg/Kg	1	4/28/2011 10:22 PM
Surr: Decachlorobiphenyl	42.9	31-107		%REC	1	4/28/2011 10:22 PM
Surr: Tetrachloro-m-xylene	38.5	35-108		%REC	1	4/28/2011 10:22 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110428A	QC Batch: 72483			PrepDate:	4/26/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	4/28/2011 09:23 AM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-008

Client Sample ID: A-11-002-5
Collection Date: 4/21/2011 11:45:00 AM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110427A	QC Batch: 72484			PrepDate: 4/26/2011		Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	4/27/2011 11:54 AM
Arsenic	ND	1.0		mg/Kg	1	4/27/2011 11:54 AM
Barium	33	1.0		mg/Kg	1	4/27/2011 11:54 AM
Beryllium	ND	1.0		mg/Kg	1	4/27/2011 11:54 AM
Cadmium	ND	1.0		mg/Kg	1	4/27/2011 11:54 AM
Chromium	27	1.0		mg/Kg	1	4/27/2011 11:54 AM
Cobalt	4.0	1.0		mg/Kg	1	4/27/2011 11:54 AM
Copper	2.6	2.0		mg/Kg	1	4/27/2011 11:54 AM
Lead	1.2	1.0		mg/Kg	1	4/27/2011 11:54 AM
Molybdenum	ND	1.0		mg/Kg	1	4/27/2011 11:54 AM
Nickel	22	1.0		mg/Kg	1	4/27/2011 11:54 AM
Selenium	ND	1.0		mg/Kg	1	4/27/2011 11:54 AM
Silver	ND	1.0		mg/Kg	1	4/27/2011 11:54 AM
Thallium	ND	1.0		mg/Kg	1	4/27/2011 11:54 AM
Vanadium	17	1.0		mg/Kg	1	4/27/2011 11:54 AM
Zinc	13	1.0		mg/Kg	1	4/27/2011 11:54 AM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110427C	QC Batch: E11VS169			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	4/28/2011 08:07 AM
Surr: Bromofluorobenzene (FID)	129	62-153		%REC	1	4/28/2011 08:07 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110427C	QC Batch: E11VS169			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	4/28/2011 08:07 AM
Ethylbenzene	ND	5.0		µg/Kg	1	4/28/2011 08:07 AM
m,p-Xylene	ND	10		µg/Kg	1	4/28/2011 08:07 AM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	4/28/2011 08:07 AM
o-Xylene	ND	5.0		µg/Kg	1	4/28/2011 08:07 AM
Toluene	ND	5.0		µg/Kg	1	4/28/2011 08:07 AM
Surr: Bromofluorobenzene (PID)	128	65-140		%REC	1	4/28/2011 08:07 AM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110428A	QC Batch: 72483			PrepDate: 4/26/2011		Analyst: **VV**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-002-5
Lab Order:	117519	**Collection Date:**	4/21/2011 11:45:00 AM
Project:	I-80 ICM, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117519-008		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA5_110428A	QC Batch: 72483			PrepDate:	4/26/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	4/28/2011 09:25 AM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-009

Client Sample ID: A-11-002-GW
Collection Date: 4/21/2011 12:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3010A			**EPA 6010B**		
RunID: ICP8_110425C	QC Batch: 72441			PrepDate:	4/25/2011	Analyst: **IL**
Antimony	0.059	0.050		mg/L	10	4/25/2011 04:30 PM
Arsenic	0.16	0.10		mg/L	10	4/25/2011 04:30 PM
Barium	4.7	0.030		mg/L	10	4/25/2011 04:30 PM
Beryllium	ND	0.030		mg/L	10	4/25/2011 04:30 PM
Cadmium	ND	0.030		mg/L	10	4/25/2011 04:30 PM
Chromium	1.6	0.030		mg/L	10	4/25/2011 04:30 PM
Cobalt	0.32	0.030		mg/L	10	4/25/2011 04:30 PM
Copper	0.97	0.050		mg/L	10	4/25/2011 04:30 PM
Lead	4.2	0.050		mg/L	10	4/25/2011 04:30 PM
Molybdenum	ND	0.050		mg/L	10	4/25/2011 04:30 PM
Nickel	1.5	0.050		mg/L	10	4/25/2011 04:30 PM
Selenium	ND	0.10		mg/L	10	4/25/2011 04:30 PM
Silver	ND	0.030		mg/L	10	4/25/2011 04:30 PM
Thallium	ND	0.15		mg/L	10	4/25/2011 04:30 PM
Vanadium	1.5	0.030		mg/L	10	4/25/2011 04:30 PM
Zinc	4.4	0.10		mg/L	10	4/25/2011 04:30 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3510C			**EPA 8015B(M)**		
RunID: GC16_110427A	QC Batch: 72448			PrepDate:	4/25/2011	Analyst: **CBR**
DRO	5.0	0.11		mg/L	2	4/27/2011 01:21 PM
ORO	3.1	0.11		mg/L	2	4/27/2011 01:21 PM
Surr: p-Terphenyl	96.9	36-126		%REC	2	4/27/2011 01:21 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC19_110427A	QC Batch: M11VW082			PrepDate:		Analyst: **DDL**
GRO	0.30	0.050		mg/L	1	4/27/2011 03:49 PM
Surr: Bromofluorobenzene (FID)	102	70-130		%REC	1	4/27/2011 03:49 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC19_110427A	QC Batch: M11VW082			PrepDate:		Analyst: **DDL**
Benzene	ND	0.50		µg/L	1	4/27/2011 03:49 PM
Ethylbenzene	ND	0.50		µg/L	1	4/27/2011 03:49 PM
m,p-Xylene	1.5	1.0		µg/L	1	4/27/2011 03:49 PM
Methyl tert-butyl ether	ND	0.50		µg/L	1	4/27/2011 03:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-009

Client Sample ID: A-11-002-GW
Collection Date: 4/21/2011 12:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
EPA 8021B						
RunID: GC19_110427A QC Batch: M11VW082 PrepDate: Analyst: **DDL**						
o-Xylene	2.9	0.50		µg/L	1	4/27/2011 03:49 PM
Toluene	ND	0.50		µg/L	1	4/27/2011 03:49 PM
Surr: Bromofluorobenzene (PID)	92.6	70-130		%REC	1	4/27/2011 03:49 PM
MERCURY BY COLD VAPOR TECHNIQUE						
EPA 7470A						
RunID: AA5_110426A QC Batch: 72440 PrepDate: 4/25/2011 Analyst: **VV**						
Mercury	5.9	0.20		µg/L	1	4/26/2011 11:49 AM
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
EPA 8260B						
RunID: MS2_110429A QC Batch: Q11VW059 PrepDate: Analyst: **BD**						
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,1,1-Trichloroethane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,1,2-Trichloroethane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,1-Dichloroethane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,1-Dichloroethene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,1-Dichloropropene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,2,3-Trichloropropane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,2,4-Trimethylbenzene	2.5	0.50		µg/L	1	4/29/2011 01:34 PM
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,2-Dibromoethane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,2-Dichlorobenzene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,2-Dichloroethane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,2-Dichloropropane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,3-Dichlorobenzene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,3-Dichloropropane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
1,4-Dichlorobenzene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
2,2-Dichloropropane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
2-Chlorotoluene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
4-Chlorotoluene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
4-Isopropyltoluene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Benzene	ND	0.50		µg/L	1	4/29/2011 01:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-009

Client Sample ID: A-11-002-GW
Collection Date: 4/21/2011 12:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
				EPA 8260B		
RunID: MS2_110429A	QC Batch:	Q11VW059			PrepDate:	Analyst: **BD**
Bromobenzene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Bromodichloromethane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Bromoform	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Bromomethane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Carbon tetrachloride	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Chlorobenzene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Chloroethane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Chloroform	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Chloromethane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
cis-1,2-Dichloroethene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Dibromochloromethane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Dibromomethane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Dichlorodifluoromethane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Ethylbenzene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Hexachlorobutadiene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Isopropylbenzene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
m,p-Xylene	ND	1.0		µg/L	1	4/29/2011 01:34 PM
Methylene chloride	ND	1.0		µg/L	1	4/29/2011 01:34 PM
n-Butylbenzene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
n-Propylbenzene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Naphthalene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
o-Xylene	3.3	0.50		µg/L	1	4/29/2011 01:34 PM
sec-Butylbenzene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Styrene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
tert-Butylbenzene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Tetrachloroethene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Toluene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
trans-1,2-Dichloroethene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Trichloroethene	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Trichlorofluoromethane	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Vinyl chloride	ND	0.50		µg/L	1	4/29/2011 01:34 PM
Surr: 1,2-Dichloroethane-d4	95.9	70-130		%REC	1	4/29/2011 01:34 PM
Surr: 4-Bromofluorobenzene	94.7	70-130		%REC	1	4/29/2011 01:34 PM
Surr: Dibromofluoromethane	91.2	70-130		%REC	1	4/29/2011 01:34 PM
Surr: Toluene-d8	90.2	70-130		%REC	1	4/29/2011 01:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-010

Client Sample ID: A-11-005-1
Collection Date: 4/22/2011 8:25:00 AM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110427A	QC Batch: 72484			PrepDate:	4/26/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	4/27/2011 11:57 AM
Arsenic	6.8	1.0		mg/Kg	1	4/27/2011 11:57 AM
Barium	130	1.0		mg/Kg	1	4/27/2011 11:57 AM
Beryllium	ND	1.0		mg/Kg	1	4/27/2011 11:57 AM
Cadmium	1.2	1.0		mg/Kg	1	4/27/2011 11:57 AM
Chromium	46	1.0		mg/Kg	1	4/27/2011 11:57 AM
Cobalt	11	1.0		mg/Kg	1	4/27/2011 11:57 AM
Copper	60	2.0		mg/Kg	1	4/27/2011 11:57 AM
Lead	180	1.0		mg/Kg	1	4/27/2011 11:57 AM
Molybdenum	ND	1.0		mg/Kg	1	4/27/2011 11:57 AM
Nickel	43	1.0		mg/Kg	1	4/27/2011 11:57 AM
Selenium	ND	1.0		mg/Kg	1	4/27/2011 11:57 AM
Silver	ND	1.0		mg/Kg	1	4/27/2011 11:57 AM
Thallium	ND	1.0		mg/Kg	1	4/27/2011 11:57 AM
Vanadium	32	1.0		mg/Kg	1	4/27/2011 11:57 AM
Zinc	280	1.0		mg/Kg	1	4/27/2011 11:57 AM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110427G	QC Batch: 72463			PrepDate:	4/26/2011	Analyst: **CBR**
DRO	120	8.0		mg/Kg	2	4/28/2011 01:45 AM
ORO	570	8.0		mg/Kg	2	4/28/2011 01:45 AM
Surr: p-Terphenyl	99.7	30-128		%REC	2	4/28/2011 01:45 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC9_110428A	QC Batch: 72534			PrepDate:	4/28/2011	Analyst: **HL**
4,4´-DDD	2.5	2.0		µg/Kg	1	4/28/2011 10:49 PM
4,4´-DDE	2.5	2.0		µg/Kg	1	4/28/2011 10:49 PM
4,4´-DDT	10	2.0		µg/Kg	1	4/28/2011 10:49 PM
Aldrin	ND	1.0		µg/Kg	1	4/28/2011 10:49 PM
alpha-BHC	ND	1.0		µg/Kg	1	4/28/2011 10:49 PM
alpha-Chlordane	1.4	1.0		µg/Kg	1	4/28/2011 10:49 PM
beta-BHC	ND	1.0		µg/Kg	1	4/28/2011 10:49 PM
Chlordane	13	8.5		µg/Kg	1	4/28/2011 10:49 PM
delta-BHC	ND	1.0		µg/Kg	1	4/28/2011 10:49 PM
Dieldrin	4.8	2.0		µg/Kg	1	4/28/2011 10:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-005-1
Lab Order:	117519	**Collection Date:**	4/22/2011 8:25:00 AM
Project:	I-80 ICM, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117519-010		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110428A	QC Batch: 72534			PrepDate:	4/28/2011	Analyst: **HL**
Endosulfan I	ND	1.0		µg/Kg	1	4/28/2011 10:49 PM
Endosulfan II	ND	2.0		µg/Kg	1	4/28/2011 10:49 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	4/28/2011 10:49 PM
Endrin	ND	2.0		µg/Kg	1	4/28/2011 10:49 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	4/28/2011 10:49 PM
Endrin ketone	ND	2.0		µg/Kg	1	4/28/2011 10:49 PM
gamma-BHC	ND	1.0		µg/Kg	1	4/28/2011 10:49 PM
gamma-Chlordane	1.5	1.0		µg/Kg	1	4/28/2011 10:49 PM
Heptachlor	ND	1.0		µg/Kg	1	4/28/2011 10:49 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	4/28/2011 10:49 PM
Methoxychlor	ND	5.0		µg/Kg	1	4/28/2011 10:49 PM
Toxaphene	ND	50		µg/Kg	1	4/28/2011 10:49 PM
Surr: Decachlorobiphenyl	56.1	31-107		%REC	1	4/28/2011 10:49 PM
Surr: Tetrachloro-m-xylene	48.3	35-108		%REC	1	4/28/2011 10:49 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110428A	QC Batch: 72483			PrepDate:	4/26/2011	Analyst: **VV**
Mercury	0.58	0.10		mg/Kg	1	4/28/2011 09:27 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-011

Client Sample ID: A-11-005-5
Collection Date: 4/22/2011 8:40:00 AM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110427A	QC Batch: 72484			PrepDate: 4/26/2011		Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	4/27/2011 12:00 PM
Arsenic	ND	1.0		mg/Kg	1	4/27/2011 12:00 PM
Barium	65	1.0		mg/Kg	1	4/27/2011 12:00 PM
Beryllium	ND	1.0		mg/Kg	1	4/27/2011 12:00 PM
Cadmium	ND	1.0		mg/Kg	1	4/27/2011 12:00 PM
Chromium	20	1.0		mg/Kg	1	4/27/2011 12:00 PM
Cobalt	5.1	1.0		mg/Kg	1	4/27/2011 12:00 PM
Copper	8.3	2.0		mg/Kg	1	4/27/2011 12:00 PM
Lead	3.0	1.0		mg/Kg	1	4/27/2011 12:00 PM
Molybdenum	ND	1.0		mg/Kg	1	4/27/2011 12:00 PM
Nickel	20	1.0		mg/Kg	1	4/27/2011 12:00 PM
Selenium	ND	1.0		mg/Kg	1	4/27/2011 12:00 PM
Silver	ND	1.0		mg/Kg	1	4/27/2011 12:00 PM
Thallium	ND	1.0		mg/Kg	1	4/27/2011 12:00 PM
Vanadium	12	1.0		mg/Kg	1	4/27/2011 12:00 PM
Zinc	22	1.0		mg/Kg	1	4/27/2011 12:00 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110427C	QC Batch: E11VS169			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	4/28/2011 08:23 AM
Surr: Bromofluorobenzene (FID)	126	62-153		%REC	1	4/28/2011 08:23 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110427C	QC Batch: E11VS169			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	4/28/2011 08:23 AM
Ethylbenzene	ND	5.0		µg/Kg	1	4/28/2011 08:23 AM
m,p-Xylene	ND	10		µg/Kg	1	4/28/2011 08:23 AM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	4/28/2011 08:23 AM
o-Xylene	ND	5.0		µg/Kg	1	4/28/2011 08:23 AM
Toluene	ND	5.0		µg/Kg	1	4/28/2011 08:23 AM
Surr: Bromofluorobenzene (PID)	126	65-140		%REC	1	4/28/2011 08:23 AM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110428A	QC Batch: 72483			PrepDate: 4/26/2011		Analyst: **VV**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-005-5
Lab Order:	117519	**Collection Date:**	4/22/2011 8:40:00 AM
Project:	I-80 ICM, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117519-011		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA5_110428A	QC Batch: 72483			PrepDate:	4/26/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	4/28/2011 09:29 AM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-012

Client Sample ID: A-11-005-GW
Collection Date: 4/22/2011 9:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3010A			**EPA 6010B**		
RunID: ICP8_110425C	QC Batch: 72441			PrepDate: 4/25/2011		Analyst: **IL**
Antimony	0.078	0.050		mg/L	10	4/25/2011 04:33 PM
Arsenic	0.16	0.10		mg/L	10	4/25/2011 04:33 PM
Barium	13	0.030		mg/L	10	4/25/2011 04:33 PM
Beryllium	ND	0.030		mg/L	10	4/25/2011 04:33 PM
Cadmium	0.089	0.030		mg/L	10	4/25/2011 04:33 PM
Chromium	3.0	0.030		mg/L	10	4/25/2011 04:33 PM
Cobalt	1.0	0.030		mg/L	10	4/25/2011 04:33 PM
Copper	2.8	0.050		mg/L	10	4/25/2011 04:33 PM
Lead	2.2	0.050		mg/L	10	4/25/2011 04:33 PM
Molybdenum	ND	0.050		mg/L	10	4/25/2011 04:33 PM
Nickel	4.0	0.050		mg/L	10	4/25/2011 04:33 PM
Selenium	ND	0.10		mg/L	10	4/25/2011 04:33 PM
Silver	ND	0.030		mg/L	10	4/25/2011 04:33 PM
Thallium	ND	0.15		mg/L	10	4/25/2011 04:33 PM
Vanadium	3.4	0.030		mg/L	10	4/25/2011 04:33 PM
Zinc	7.7	0.10		mg/L	10	4/25/2011 04:33 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3510C			**EPA 8015B(M)**		
RunID: GC16_110427A	QC Batch: 72448			PrepDate: 4/25/2011		Analyst: **CBR**
DRO	20	0.77		mg/L	10	4/27/2011 01:31 PM
ORO	18	0.77		mg/L	10	4/27/2011 01:31 PM
Surr: p-Terphenyl	0	36-126	SDO	%REC	10	4/27/2011 01:31 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC19_110428A	QC Batch: M11VW083			PrepDate:		Analyst: **DDL**
GRO	0.13	0.050		mg/L	1	4/28/2011 10:45 PM
Surr: Bromofluorobenzene (FID)	93.4	70-130		%REC	1	4/28/2011 10:45 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC19_110428A	QC Batch: M11VW083			PrepDate:		Analyst: **DDL**
Benzene	ND	0.50		µg/L	1	4/28/2011 10:45 PM
Ethylbenzene	ND	0.50		µg/L	1	4/28/2011 10:45 PM
m,p-Xylene	ND	1.0		µg/L	1	4/28/2011 10:45 PM
Methyl tert-butyl ether	ND	0.50		µg/L	1	4/28/2011 10:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-012

Client Sample ID: A-11-005-GW
Collection Date: 4/22/2011 9:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
EPA 8021B						
RunID: GC19_110428A QC Batch: M11VW083 PrepDate: Analyst: **DDL**						
o-Xylene	ND	0.50		µg/L	1	4/28/2011 10:45 PM
Toluene	ND	0.50		µg/L	1	4/28/2011 10:45 PM
Surr: Bromofluorobenzene (PID)	88.5	70-130		%REC	1	4/28/2011 10:45 PM
MERCURY BY COLD VAPOR TECHNIQUE						
EPA 7470A						
RunID: AA5_110426A QC Batch: 72440 PrepDate: 4/25/2011 Analyst: **VV**						
Mercury	3.4	0.20		µg/L	1	4/26/2011 11:51 AM
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
EPA 8260B						
RunID: MS2_110429A QC Batch: Q11VW059 PrepDate: Analyst: **BD**						
1,1,1,2-Tetrachloroethane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,1,1-Trichloroethane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,1,2,2-Tetrachloroethane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,1,2-Trichloroethane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,1-Dichloroethane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,1-Dichloroethene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,1-Dichloropropene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,2,3-Trichlorobenzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,2,3-Trichloropropane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,2,4-Trichlorobenzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,2,4-Trimethylbenzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,2-Dibromo-3-chloropropane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,2-Dibromoethane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,2-Dichlorobenzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,2-Dichloroethane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,2-Dichloropropane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,3,5-Trimethylbenzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,3-Dichlorobenzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,3-Dichloropropane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
1,4-Dichlorobenzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
2,2-Dichloropropane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
2-Chlorotoluene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
4-Chlorotoluene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
4-Isopropyltoluene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Benzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-012

Client Sample ID: A-11-005-GW
Collection Date: 4/22/2011 9:05:00 AM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
			EPA 8260B			
RunID: MS2_110429A	QC Batch:	Q11VW059		PrepDate:		Analyst: **BD**
Bromobenzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Bromodichloromethane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Bromoform	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Bromomethane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Carbon tetrachloride	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Chlorobenzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Chloroethane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Chloroform	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Chloromethane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
cis-1,2-Dichloroethene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
cis-1,3-Dichloropropene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Dibromochloromethane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Dibromomethane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Dichlorodifluoromethane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Ethylbenzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Hexachlorobutadiene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Isopropylbenzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
m,p-Xylene	ND	5.0		µg/L	5	4/29/2011 02:14 PM
Methylene chloride	ND	5.0		µg/L	5	4/29/2011 02:14 PM
n-Butylbenzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
n-Propylbenzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Naphthalene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
o-Xylene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
sec-Butylbenzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Styrene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
tert-Butylbenzene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Tetrachloroethene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Toluene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
trans-1,2-Dichloroethene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Trichloroethene	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Trichlorofluoromethane	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Vinyl chloride	ND	2.5		µg/L	5	4/29/2011 02:14 PM
Surr: 1,2-Dichloroethane-d4	95.8	70-130		%REC	5	4/29/2011 02:14 PM
Surr: 4-Bromofluorobenzene	94.8	70-130		%REC	5	4/29/2011 02:14 PM
Surr: Dibromofluoromethane	92.3	70-130		%REC	5	4/29/2011 02:14 PM
Surr: Toluene-d8	88.3	70-130		%REC	5	4/29/2011 02:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-013

Client Sample ID: A-11-010-1
Collection Date: 4/22/2011 1:20:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110427A	QC Batch: 72484			PrepDate:	4/26/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	4/27/2011 12:10 PM
Arsenic	ND	1.0		mg/Kg	1	4/27/2011 12:10 PM
Barium	87	1.0		mg/Kg	1	4/27/2011 12:10 PM
Beryllium	ND	1.0		mg/Kg	1	4/27/2011 12:10 PM
Cadmium	ND	1.0		mg/Kg	1	4/27/2011 12:10 PM
Chromium	29	1.0		mg/Kg	1	4/27/2011 12:10 PM
Cobalt	11	1.0		mg/Kg	1	4/27/2011 12:10 PM
Copper	43	2.0		mg/Kg	1	4/27/2011 12:10 PM
Lead	61	1.0		mg/Kg	1	4/27/2011 12:10 PM
Molybdenum	ND	1.0		mg/Kg	1	4/27/2011 12:10 PM
Nickel	44	1.0		mg/Kg	1	4/27/2011 12:10 PM
Selenium	ND	1.0		mg/Kg	1	4/27/2011 12:10 PM
Silver	ND	1.0		mg/Kg	1	4/27/2011 12:10 PM
Thallium	ND	1.0		mg/Kg	1	4/27/2011 12:10 PM
Vanadium	29	1.0		mg/Kg	1	4/27/2011 12:10 PM
Zinc	64	1.0		mg/Kg	1	4/27/2011 12:10 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110427G	QC Batch: 72463			PrepDate:	4/26/2011	Analyst: **CBR**
DRO	52	6.0		mg/Kg	1	4/28/2011 01:54 AM
ORO	390	6.0		mg/Kg	1	4/28/2011 01:54 AM
Surr: p-Terphenyl	84.0	30-128		%REC	1	4/28/2011 01:54 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC9_110428A	QC Batch: 72534			PrepDate:	4/28/2011	Analyst: **HL**
4,4´-DDD	5.8	2.0		µg/Kg	1	4/28/2011 11:15 PM
4,4´-DDE	ND	2.0		µg/Kg	1	4/28/2011 11:15 PM
4,4´-DDT	44	2.0		µg/Kg	1	4/28/2011 11:15 PM
Aldrin	ND	1.0		µg/Kg	1	4/28/2011 11:15 PM
alpha-BHC	ND	1.0		µg/Kg	1	4/28/2011 11:15 PM
alpha-Chlordane	ND	1.0		µg/Kg	1	4/28/2011 11:15 PM
beta-BHC	ND	1.0		µg/Kg	1	4/28/2011 11:15 PM
Chlordane	ND	8.5		µg/Kg	1	4/28/2011 11:15 PM
delta-BHC	ND	1.0		µg/Kg	1	4/28/2011 11:15 PM
Dieldrin	4.8	2.0		µg/Kg	1	4/28/2011 11:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-013

Client Sample ID: A-11-010-1
Collection Date: 4/22/2011 1:20:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110428A	QC Batch: 72534			PrepDate:	4/28/2011	Analyst: **HL**
Endosulfan I	ND	1.0		µg/Kg	1	4/28/2011 11:15 PM
Endosulfan II	ND	2.0		µg/Kg	1	4/28/2011 11:15 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	4/28/2011 11:15 PM
Endrin	ND	2.0		µg/Kg	1	4/28/2011 11:15 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	4/28/2011 11:15 PM
Endrin ketone	ND	2.0		µg/Kg	1	4/28/2011 11:15 PM
gamma-BHC	ND	1.0		µg/Kg	1	4/28/2011 11:15 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	4/28/2011 11:15 PM
Heptachlor	ND	1.0		µg/Kg	1	4/28/2011 11:15 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	4/28/2011 11:15 PM
Methoxychlor	ND	5.0		µg/Kg	1	4/28/2011 11:15 PM
Toxaphene	ND	50		µg/Kg	1	4/28/2011 11:15 PM
Surr: Decachlorobiphenyl	50.4	31-107		%REC	1	4/28/2011 11:15 PM
Surr: Tetrachloro-m-xylene	53.6	35-108		%REC	1	4/28/2011 11:15 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110428A	QC Batch: 72483			PrepDate:	4/26/2011	Analyst: **VV**
Mercury	0.11	0.10		mg/Kg	1	4/28/2011 09:31 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117519
Project: I-80 ICM, E8583-06-01
Lab ID: 117519-014

Client Sample ID: A-11-010-5
Collection Date: 4/22/2011 1:25:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110427A	QC Batch: 72484			PrepDate: 4/26/2011		Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	4/27/2011 12:13 PM
Arsenic	3.7	1.0		mg/Kg	1	4/27/2011 12:13 PM
Barium	130	1.0		mg/Kg	1	4/27/2011 12:13 PM
Beryllium	ND	1.0		mg/Kg	1	4/27/2011 12:13 PM
Cadmium	ND	1.0		mg/Kg	1	4/27/2011 12:13 PM
Chromium	58	1.0		mg/Kg	1	4/27/2011 12:13 PM
Cobalt	13	1.0		mg/Kg	1	4/27/2011 12:13 PM
Copper	17	2.0		mg/Kg	1	4/27/2011 12:13 PM
Lead	21	1.0		mg/Kg	1	4/27/2011 12:13 PM
Molybdenum	ND	1.0		mg/Kg	1	4/27/2011 12:13 PM
Nickel	63	1.0		mg/Kg	1	4/27/2011 12:13 PM
Selenium	ND	1.0		mg/Kg	1	4/27/2011 12:13 PM
Silver	ND	1.0		mg/Kg	1	4/27/2011 12:13 PM
Thallium	ND	1.0		mg/Kg	1	4/27/2011 12:13 PM
Vanadium	37	1.0		mg/Kg	1	4/27/2011 12:13 PM
Zinc	42	1.0		mg/Kg	1	4/27/2011 12:13 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110427C	QC Batch: E11VS169			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	4/28/2011 08:38 AM
Surr: Bromofluorobenzene (FID)	127	62-153		%REC	1	4/28/2011 08:38 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110427C	QC Batch: E11VS169			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	4/28/2011 08:38 AM
Ethylbenzene	ND	5.0		µg/Kg	1	4/28/2011 08:38 AM
m,p-Xylene	ND	10		µg/Kg	1	4/28/2011 08:38 AM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	4/28/2011 08:38 AM
o-Xylene	ND	5.0		µg/Kg	1	4/28/2011 08:38 AM
Toluene	ND	5.0		µg/Kg	1	4/28/2011 08:38 AM
Surr: Bromofluorobenzene (PID)	127	65-140		%REC	1	4/28/2011 08:38 AM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110428A	QC Batch: 72483			PrepDate: 4/26/2011		Analyst: **VV**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *29-Apr-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-010-5
Lab Order:	117519	**Collection Date:**	4/22/2011 1:25:00 PM
Project:	I-80 ICM, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117519-014		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA5_110428A	QC Batch: 72483			PrepDate:	4/26/2011	Analyst: **VV**
Mercury	0.11	0.10		mg/Kg	1	4/28/2011 09:07 AM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **MB-72484** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132375**
Client ID: **PBS** Batch ID: **72484** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **4/27/2011** SeqNo: **2156392**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.289	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	1.0									
Vanadium	ND	1.0									
Zinc	0.385	1.0									

Sample ID: **LCS-72484** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132375**
Client ID: **LCSS** Batch ID: **72484** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **4/27/2011** SeqNo: **2156393**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	50.440	2.0	50.00	0.2891	100	80	120				
Arsenic	50.629	1.0	50.00	0	101	80	120				
Barium	52.316	1.0	50.00	0	105	80	120				
Beryllium	52.756	1.0	50.00	0	106	80	120				
Cadmium	51.462	1.0	50.00	0	103	80	120				
Chromium	47.421	1.0	50.00	0	94.8	80	120				
Cobalt	51.204	1.0	50.00	0	102	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **LCS-72484** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132375**
Client ID: **LCSS** Batch ID: **72484** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **4/27/2011** SeqNo: **2156393**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	51.402	2.0	50.00	0	103	80	120				
Lead	51.542	1.0	50.00	0	103	80	120				
Molybdenum	52.449	1.0	50.00	0	105	80	120				
Nickel	50.647	1.0	50.00	0	101	80	120				
Selenium	48.291	1.0	50.00	0	96.6	80	120				
Silver	48.016	1.0	50.00	0	96.0	80	120				
Thallium	49.414	1.0	50.00	0	98.8	80	120				
Vanadium	52.370	1.0	50.00	0	105	80	120				
Zinc	51.312	1.0	50.00	0.3855	102	80	120				

Sample ID: **117519-014A-DUP** SampType: **DUP** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132375**
Client ID: **A-11-010-5** Batch ID: **72484** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **4/27/2011** SeqNo: **2156404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	1.262	2.0						1.425	0	20	
Arsenic	3.741	1.0						3.670	1.93	20	
Barium	120.752	1.0						127.0	5.03	20	
Beryllium	0.202	1.0						0.1563	0	20	
Cadmium	0.558	1.0						0.5577	0	20	
Chromium	47.174	1.0						58.12	20.8	20	R
Cobalt	12.912	1.0						13.37	3.49	20	
Copper	16.627	2.0						17.31	4.00	20	
Lead	18.946	1.0						21.10	10.7	20	
Molybdenum	ND	1.0						0	0	20	
Nickel	60.341	1.0						62.55	3.59	20	
Selenium	ND	1.0						0	0	20	
Silver	ND	1.0						0	0	20	
Thallium	ND	1.0						0	0	20	
Vanadium	29.942	1.0						36.51	19.8	20	
Zinc	43.013	1.0						41.92	2.56	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **117519-014A-MS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132375**
Client ID: **A-11-010-5** Batch ID: **72484** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **4/27/2011** SeqNo: **2156405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	92.922	2.0	125.0	1.425	73.2	32	105				
Arsenic	109.618	1.0	125.0	3.670	84.8	49	106				
Barium	237.912	1.0	125.0	127.0	88.7	31	133				
Beryllium	109.403	1.0	125.0	0.1563	87.4	56	106				
Cadmium	104.510	1.0	125.0	0.5577	83.2	51	103				
Chromium	153.402	1.0	125.0	58.12	76.2	45	114				
Cobalt	117.939	1.0	125.0	13.37	83.7	52	106				
Copper	136.243	2.0	125.0	17.31	95.1	54	125				
Lead	118.901	1.0	125.0	21.10	78.2	34	126				
Molybdenum	104.921	1.0	125.0	0	83.9	54	106				
Nickel	162.935	1.0	125.0	62.55	80.3	45	111				
Selenium	101.005	1.0	125.0	0	80.8	47	104				
Silver	108.580	1.0	125.0	0	86.9	56	112				
Thallium	98.456	1.0	125.0	0	78.8	46	101				
Vanadium	146.418	1.0	125.0	36.51	87.9	54	114				
Zinc	148.374	1.0	125.0	41.92	85.2	28	125				

Sample ID: **117519-014A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132375**
Client ID: **A-11-010-5** Batch ID: **72484** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **4/27/2011** SeqNo: **2156406**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	93.699	2.0	125.0	1.425	73.8	32	105	92.92	0.832	20	
Arsenic	110.204	1.0	125.0	3.670	85.2	49	106	109.6	0.533	20	
Barium	239.496	1.0	125.0	127.0	90.0	31	133	237.9	0.663	20	
Beryllium	110.343	1.0	125.0	0.1563	88.1	56	106	109.4	0.855	20	
Cadmium	104.538	1.0	125.0	0.5577	83.2	51	103	104.5	0.0270	20	
Chromium	153.892	1.0	125.0	58.12	76.6	45	114	153.4	0.319	20	
Cobalt	118.299	1.0	125.0	13.37	83.9	52	106	117.9	0.305	20	
Copper	137.334	2.0	125.0	17.31	96.0	54	125	136.2	0.798	20	
Lead	120.265	1.0	125.0	21.10	79.3	34	126	118.9	1.14	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **117519-014A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132375**
Client ID: **A-11-010-5** Batch ID: **72484** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **4/27/2011** SeqNo: **2156406**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	106.111	1.0	125.0	0	84.9	54	106	104.9	1.13	20	
Nickel	163.234	1.0	125.0	62.55	80.6	45	111	162.9	0.184	20	
Selenium	101.657	1.0	125.0	0	81.3	47	104	101.0	0.644	20	
Silver	109.359	1.0	125.0	0	87.5	56	112	108.6	0.715	20	
Thallium	99.053	1.0	125.0	0	79.2	46	101	98.46	0.605	20	
Vanadium	147.537	1.0	125.0	36.51	88.8	54	114	146.4	0.761	20	
Zinc	148.131	1.0	125.0	41.92	85.0	28	125	148.4	0.164	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 *Tel: 562. 989.4045* *Fax: 562.989.4040*

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **MB-72441** SampType: **MBLK** TestCode: **6010_W** Units: **mg/L** Prep Date: **4/25/2011** RunNo: **132329**
Client ID: **PBW** Batch ID: **72441** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **4/25/2011** SeqNo: **2155715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.0050									
Arsenic	ND	0.010									
Barium	ND	0.0030									
Beryllium	ND	0.0030									
Cadmium	ND	0.0030									
Chromium	ND	0.0030									
Cobalt	ND	0.0030									
Copper	ND	0.0050									
Lead	ND	0.0050									
Molybdenum	ND	0.0050									
Nickel	ND	0.0050									
Selenium	ND	0.010									
Silver	ND	0.0030									
Thallium	ND	0.015									
Vanadium	ND	0.0030									
Zinc	ND	0.010									

Sample ID: **LCS-72441** SampType: **LCS** TestCode: **6010_W** Units: **mg/L** Prep Date: **4/25/2011** RunNo: **132329**
Client ID: **LCSW** Batch ID: **72441** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **4/25/2011** SeqNo: **2155716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	1.035	0.0050	1.000	0	104	85	115				
Arsenic	1.012	0.010	1.000	0	101	85	115				
Barium	1.045	0.0030	1.000	0	104	85	115				
Beryllium	1.039	0.0030	1.000	0	104	85	115				
Cadmium	1.010	0.0030	1.000	0	101	85	115				
Chromium	0.939	0.0030	1.000	0	93.9	85	115				
Cobalt	1.011	0.0030	1.000	0	101	85	115				
Copper	1.028	0.0050	1.000	0	103	85	115				
Lead	1.021	0.0050	1.000	0	102	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **LCS-72441** SampType: **LCS** TestCode: **6010_W** Units: **mg/L** Prep Date: **4/25/2011** RunNo: **132329**
Client ID: **LCSW** Batch ID: **72441** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **4/25/2011** SeqNo: **2155716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	1.031	0.0050	1.000	0	103	85	115				
Nickel	1.005	0.0050	1.000	0	100	85	115				
Selenium	0.976	0.010	1.000	0	97.6	85	115				
Silver	0.892	0.0030	1.000	0	89.2	85	115				
Thallium	0.997	0.015	1.000	0	99.7	85	115				
Vanadium	1.031	0.0030	1.000	0	103	85	115				
Zinc	1.006	0.010	1.000	0	101	85	115				

Sample ID: **117463-001A-MS** SampType: **MS** TestCode: **6010_W** Units: **mg/L** Prep Date: **4/25/2011** RunNo: **132329**
Client ID: **ZZZZZZ** Batch ID: **72441** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **4/25/2011** SeqNo: **2155718**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	2.702	0.0050	2.500	0	108	73	128				
Arsenic	2.631	0.010	2.500	0	105	79	121				
Barium	2.668	0.0030	2.500	0	107	82	118				
Beryllium	2.774	0.0030	2.500	0	111	84	119				
Cadmium	2.620	0.0030	2.500	0	105	79	117				
Chromium	2.504	0.0030	2.500	0	100	78	115				
Cobalt	2.651	0.0030	2.500	0	106	80	118				
Copper	2.668	0.0050	2.500	0	107	81	127				
Lead	2.660	0.0050	2.500	0	106	80	118				
Molybdenum	2.657	0.0050	2.500	0.0004239	106	81	118				
Nickel	2.594	0.0050	2.500	0	104	78	120				
Selenium	2.568	0.010	2.500	0	103	78	120				
Silver	2.685	0.0030	2.500	0	107	79	125				
Thallium	2.694	0.015	2.500	0	108	74	115				
Vanadium	2.702	0.0030	2.500	0	108	84	119				
Zinc	2.605	0.010	2.500	0.005775	104	75	122				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **117463-001A-MSD** SampType: **MSD** TestCode: **6010_W** Units: **mg/L** Prep Date: **4/25/2011** RunNo: **132329**
Client ID: **ZZZZZZ** Batch ID: **72441** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **4/25/2011** SeqNo: **2155719**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	2.605	0.0050	2.500	0	104	73	128	2.702	3.65	20	
Arsenic	2.512	0.010	2.500	0	100	79	121	2.631	4.60	20	
Barium	2.577	0.0030	2.500	0	103	82	118	2.668	3.47	20	
Beryllium	2.656	0.0030	2.500	0	106	84	119	2.774	4.34	20	
Cadmium	2.522	0.0030	2.500	0	101	79	117	2.620	3.82	20	
Chromium	2.415	0.0030	2.500	0	96.6	78	115	2.504	3.63	20	
Cobalt	2.554	0.0030	2.500	0	102	80	118	2.651	3.73	20	
Copper	2.572	0.0050	2.500	0	103	81	127	2.668	3.68	20	
Lead	2.540	0.0050	2.500	0	102	80	118	2.660	4.62	20	
Molybdenum	2.561	0.0050	2.500	0.0004239	102	81	118	2.657	3.68	20	
Nickel	2.497	0.0050	2.500	0	99.9	78	120	2.594	3.83	20	
Selenium	2.459	0.010	2.500	0	98.4	78	120	2.568	4.36	20	
Silver	2.593	0.0030	2.500	0	104	79	125	2.685	3.47	20	
Thallium	2.579	0.015	2.500	0	103	74	115	2.694	4.36	20	
Vanadium	2.603	0.0030	2.500	0	104	84	119	2.702	3.75	20	
Zinc	2.499	0.010	2.500	0.005775	99.7	75	122	2.605	4.16	20	

Sample ID: **117513-002A-DUP** SampType: **DUP** TestCode: **6010_W** Units: **mg/L** Prep Date: **4/25/2011** RunNo: **132329**
Client ID: **ZZZZZZ** Batch ID: **72441** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **4/25/2011** SeqNo: **2155724**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.0050						0	0	20	
Arsenic	ND	0.010						0	0	20	
Barium	ND	0.0030						0	0	20	
Beryllium	ND	0.0030						0	0	20	
Cadmium	ND	0.0030						0	0	20	
Chromium	ND	0.0030						0	0	20	
Cobalt	ND	0.0030						0	0	20	
Copper	ND	0.0050						0	0	20	
Lead	ND	0.0050						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **117513-002A-DUP** SampType: **DUP** TestCode: **6010_W** Units: **mg/L** Prep Date: **4/25/2011** RunNo: **132329**
Client ID: **ZZZZZZ** Batch ID: **72441** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **4/25/2011** SeqNo: **2155724**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	ND	0.0050						0	0	20	
Nickel	ND	0.0050						0	0	20	
Selenium	ND	0.010						0	0	20	
Silver	ND	0.0030						0	0	20	
Thallium	ND	0.015						0	0	20	
Vanadium	0.000595	0.0030						0.0006377	0	20	
Zinc	0.004	0.010						0.002351	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W

Sample ID: **MB-72440** SampType: **MBLK** TestCode: **7470_W** Units: **µg/L** Prep Date: **4/25/2011** RunNo: **132340**
Client ID: **PBW** Batch ID: **72440** TestNo: **EPA 7470A** Analysis Date: **4/26/2011** SeqNo: **2155855**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID: **LCS-72440** SampType: **LCS** TestCode: **7470_W** Units: **µg/L** Prep Date: **4/25/2011** RunNo: **132340**
Client ID: **LCSW** Batch ID: **72440** TestNo: **EPA 7470A** Analysis Date: **4/26/2011** SeqNo: **2155856**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	9.514	0.20	10.00	0	95.1	85	115				

Sample ID: **117482-001A-MS** SampType: **MS** TestCode: **7470_W** Units: **µg/L** Prep Date: **4/25/2011** RunNo: **132340**
Client ID: **ZZZZZZ** Batch ID: **72440** TestNo: **EPA 7470A** Analysis Date: **4/26/2011** SeqNo: **2155857**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	9.538	0.20	10.00	0.04681	94.9	70	130				

Sample ID: **117482-001A-MSD** SampType: **MSD** TestCode: **7470_W** Units: **µg/L** Prep Date: **4/25/2011** RunNo: **132340**
Client ID: **ZZZZZZ** Batch ID: **72440** TestNo: **EPA 7470A** Analysis Date: **4/26/2011** SeqNo: **2155858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	9.592	0.20	10.00	0.04681	95.5	70	130	9.538	0.561	20	

Sample ID: **117519-012C-DUP** SampType: **DUP** TestCode: **7470_W** Units: **µg/L** Prep Date: **4/25/2011** RunNo: **132340**
Client ID: **A-11-005-GW** Batch ID: **72440** TestNo: **EPA 7470A** Analysis Date: **4/26/2011** SeqNo: **2155867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	3.484	0.20						3.428	1.61	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S

Sample ID: **MB-72483** SampType: **MBLK** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132419**
Client ID: **PBS** Batch ID: **72483** TestNo: **EPA 7471A** Analysis Date: **4/28/2011** SeqNo: **2157240**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID: **LCS-72483** SampType: **LCS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132419**
Client ID: **LCSS** Batch ID: **72483** TestNo: **EPA 7471A** Analysis Date: **4/28/2011** SeqNo: **2157241**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.786	0.10	0.8300	0	94.8	80	120				

Sample ID: **117519-014A-MS** SampType: **MS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132419**
Client ID: **A-11-010-5** Batch ID: **72483** TestNo: **EPA 7471A** Analysis Date: **4/28/2011** SeqNo: **2157242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.952	0.10	0.8300	0.1088	102	70	130				

Sample ID: **117519-014A-MSD** SampType: **MSD** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132419**
Client ID: **A-11-010-5** Batch ID: **72483** TestNo: **EPA 7471A** Analysis Date: **4/28/2011** SeqNo: **2157243**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.938	0.10	0.8300	0.1088	100	70	130	0.9519	1.42	20	

Sample ID: **117519-014A-DUP** SampType: **DUP** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132419**
Client ID: **A-11-010-5** Batch ID: **72483** TestNo: **EPA 7471A** Analysis Date: **4/28/2011** SeqNo: **2157245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.108	0.10						0.1088	0.717	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **MB-72463** SampType: **MBLK** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132476**
Client ID: **PBS** Batch ID: **72463** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **4/28/2011** SeqNo: **2158250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	1.0									
ORO	ND	1.0									
Surr: p-Terphenyl	2.897		2.670		108	30	128				

Sample ID: **LCS-72463** SampType: **LCS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132476**
Client ID: **LCSS** Batch ID: **72463** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **4/28/2011** SeqNo: **2158251**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	21.227	1.0	33.00	0	64.3	35	118				
Surr: p-Terphenyl	2.836		2.670		106	30	128				

Sample ID: **117519-004AMS** SampType: **MS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132476**
Client ID: **A-11-006-1** Batch ID: **72463** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **4/28/2011** SeqNo: **2158252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	42.456	2.0	33.00	27.43	45.5	25	129				
Surr: p-Terphenyl	2.930		2.670		110	30	128				

Sample ID: **117519-004AMSD** SampType: **MSD** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132476**
Client ID: **A-11-006-1** Batch ID: **72463** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **4/28/2011** SeqNo: **2158253**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	60.807	2.0	33.00	27.43	101	25	129	42.46	35.5	20	R
Surr: p-Terphenyl	3.526		5.340		66.0	30	128		0	0	

Sample ID: **117519-001ADUP** SampType: **DUP** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132476**
Client ID: **A-11-003-1** Batch ID: **72463** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **4/28/2011** SeqNo: **2158261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **117519-001ADUP** SampType: **DUP** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **4/26/2011** RunNo: **132476**
Client ID: **A-11-003-1** Batch ID: **72463** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **4/28/2011** SeqNo: **2158261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	114.335	4.0						35.77	105	20	R
ORO	437.453	4.0						167.1	89.4	20	R
Surr: p-Terphenyl	2.457		2.670		92.0	30	128		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **E110427LC5** SampType: **LCS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132415**
Client ID: **LCSS** Batch ID: **E11VS169** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157517**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.827	1.0	5.000	0	96.5	70	130				
Surr: Bromofluorobenzene (FID)	110.406		100.0		110	62	153				

Sample ID: **E110427MB3MS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132415**
Client ID: **ZZZZZZ** Batch ID: **E11VS169** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157518**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.020	1.0	5.000	0	100	49	131				
Surr: Bromofluorobenzene (FID)	118.923		100.0		119	62	153				

Sample ID: **E110427MB3MSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132415**
Client ID: **ZZZZZZ** Batch ID: **E11VS169** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157519**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.932	1.0	5.000	0	98.6	49	131	5.020	1.77	20	
Surr: Bromofluorobenzene (FID)	118.083		100.0		118	62	153		0	0	

Sample ID: **E110427MB3** SampType: **MBLK** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132415**
Client ID: **PBS** Batch ID: **E11VS169** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0									
Surr: Bromofluorobenzene (FID)	96.547		100.0		96.5	62	153				

Sample ID: **117519-005ADUP** SampType: **DUP** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132415**
Client ID: **A-11-006-5** Batch ID: **E11VS169** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157523**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **117519-005ADUP** SampType: **DUP** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132415**
Client ID: **A-11-006-5** Batch ID: **E11VS169** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157523**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	125.406		100.0		125	62	153		0	0	

Sample ID: **117525-004AMS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132415**
Client ID: **ZZZZZZ** Batch ID: **E11VS169** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157528**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.522	1.0	5.000	0.2740	85.0	49	131				
Surr: Bromofluorobenzene (FID)	130.398		100.0		130	62	153				

Sample ID: **117525-004AMSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132415**
Client ID: **ZZZZZZ** Batch ID: **E11VS169** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157529**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.758	1.0	5.000	0.2740	89.7	49	131	4.522	5.09	20	
Surr: Bromofluorobenzene (FID)	129.802		100.0		130	62	153		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_DM_LL

Sample ID: **MB-72448** SampType: **MBLK** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **4/25/2011** RunNo: **132381**
Client ID: **PBW** Batch ID: **72448** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **4/27/2011** SeqNo: **2156512**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	0.050									
ORO	ND	0.050									
Surr: p-Terphenyl	0.092		0.08000		114	36	126				

Sample ID: **LCS-72448** SampType: **LCS** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **4/25/2011** RunNo: **132381**
Client ID: **LCSW** Batch ID: **72448** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **4/27/2011** SeqNo: **2156513**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.739	0.050	1.000	0	73.9	52	128				
Surr: p-Terphenyl	0.089		0.08000		111	36	126				

Sample ID: **MB-72448MS** SampType: **MS** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **4/25/2011** RunNo: **132381**
Client ID: **ZZZZZZ** Batch ID: **72448** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **4/27/2011** SeqNo: **2156514**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.715	0.050	1.000	0	71.5	52	128				
Surr: p-Terphenyl	0.090		0.08000		112	36	126				

Sample ID: **MB-72448MSD** SampType: **MSD** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **4/25/2011** RunNo: **132381**
Client ID: **ZZZZZZ** Batch ID: **72448** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **4/27/2011** SeqNo: **2156515**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.681	0.050	1.000	0	68.1	52	128	0.7150	4.82	20	
Surr: p-Terphenyl	0.087		0.08000		109	36	126		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_GP LL

Sample ID: **M110427LCS2** SampType: **LCS** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132410**
Client ID: **LCSW** Batch ID: **M11VW082** TestNo: **EPA 8015B(M** Analysis Date: **4/27/2011** SeqNo: **2157034**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	1.005	0.050	1.000	0	101	70	130				
Surr: Bromofluorobenzene (FID)	99.832		100.0		99.8	70	130				

Sample ID: **M110427MB1MS** SampType: **MS** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132410**
Client ID: **ZZZZZZ** Batch ID: **M11VW082** TestNo: **EPA 8015B(M** Analysis Date: **4/27/2011** SeqNo: **2157035**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	1.005	0.050	1.000	0	101	70	130				
Surr: Bromofluorobenzene (FID)	100.802		100.0		101	70	130				

Sample ID: **M110427MB1MSD** SampType: **MSD** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132410**
Client ID: **ZZZZZZ** Batch ID: **M11VW082** TestNo: **EPA 8015B(M** Analysis Date: **4/27/2011** SeqNo: **2157036**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.990	0.050	1.000	0	99.0	70	130	1.005	1.50	20	
Surr: Bromofluorobenzene (FID)	98.404		100.0		98.4	70	130		0	0	

Sample ID: **M110427MB1** SampType: **MBLK** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132410**
Client ID: **PBW** Batch ID: **M11VW082** TestNo: **EPA 8015B(M** Analysis Date: **4/27/2011** SeqNo: **2157037**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050									
Surr: Bromofluorobenzene (FID)	96.221		100.0		96.2	70	130				

Sample ID: **117520-010ADUP** SampType: **DUP** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132410**
Client ID: **ZZZZZZ** Batch ID: **M11VW082** TestNo: **EPA 8015B(M** Analysis Date: **4/27/2011** SeqNo: **2157039**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_GP LL

Sample ID: **117520-010ADUP** SampType: **DUP** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132410**
Client ID: **ZZZZZZ** Batch ID: **M11VW082** TestNo: **EPA 8015B(M** Analysis Date: **4/27/2011** SeqNo: **2157039**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	97.078		100.0		97.1	70	130		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_GP LL

Sample ID: **M110428LCS2** SampType: **LCS** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132449**
Client ID: **LCSW** Batch ID: **M11VW083** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.945	0.050	1.000	0	94.5	70	130				
Surr: Bromofluorobenzene (FID)	97.552		100.0		97.6	70	130				

Sample ID: **M110428MB1MS** SampType: **MS** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132449**
Client ID: **ZZZZZZ** Batch ID: **M11VW083** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157795**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.969	0.050	1.000	0	96.9	70	130				
Surr: Bromofluorobenzene (FID)	98.977		100.0		99.0	70	130				

Sample ID: **M110428MB1MSD** SampType: **MSD** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132449**
Client ID: **ZZZZZZ** Batch ID: **M11VW083** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	1.003	0.050	1.000	0	100	70	130	0.9690	3.45	20	
Surr: Bromofluorobenzene (FID)	100.351		100.0		100	70	130		0	0	

Sample ID: **M110428MB1** SampType: **MBLK** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132449**
Client ID: **PBW** Batch ID: **M11VW083** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157797**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050									
Surr: Bromofluorobenzene (FID)	97.255		100.0		97.3	70	130				

Sample ID: **117525-020DDUP** SampType: **DUP** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132449**
Client ID: **ZZZZZZ** Batch ID: **M11VW083** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157799**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_GP LL

Sample ID: **117525-020DDUP** SampType: **DUP** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132449**
Client ID: **ZZZZZZ** Batch ID: **M11VW083** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157799**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	96.835		100.0		96.8	70	130		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110427LC6** SampType: **LCS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132415**
Client ID: **LCSS** Batch ID: **E11VS169** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157565**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	99.092	5.0	100.0	0	99.1	70	130				
Ethylbenzene	98.437	5.0	100.0	0	98.4	70	130				
m,p-Xylene	198.637	10	200.0	0	99.3	70	130				
Methyl tert-butyl ether	92.383	5.0	100.0	0	92.4	70	130				
o-Xylene	98.994	5.0	100.0	0	99.0	70	130				
Toluene	99.943	5.0	100.0	0	99.9	70	130				
Surr: Bromofluorobenzene (PID)	91.103		100.0		91.1	65	140				

Sample ID: **E110427LC6** SampType: **LCSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132415**
Client ID: **LCSS02** Batch ID: **E11VS169** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	102.023	5.0	100.0	0	102	70	130	99.09	2.91	20	
Ethylbenzene	102.484	5.0	100.0	0	102	70	130	98.44	4.03	20	
m,p-Xylene	206.040	10	200.0	0	103	70	130	198.6	3.66	20	
Methyl tert-butyl ether	92.588	5.0	100.0	0	92.6	70	130	92.38	0.222	20	
o-Xylene	102.317	5.0	100.0	0	102	70	130	98.99	3.30	20	
Toluene	103.356	5.0	100.0	0	103	70	130	99.94	3.36	20	
Surr: Bromofluorobenzene (PID)	88.152		100.0		88.2	65	140		0	0	

Sample ID: **E110427MB3MS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132415**
Client ID: **ZZZZZZ** Batch ID: **E11VS169** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	37.517	5.0	22.15	0	169	69	264				
Ethylbenzene	57.948	5.0	42.30	0	137	37	161				
m,p-Xylene	195.476	10	180.2	0	108	30	149				
Methyl tert-butyl ether	432.303	5.0	578.9	0	74.7	39	121				
o-Xylene	72.868	5.0	64.80	0	112	31	166				
Toluene	182.409	5.0	172.6	0	106	44	150				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110427MB3MS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132415**
Client ID: **ZZZZZZ** Batch ID: **E11VS169** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (PID)	98.679		100.0		98.7	65	140				

Sample ID: **E110427MB3MSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132415**
Client ID: **ZZZZZZ** Batch ID: **E11VS169** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157568**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	36.982	5.0	22.15	0	167	69	264	37.52	1.44	20	
Ethylbenzene	56.875	5.0	42.30	0	134	37	161	57.95	1.87	20	
m,p-Xylene	190.967	10	180.2	0	106	30	149	195.5	2.33	20	
Methyl tert-butyl ether	426.895	5.0	578.9	0	73.7	39	121	432.3	1.26	20	
o-Xylene	71.388	5.0	64.80	0	110	31	166	72.87	2.05	20	
Toluene	179.666	5.0	172.6	0	104	44	150	182.4	1.52	20	
Surr: Bromofluorobenzene (PID)	97.733		100.0		97.7	65	140		0	20	

Sample ID: **E110427MB3** SampType: **MBLK** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132415**
Client ID: **PBS** Batch ID: **E11VS169** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157569**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0									
Ethylbenzene	ND	5.0									
m,p-Xylene	ND	10									
Methyl tert-butyl ether	ND	5.0									
o-Xylene	ND	5.0									
Toluene	ND	5.0									
Surr: Bromofluorobenzene (PID)	96.196		100.0		96.2	65	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **117519-005ADUP** SampType: **DUP** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132415**
Client ID: **A-11-006-5** Batch ID: **E11VS169** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157572**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0						0	0	20	
Ethylbenzene	ND	5.0						0	0	20	
m,p-Xylene	ND	10						0	0	20	
Methyl tert-butyl ether	ND	5.0						0	0	20	
o-Xylene	ND	5.0						0	0	20	
Toluene	ND	5.0						0	0	20	
Surr: Bromofluorobenzene (PID)	125.485		100.0		125	65	140		0	0	

Sample ID: **117525-004AMS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132415**
Client ID: **ZZZZZZ** Batch ID: **E11VS169** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	36.969	5.0	22.15	0	167	69	264				
Ethylbenzene	53.524	5.0	42.30	0	127	37	161				
m,p-Xylene	182.959	10	180.2	0	102	30	149				
Methyl tert-butyl ether	421.473	5.0	578.9	0	72.8	39	121				
o-Xylene	69.780	5.0	64.80	0	108	31	166				
Toluene	178.937	5.0	172.6	0	104	44	150				
Surr: Bromofluorobenzene (PID)	121.240		100.0		121	65	140				

Sample ID: **117525-004AMSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132415**
Client ID: **ZZZZZZ** Batch ID: **E11VS169** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157580**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	38.740	5.0	22.15	0	175	69	264	36.97	4.68	20	
Ethylbenzene	56.548	5.0	42.30	0	134	37	161	53.52	5.49	20	
m,p-Xylene	193.303	10	180.2	0	107	30	149	183.0	5.50	20	
Methyl tert-butyl ether	451.164	5.0	578.9	0	77.9	39	121	421.5	6.80	20	
o-Xylene	74.986	5.0	64.80	0	116	31	166	69.78	7.19	20	
Toluene	187.191	5.0	172.6	0	108	44	150	178.9	4.51	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **117525-004AMSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132415**
Client ID: **ZZZZZZ** Batch ID: **E11VS169** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157580**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (PID)	119.945		100.0		120	65	140		0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_WP_BTEX

Sample ID: **M110427LCS1** SampType: **LCS** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132410**
Client ID: **LCSW** Batch ID: **M11VW082** TestNo: **EPA 8021B** Analysis Date: **4/27/2011** SeqNo: **2157058**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	99.902	0.50	100.0	0	99.9	70	130				
Toluene	97.944	0.50	100.0	0	97.9	70	130				
Ethylbenzene	100.283	0.50	100.0	0	100	70	130				
m,p-Xylene	205.068	1.0	200.0	0	103	70	130				
o-Xylene	103.928	0.50	100.0	0	104	70	130				
Methyl tert-butyl ether	104.492	0.50	100.0	0	104	70	130				
Surr: Bromofluorobenzene (PID)	96.168		100.0		96.2	70	130				

Sample ID: **M110427LCS1D** SampType: **LCSD** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132410**
Client ID: **LCSS02** Batch ID: **M11VW082** TestNo: **EPA 8021B** Analysis Date: **4/27/2011** SeqNo: **2157059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	98.018	0.50	100.0	0	98.0	70	130	99.90	1.90	20	
Toluene	96.413	0.50	100.0	0	96.4	70	130	97.94	1.58	20	
Ethylbenzene	98.913	0.50	100.0	0	98.9	70	130	100.3	1.38	20	
m,p-Xylene	201.469	1.0	200.0	0	101	70	130	205.1	1.77	20	
o-Xylene	101.898	0.50	100.0	0	102	70	130	103.9	1.97	20	
Methyl tert-butyl ether	105.445	0.50	100.0	0	105	70	130	104.5	0.908	20	
Surr: Bromofluorobenzene (PID)	93.693		100.0		93.7	70	130		0	0	

Sample ID: **M110427MB1** SampType: **MBLK** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132410**
Client ID: **PBW** Batch ID: **M11VW082** TestNo: **EPA 8021B** Analysis Date: **4/27/2011** SeqNo: **2157062**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
o-Xylene	ND	0.50									
Methyl tert-butyl ether	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_WP_BTEX

Sample ID: **M110427MB1** SampType: **MBLK** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132410**
Client ID: **PBW** Batch ID: **M11VW082** TestNo: **EPA 8021B** Analysis Date: **4/27/2011** SeqNo: **2157062**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (PID)	92.655		100.0		92.7	70	130				

Sample ID: **117520-010ADUP** SampType: **DUP** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132410**
Client ID: **ZZZZZZ** Batch ID: **M11VW082** TestNo: **EPA 8021B** Analysis Date: **4/27/2011** SeqNo: **2157064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50						0	0	20	
Toluene	ND	0.50						0	0	20	
Ethylbenzene	ND	0.50						0	0	20	
m,p-Xylene	ND	1.0						0	0	20	
o-Xylene	ND	0.50						0	0	20	
Methyl tert-butyl ether	ND	0.50						0	0	20	
Surr: Bromofluorobenzene (PID)	93.509		100.0		93.5	70	130		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_WP_BTEX

Sample ID: **M110428LCS1** SampType: **LCS** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132449**
Client ID: **LCSW** Batch ID: **M11VW083** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	98.587	0.50	100.0	0	98.6	70	130				
Toluene	95.846	0.50	100.0	0	95.8	70	130				
Ethylbenzene	98.239	0.50	100.0	0	98.2	70	130				
m,p-Xylene	200.364	1.0	200.0	0	100	70	130				
o-Xylene	101.596	0.50	100.0	0	102	70	130				
Methyl tert-butyl ether	102.314	0.50	100.0	0	102	70	130				
Surr: Bromofluorobenzene (PID)	94.179		100.0		94.2	70	130				

Sample ID: **M110428LCS1D** SampType: **LCSD** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132449**
Client ID: **LCSS02** Batch ID: **M11VW083** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	98.017	0.50	100.0	0	98.0	70	130	98.59	0.580	20	
Toluene	96.263	0.50	100.0	0	96.3	70	130	95.85	0.434	20	
Ethylbenzene	98.495	0.50	100.0	0	98.5	70	130	98.24	0.260	20	
m,p-Xylene	201.192	1.0	200.0	0	101	70	130	200.4	0.412	20	
o-Xylene	101.975	0.50	100.0	0	102	70	130	101.6	0.372	20	
Methyl tert-butyl ether	105.917	0.50	100.0	0	106	70	130	102.3	3.46	20	
Surr: Bromofluorobenzene (PID)	95.008		100.0		95.0	70	130		0	0	

Sample ID: **M110428MB1** SampType: **MBLK** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132449**
Client ID: **PBW** Batch ID: **M11VW083** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
o-Xylene	ND	0.50									
Methyl tert-butyl ether	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_WP_BTEX

Sample ID: **M110428MB1** SampType: **MBLK** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132449**
Client ID: **PBW** Batch ID: **M11VW083** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (PID)	93.868		100.0		93.9	70	130				

Sample ID: **117525-020DDUP** SampType: **DUP** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132449**
Client ID: **ZZZZZZ** Batch ID: **M11VW083** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50						0	0	20	
Toluene	ND	0.50						0	0	20	
Ethylbenzene	ND	0.50						0	0	20	
m,p-Xylene	ND	1.0						0	0	20	
o-Xylene	ND	0.50						0	0	20	
Methyl tert-butyl ether	ND	0.50						0	0	20	
Surr: Bromofluorobenzene (PID)	93.192		100.0		93.2	70	130		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **MB-72534** SampType: **MBLK** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **4/28/2011** RunNo: **132450**
Client ID: **PBS** Batch ID: **72534** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **4/28/2011** SeqNo: **2157833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	2.0									
4,4´-DDE	ND	2.0									
4,4´-DDT	ND	2.0									
Aldrin	ND	1.0									
alpha-BHC	ND	1.0									
alpha-Chlordane	ND	1.0									
beta-BHC	ND	1.0									
Chlordane	ND	8.5									
delta-BHC	ND	1.0									
Dieldrin	ND	2.0									
Endosulfan I	ND	1.0									
Endosulfan II	ND	2.0									
Endosulfan sulfate	ND	2.0									
Endrin	ND	2.0									
Endrin aldehyde	ND	2.0									
Endrin ketone	ND	2.0									
gamma-BHC	ND	1.0									
gamma-Chlordane	ND	1.0									
Heptachlor	ND	1.0									
Heptachlor epoxide	ND	1.0									
Methoxychlor	ND	5.0									
Toxaphene	ND	50									
Surr: Tetrachloro-m-xylene	12.877		16.67		77.2	35	108				
Surr: Decachlorobiphenyl	12.331		16.67		74.0	31	107				

Sample ID: **LCS-72534** SampType: **LCS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **4/28/2011** RunNo: **132450**
Client ID: **LCSS** Batch ID: **72534** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **4/28/2011** SeqNo: **2157834**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	15.175	1.0	16.67	0	91.0	59	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 *Tel: 562. 989.4045* *Fax: 562.989.4040*

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **LCS-72534** SampType: **LCS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **4/28/2011** RunNo: **132450**
Client ID: **LCSS** Batch ID: **72534** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **4/28/2011** SeqNo: **2157834**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dieldrin	15.963	2.0	16.67	0	95.8	56	112				
Endrin	17.465	2.0	16.67	0	105	53	116				
gamma-BHC	16.003	1.0	16.67	0	96.0	59	110				
Heptachlor	15.889	1.0	16.67	0	95.3	53	118				
Surr: Tetrachloro-m-xylene	13.044		16.67		78.3	35	108				
Surr: Decachlorobiphenyl	16.025		16.67		96.1	31	107				

Sample ID: **117525-024AMS** SampType: **MS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **4/28/2011** RunNo: **132450**
Client ID: **ZZZZZZ** Batch ID: **72534** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **4/28/2011** SeqNo: **2157835**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	15.232	2.0	16.67	0	91.4	38	130				
Aldrin	14.371	1.0	16.67	0	86.2	35	122				
Dieldrin	14.617	2.0	16.67	0	87.7	31	138				
Endrin	17.296	2.0	16.67	0	104	39	132				
gamma-BHC	14.947	1.0	16.67	0	89.7	36	126				
Heptachlor	15.208	1.0	16.67	0	91.2	34	131				
Surr: Tetrachloro-m-xylene	13.007		16.67		78.0	35	108				
Surr: Decachlorobiphenyl	13.904		16.67		83.4	31	107				

Sample ID: **117525-024AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **4/28/2011** RunNo: **132450**
Client ID: **ZZZZZZ** Batch ID: **72534** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **4/28/2011** SeqNo: **2157836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	16.060	2.0	16.67	0	96.3	38	130	15.23	5.29	20	
Aldrin	15.179	1.0	16.67	0	91.1	35	122	14.37	5.46	20	
Dieldrin	15.344	2.0	16.67	0	92.0	31	138	14.62	4.85	20	
Endrin	18.268	2.0	16.67	0	110	39	132	17.30	5.46	20	
gamma-BHC	15.781	1.0	16.67	0	94.7	36	126	14.95	5.43	20	
Heptachlor	16.217	1.0	16.67	0	97.3	34	131	15.21	6.42	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **117525-024AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **4/28/2011** RunNo: **132450**
Client ID: **ZZZZZZ** Batch ID: **72534** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **4/28/2011** SeqNo: **2157836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Tetrachloro-m-xylene	13.709		16.67		82.2	35	108		0	0	
Surr: Decachlorobiphenyl	14.580		16.67		87.5	31	107		0	0	

Sample ID: **117519-001ADUP** SampType: **DUP** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **4/28/2011** RunNo: **132450**
Client ID: **A-11-003-1** Batch ID: **72534** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **4/28/2011** SeqNo: **2157844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	2.0						0	0	20	
4,4´-DDE	2.581	2.0						2.712	4.98	20	
4,4´-DDT	9.867	2.0						10.69	8.01	20	
Aldrin	ND	1.0						0	0	20	
alpha-BHC	ND	1.0						0	0	20	
alpha-Chlordane	ND	1.0						0	0	20	
beta-BHC	ND	1.0						0	0	20	
Chlordane	ND	8.5						0	0	20	
delta-BHC	ND	1.0						0	0	20	
Dieldrin	ND	2.0						0	0	20	
Endosulfan I	ND	1.0						0	0	20	
Endosulfan II	ND	2.0						0	0	20	
Endosulfan sulfate	ND	2.0						0	0	20	
Endrin	ND	2.0						0	0	20	
Endrin aldehyde	ND	2.0						0	0	20	
Endrin ketone	ND	2.0						0	0	20	
gamma-BHC	ND	1.0						0	0	20	
gamma-Chlordane	ND	1.0						0	0	20	
Heptachlor	ND	1.0						0	0	20	
Heptachlor epoxide	ND	1.0						0	0	20	
Methoxychlor	ND	5.0						0	0	20	
Toxaphene	ND	50						0	0	20	
Surr: Tetrachloro-m-xylene	12.669		16.67		76.0	35	108		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **117519-001ADUP** SampType: **DUP** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **4/28/2011** RunNo: **132450**
Client ID: **A-11-003-1** Batch ID: **72534** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **4/28/2011** SeqNo: **2157844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	11.029		16.67		66.2	31	107		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **Q110429LC1** SampType: **LCS** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132470**
Client ID: **LCSW** Batch ID: **Q11VW059** TestNo: **EPA 8260B** Analysis Date: **4/29/2011** SeqNo: **2158185**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	19.380	0.50	20.00	0	96.9	70	130				
Benzene	38.670	0.50	40.00	0	96.7	70	130				
Chlorobenzene	21.060	0.50	20.00	0	105	70	130				
MTBE	20.680	0.50	20.00	0	103	70	130				
Toluene	39.640	0.50	40.00	0	99.1	70	130				
Trichloroethene	20.230	0.50	20.00	0	101	70	130				
Surr: 1,2-Dichloroethane-d4	23.230		25.00		92.9	70	130				
Surr: 4-Bromofluorobenzene	23.030		25.00		92.1	70	130				
Surr: Dibromofluoromethane	22.590		25.00		90.4	70	130				
Surr: Toluene-d8	22.770		25.00		91.1	70	130				

Sample ID: **Q110429MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132470**
Client ID: **PBW** Batch ID: **Q11VW059** TestNo: **EPA 8260B** Analysis Date: **4/29/2011** SeqNo: **2158188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50									
1,1,1-Trichloroethane	ND	0.50									
1,1,2,2-Tetrachloroethane	ND	0.50									
1,1,2-Trichloroethane	ND	0.50									
1,1-Dichloroethane	ND	0.50									
1,1-Dichloroethene	ND	0.50									
1,1-Dichloropropene	ND	0.50									
1,2,3-Trichlorobenzene	ND	0.50									
1,2,3-Trichloropropane	ND	0.50									
1,2,4-Trichlorobenzene	ND	0.50									
1,2,4-Trimethylbenzene	ND	0.50									
1,2-Dibromo-3-chloropropane	ND	0.50									
1,2-Dibromoethane	ND	0.50									
1,2-Dichlorobenzene	ND	0.50									
1,2-Dichloroethane	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **Q110429MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132470**
Client ID: **PBW** Batch ID: **Q11VW059** TestNo: **EPA 8260B** Analysis Date: **4/29/2011** SeqNo: **2158188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloropropane	ND	0.50									
1,3,5-Trimethylbenzene	ND	0.50									
1,3-Dichlorobenzene	ND	0.50									
1,3-Dichloropropane	ND	0.50									
1,4-Dichlorobenzene	ND	0.50									
2,2-Dichloropropane	ND	0.50									
2-Chlorotoluene	ND	0.50									
4-Chlorotoluene	ND	0.50									
4-Isopropyltoluene	ND	0.50									
Benzene	ND	0.50									
Bromobenzene	ND	0.50									
Bromodichloromethane	ND	0.50									
Bromoform	ND	0.50									
Bromomethane	ND	0.50									
Carbon tetrachloride	ND	0.50									
Chlorobenzene	ND	0.50									
Chloroethane	ND	0.50									
Chloroform	ND	0.50									
Chloromethane	ND	0.50									
cis-1,2-Dichloroethene	ND	0.50									
cis-1,3-Dichloropropene	ND	0.50									
Dibromochloromethane	ND	0.50									
Dibromomethane	ND	0.50									
Dichlorodifluoromethane	ND	0.50									
Ethylbenzene	ND	0.50									
Hexachlorobutadiene	ND	0.50									
Isopropylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
Methylene chloride	ND	1.0									
MTBE	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **Q110429MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132470**
Client ID: **PBW** Batch ID: **Q11VW059** TestNo: **EPA 8260B** Analysis Date: **4/29/2011** SeqNo: **2158188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Butylbenzene	ND	0.50									
n-Propylbenzene	ND	0.50									
Naphthalene	ND	0.50									
o-Xylene	ND	0.50									
sec-Butylbenzene	ND	0.50									
Styrene	ND	0.50									
tert-Butylbenzene	ND	0.50									
Tetrachloroethene	ND	0.50									
Toluene	ND	0.50									
trans-1,2-Dichloroethene	ND	0.50									
Trichloroethene	ND	0.50									
Trichlorofluoromethane	ND	0.50									
Vinyl chloride	ND	0.50									
Surr: 1,2-Dichloroethane-d4	23.990		25.00		96.0	70	130				
Surr: 4-Bromofluorobenzene	22.380		25.00		89.5	70	130				
Surr: Dibromofluoromethane	22.790		25.00		91.2	70	130				
Surr: Toluene-d8	21.680		25.00		86.7	70	130				

Sample ID: **117519-006ADUP** SampType: **DUP** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132470**
Client ID: **A-11-006-GW** Batch ID: **Q11VW059** TestNo: **EPA 8260B** Analysis Date: **4/29/2011** SeqNo: **2158193**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50						0	0	20	
1,1,1-Trichloroethane	ND	0.50						0	0	20	
1,1,2,2-Tetrachloroethane	ND	0.50						0	0	20	
1,1,2-Trichloroethane	ND	0.50						0	0	20	
1,1-Dichloroethane	ND	0.50						0	0	20	
1,1-Dichloroethene	ND	0.50						0	0	20	
1,1-Dichloropropene	ND	0.50						0	0	20	
1,2,3-Trichlorobenzene	ND	0.50						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **117519-006ADUP** SampType: **DUP** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132470**
Client ID: **A-11-006-GW** Batch ID: **Q11VW059** TestNo: **EPA 8260B** Analysis Date: **4/29/2011** SeqNo: **2158193**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichloropropane	ND	0.50						0	0	20	
1,2,4-Trichlorobenzene	ND	0.50						0	0	20	
1,2,4-Trimethylbenzene	0.260	0.50						0.2300	0	20	
1,2-Dibromo-3-chloropropane	ND	0.50						0	0	20	
1,2-Dibromoethane	ND	0.50						0	0	20	
1,2-Dichlorobenzene	ND	0.50						0	0	20	
1,2-Dichloroethane	ND	0.50						0	0	20	
1,2-Dichloropropane	ND	0.50						0	0	20	
1,3,5-Trimethylbenzene	ND	0.50						0	0	20	
1,3-Dichlorobenzene	ND	0.50						0	0	20	
1,3-Dichloropropane	ND	0.50						0	0	20	
1,4-Dichlorobenzene	ND	0.50						0	0	20	
2,2-Dichloropropane	ND	0.50						0	0	20	
2-Chlorotoluene	ND	0.50						0	0	20	
4-Chlorotoluene	ND	0.50						0	0	20	
4-Isopropyltoluene	ND	0.50						0	0	20	
Benzene	ND	0.50						0	0	20	
Bromobenzene	ND	0.50						0	0	20	
Bromodichloromethane	ND	0.50						0	0	20	
Bromoform	ND	0.50						0	0	20	
Bromomethane	ND	0.50						0	0	20	
Carbon tetrachloride	ND	0.50						0	0	20	
Chlorobenzene	ND	0.50						0	0	20	
Chloroethane	ND	0.50						0	0	20	
Chloroform	ND	0.50						0	0	20	
Chloromethane	0.570	0.50						0.6200	8.40	20	
cis-1,2-Dichloroethene	ND	0.50						0	0	20	
cis-1,3-Dichloropropene	ND	0.50						0	0	20	
Dibromochloromethane	ND	0.50						0	0	20	
Dibromomethane	ND	0.50						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **117519-006ADUP** SampType: **DUP** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132470**
Client ID: **A-11-006-GW** Batch ID: **Q11VW059** TestNo: **EPA 8260B** Analysis Date: **4/29/2011** SeqNo: **2158193**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.50						0	0	20	
Ethylbenzene	ND	0.50						0	0	20	
Hexachlorobutadiene	ND	0.50						0	0	20	
Isopropylbenzene	ND	0.50						0	0	20	
m,p-Xylene	ND	1.0						0	0	20	
Methylene chloride	ND	1.0						0	0	20	
MTBE	ND	0.50						0	0	20	
n-Butylbenzene	ND	0.50						0	0	20	
n-Propylbenzene	ND	0.50						0	0	20	
Naphthalene	ND	0.50						0	0	20	
o-Xylene	ND	0.50						0	0	20	
sec-Butylbenzene	ND	0.50						0	0	20	
Styrene	ND	0.50						0	0	20	
tert-Butylbenzene	ND	0.50						0	0	20	
Tetrachloroethene	ND	0.50						0	0	20	
Toluene	ND	0.50						0	0	20	
trans-1,2-Dichloroethene	ND	0.50						0	0	20	
Trichloroethene	ND	0.50						0	0	20	
Trichlorofluoromethane	ND	0.50						0	0	20	
Vinyl chloride	ND	0.50						0	0	20	
Surr: 1,2-Dichloroethane-d4	23.590		25.00		94.4	70	130		0	20	
Surr: 4-Bromofluorobenzene	24.390		25.00		97.6	70	130		0	20	
Surr: Dibromofluoromethane	23.200		25.00		92.8	70	130		0	20	
Surr: Toluene-d8	22.850		25.00		91.4	70	130		0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CHAIN OF CUSTODY RECORD

ADVANCED TECHNOLOGY LABORATORIES
3275 Walnut Ave., Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

P.O.#: _____ Quote #: _____
Logged By: _____ Date: 4/23/11
NOTE: Please include your Quote No. to ensure proper pricing of your project.

FOR LABORATORY USE ONLY:

Method of Transport: ☐ Client ☐ ATL ☐ FedEx ☐ OnTrac ☑ GSO ☐ Other: _____

Sample Condition Upon Receipt:
1. CHILLED 5-8 Y☑ N☐ 4. CUSTODY SEAL Y☐ N☑
2. HEADSPACE (VOA) Y☐ N☐ 5. # OF SPLS MATCH COC Y☑ N☐
3. CONTAINER INTACT Y☑ N☐ 6. PRESERVED Y☐ N☑

Client: **Geocon Consultants, Inc.** Address: 6671 Brisa Street TEL: (925) 371-5900
Attn: RICKDAY, L.VIGLIOTTI, L.VERNURE, C.MERRITT City: Livermore State: CA Zip Code: 94550 FAX: (925) 371-5915

Project Name: I-80 ICM Project #: E8583-06-01 Sampler: (Printed Name) C.M. (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name) CHRIS MERRITT Date: 4-22-11 Time: 1645 Received by: (Signature and Printed Name) FEDEX Date: 4/23/11 Time: 0843
Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:
Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter: CM 4-22-11 (Print Name / Date)
CM (Signature)

Send Report To: Attn: Co: A/A1 Addr: City: State: Zip:

Bill To: Attn: Co: A/A1 Addr: City: State: Zip:

Special Instructions/Comments:

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.
Storage Fees (applies when storage is requested):
- Sample : $2.00 / sample / mo (after 45 days)
- Records : $1.00 / ATL workorder / mo (after 1 year)

Circle or Add Analysis(es) Requested; SPECIFY APPROPRIATE MATRIX

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample Description: Sample I.D. / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8021 (BTEX) + MTBE	8015B (DRO) + MO	TITLE 22 / CAM 17 (6010 / 7000)	SEDIMENT	SOLID	SOIL	DRINKING WATER	GROUND WATER	WASTEWATER	STORMWATER	AQUEOUS	TAT	Container(s) #	Type	PRESERVATION	QA/QC	REMARKS
	117519-01	A-11-003-1	4-20-11	1450	X						X	X				X						E	1	T	A	C	
	-2	A-11-003-5		1455						X		X				X							1			C	
	-3	A-11-003-GW		1515			X			X	X	X						X						T	HCl	HCl	
	-4	A-11-006-1		0845	X						X	X				X							1			C	
	-5	A-11-006-5		0855						X		X				X							1			C	
	-6	A-11-006-GW		0930			X			X	X	X						X						T	HCl	HCl	
	-7	A-11-002-1	4-21-11	1140	X						X	X				X							1			C	
	-8	A-11-002-5		1145						X		X				X							1			C	
	-9	A-11-002-GW		1215			X			X	X	X						X						T	HCl	HCl	
	-10	A-11-005-1	4-22-11	0825	X						X	X				X							1			C	

QA/QC: RTNE ☐ CT ☑ Legal ☐ SWRCB ☐ Logcode ____ OTHER ____

• TAT starts 8 a.m. following day if samples received after 5 p.m.

TAT: ☐A= Overnight ≤ 24 hrs ☐B= Emergency Next workday ☐C= Critical 2 Workdays ☐D= Urgent 3 Workdays ☐E= Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

DISTRIBUTION: **White** with report, **Yellow** to folder, **Pink** to submitter.

CHAIN OF CUSTODY RECORD

ADVANCED TECHNOLOGY LABORATORIES
3275 Walnut Ave., Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

P.O.#: _____ Quote #: _____
Logged By: _____ Date: _____
NOTE: Please include your Quote No. to ensure proper pricing of your project.

FOR LABORATORY USE ONLY:

Method of Transport: ☐ Client ☐ ATL ☐ FedEx ☐ OnTrac ☑ GSO ☐ Other: _____

Sample Condition Upon Receipt:
1. CHILLED Y☐ N☐ 4. CUSTODY SEAL Y☐ N☐
2. HEADSPACE (VOA) Y☐ N☐ 5. # OF SPLS MATCH COC Y☐ N☐
3. CONTAINER INTACT Y☐ N☐ 6. PRESERVED Y☐ N☐

Client: **Geocon Consultants, Inc.** Address: 6671 Brisa Street TEL: (925) 371-5900
Attn: RICK DAY, L. VIGLIOTTI, LIVERMORE, C. MERRITT City: Livermore State: CA Zip Code: 94550 FAX: (925) 371-5915

Project Name: I-80 ICM Project #: E3553-06-01 Sampler: (Printed Name) C.M. (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name) CHRIS MERRITT Date: 4-22-11 Time: 1645 Received by: (Signature and Printed Name) FPD IWA Date: 4/23/11 Time: 0843
Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:
Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter: CM 4-22-11 (Print Name / Date)
CM (Signature)

Send Report To: Attn: A/A1 Co: Addr: City: State: Zip:

Bill To: Attn: A/A1 Co: Addr: City: State: Zip:

Special Instructions/Comments: ~~LAB BACKLOG~~ w/ MTBE

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.
Storage Fees (applies when storage is requested):
- Sample : $2.00 / sample / mo (after 45 days)
- Records : $1.00 / ATL workorder / mo (after 1 year)

Circle or Add Analysis(es) Requested: 8081A (Pesticides), 8082 (PCB), 8260B (Volatiles), 8270C (BNA), 6010B (Total Metal), 8015B (GRO) / 8021 (BTEX), 8015B (DRO) + MO, TITLE 22 / CAM 17 (6010 / 7000)

SPECIFY APPROPRIATE MATRIX: SEDIMENT, SOLID, SOIL, DRINKING WATER, GROUND WATER, WASTEWATER, STORMWATER, AQUEOUS

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample Description: Sample I.D. / Location	Date	Time	8081A	8082	8260B	8270C	6010B	8015B (GRO) / 8021	8015B (DRO) + MO	TITLE 22 / CAM 17	SEDIMENT	SOLID	SOIL	DRINKING WATER	GROUND WATER	WASTEWATER	STORMWATER	AQUEOUS	TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
	117519-11	A-11-005-5	4-22-11	0840					X		X				X						E	1		C	
	-12	A-11-005-GW		0905			X		X	X	X					X						6	40 ml	HNO3	
	-13	A-11-010-1		1320	X					X	X				X							1		C	
	-14	A-11-010-5		1325					X		X				X							1		C	

QA/QC: RTNE ☐ CT ☑ Legal ☐ SWRCB ☐ Logcode _____ OTHER _____

• TAT starts 8 a.m. following day if samples received after 5 p.m.

TAT: ☐A= Overnight ≤ 24 hrs ☐B= Emergency Next workday ☐C= Critical 2 Workdays ☐D= Urgent 3 Workdays ☐E= Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

DISTRIBUTION: **White** with report, **Yellow** to folder, **Pink** to submitter.

May 09, 2011

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Rick Day, L. Vigliotti, C. Merritt
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

TEL: (925) 371-5900
FAX: (925) 371-5915

Workorder No.: 117519

RE: I-80 ICM, E8583-06-01

Attention: Rick Day, L. Vigliotti, C. Merritt

Enclosed are the results for sample(s) received on April 23, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

Eddie F. Rodriguez
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Project: I-80 ICM, E8583-06-01
Lab Order: 117519

CASE NARRATIVE

Analytical Comments for Method 6010

Dilution was necessary for samples 117519-001A, 117519-004A, 117519-005A, 117519-010A and 117519-013A, due to sample matrix.

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *09-May-11*

CLIENT: Geocon Consultants, Inc.
Project: I-80 ICM, E8583-06-01
Lab Order: 117519

Lab ID: 117519-001 **Collection Date:** 4/20/2011 2:50:00 PM
Client Sample ID: A-11-003-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
WET/ EPA 6010B						
RunID: ICP8_110506C QC Batch: R132695 PrepDate: Analyst: **SRB**						
Chromium	ND	1.0		mg/L	20	5/6/2011 01:31 PM
Lead	4.1	1.0		mg/L	20	5/6/2011 01:31 PM

Lab ID: 117519-004 **Collection Date:** 4/20/2011 8:45:00 AM
Client Sample ID: A-11-006-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
WET/ EPA 6010B						
RunID: ICP8_110506C QC Batch: R132695 PrepDate: Analyst: **SRB**						
Chromium	ND	1.0		mg/L	20	5/6/2011 01:34 PM
Lead	4.1	1.0		mg/L	20	5/6/2011 01:34 PM

Lab ID: 117519-005 **Collection Date:** 4/20/2011 8:55:00 AM
Client Sample ID: A-11-006-5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
WET/ EPA 6010B						
RunID: ICP8_110506C QC Batch: R132695 PrepDate: Analyst: **SRB**						
Chromium	ND	1.0		mg/L	20	5/6/2011 01:38 PM
Lead	5.6	1.0		mg/L	20	5/6/2011 01:38 PM

Lab ID: 117519-010 **Collection Date:** 4/22/2011 8:25:00 AM
Client Sample ID: A-11-005-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
WET/ EPA 6010B						
RunID: ICP8_110506C QC Batch: R132695 PrepDate: Analyst: **SRB**						
Chromium	ND	1.0		mg/L	20	5/6/2011 01:41 PM
Lead	5.3	1.0		mg/L	20	5/6/2011 01:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *09-May-11*

CLIENT: Geocon Consultants, Inc.
Project: I-80 ICM, E8583-06-01

Lab Order: 117519

Lab ID: 117519-013
Collection Date: 4/22/2011 1:20:00 PM
Client Sample ID: A-11-010-1
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP8_110506C	QC Batch: R132695			PrepDate:		Analyst: **SRB**
Chromium	ND	1.0		mg/L	20	5/6/2011 01:44 PM
Lead	1.8	1.0		mg/L	20	5/6/2011 01:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **MB-72660** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **132695**
Client ID: **PBS** Batch ID: **R132695** TestNo: **WET/ EPA 60** Analysis Date: **5/6/2011** SeqNo: **2162573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.050									
Lead	ND	0.050									

Sample ID: **MB-72660 STLC** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **132695**
Client ID: **PBS** Batch ID: **R132695** TestNo: **WET/ EPA 60** Analysis Date: **5/6/2011** SeqNo: **2162574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									
Lead	ND	1.0									

Sample ID: **LCS-72660** SampType: **LCS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **132695**
Client ID: **LCSS** Batch ID: **R132695** TestNo: **WET/ EPA 60** Analysis Date: **5/6/2011** SeqNo: **2162575**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.985	0.050	1.000	0	98.5	85	115				
Lead	1.089	0.050	1.000	0	109	85	115				

Sample ID: **117519-013A-DUP** SampType: **DUP** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **132695**
Client ID: **A-11-010-1** Batch ID: **R132695** TestNo: **WET/ EPA 60** Analysis Date: **5/6/2011** SeqNo: **2162581**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.096	1.0						0.06460	0	20	
Lead	1.792	1.0						1.773	1.08	20	

Sample ID: **117519-013A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **132695**
Client ID: **A-11-010-1** Batch ID: **R132695** TestNo: **WET/ EPA 60** Analysis Date: **5/6/2011** SeqNo: **2162582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **117519-013A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **132695**
Client ID: **A-11-010-1** Batch ID: **R132695** TestNo: **WET/ EPA 60** Analysis Date: **5/6/2011** SeqNo: **2162582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	2.384	1.0	2.500	0.06460	92.8	78	115				
Lead	4.187	1.0	2.500	1.773	96.6	80	118				

Sample ID: **117519-013A-MSD** SampType: **MSD** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **132695**
Client ID: **A-11-010-1** Batch ID: **R132695** TestNo: **WET/ EPA 60** Analysis Date: **5/6/2011** SeqNo: **2162583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	2.380	1.0	2.500	0.06460	92.6	78	115	2.384	0.145	20	
Lead	4.178	1.0	2.500	1.773	96.2	80	118	4.187	0.216	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Diane Galvan

From: Livermore Office (Rick Day) [day@geoconinc.com]
Sent: Monday, May 02, 2011 4:55 PM
To: Diane Galvan; vigliotti@geoconinc.com; merritt@geoconinc.com
Cc: livermore@geoconinc.com
Subject: RE: Results/EDD - I-80 ICM (117519)

Hi Diane -

Please run samples with total lead equal to or greater than 50 mg/kg for WET lead - standard TAT please.

Thanks,
Rick.

Diane Galvan

From: Lauren Vigliotti [vigliotti@geoconinc.com]
Sent: Monday, May 02, 2011 5:14 PM
To: 'Livermore Office (Rick Day)'; Diane Galvan; merritt@geoconinc.com
Cc: livermore@geoconinc.com
Subject: RE: Results/EDD - I-80 ICM (117519)

Diane: Please also run sample A-11-010-5 for WET chromium, standard TAT. WET lead analyses include:

A-11-010-1
A-11-006-5
A-11-006-1
A-11-003-1
A-11-005-1
Thanks!

Lauren Vigliotti, PG | *Project Geologist*
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, California 94550
Tel 925.371.5900 Fax 925.371.5915
www.geoconinc.com

May 17, 2011

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Workorder No.: 117519

Rick Day, L. Vigliotti, C. Merritt
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

TEL: (925) 371-5900
FAX: (925) 371-5915

RE: I-80 ICM, E8583-06-01

Attention: Rick Day, L. Vigliotti, C. Merritt

Enclosed are the results for sample(s) received on April 23, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

Eddie F. Rodriguez
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *17-May-11*

CLIENT: Geocon Consultants, Inc.
Project: I-80 ICM, E8583-06-01

Lab Order: 117519

Lab ID: 117519-005 **Collection Date:** 4/20/2011 8:55:00 AM
Client Sample ID: A-11-006-5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION						
WET			**WET DI/ EPA 7420**			
RunID: AA2_110516F	QC Batch: 72901				PrepDate: 5/14/2011	Analyst: **VV**
Lead	ND	0.25		mg/L	1	5/16/2011 06:18 PM

Lab ID: 117519-010 **Collection Date:** 4/22/2011 8:25:00 AM
Client Sample ID: A-11-005-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION						
WET			**WET DI/ EPA 7420**			
RunID: AA2_110516F	QC Batch: 72901				PrepDate: 5/14/2011	Analyst: **VV**
Lead	ND	0.25		mg/L	1	5/16/2011 06:19 PM
LEAD BY ATOMIC ABSORPTION (TCLP)						
EPA3010A			**EPA 1311/ 7420**			
RunID: AA2_110516H	QC Batch: 72900				PrepDate: 5/16/2011	Analyst: **VV**
Lead	0.69	0.25		mg/L	1	5/16/2011 06:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_DI_GEOCON

Sample ID: **MB-72901A** SampType: **MBLK** TestCode: **7420_DI_GEO** Units: **mg/L** Prep Date: **5/14/2011** RunNo: **132986**
Client ID: **PBS** Batch ID: **72901** TestNo: **WET DI/ EPA WET** Analysis Date: **5/16/2011** SeqNo: **2168919**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **LCS-72901** SampType: **LCS** TestCode: **7420_DI_GEO** Units: **mg/L** Prep Date: **5/14/2011** RunNo: **132986**
Client ID: **LCSS** Batch ID: **72901** TestNo: **WET DI/ EPA WET** Analysis Date: **5/16/2011** SeqNo: **2168920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.029	0.25	5.000	0	101	80	120				

Sample ID: **117519-005A-DUP** SampType: **DUP** TestCode: **7420_DI_GEO** Units: **mg/L** Prep Date: **5/14/2011** RunNo: **132986**
Client ID: **A-11-006-5** Batch ID: **72901** TestNo: **WET DI/ EPA WET** Analysis Date: **5/16/2011** SeqNo: **2168922**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25						0	0	20	

Sample ID: **117519-005A-MS** SampType: **MS** TestCode: **7420_DI_GEO** Units: **mg/L** Prep Date: **5/14/2011** RunNo: **132986**
Client ID: **A-11-006-5** Batch ID: **72901** TestNo: **WET DI/ EPA WET** Analysis Date: **5/16/2011** SeqNo: **2168923**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	4.977	0.25	5.000	0	99.5	70	130				

Sample ID: **117519-005A-MSD** SampType: **MSD** TestCode: **7420_DI_GEO** Units: **mg/L** Prep Date: **5/14/2011** RunNo: **132986**
Client ID: **A-11-006-5** Batch ID: **72901** TestNo: **WET DI/ EPA WET** Analysis Date: **5/16/2011** SeqNo: **2168924**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.062	0.25	5.000	0	101	70	130	4.977	1.69	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_TC

Sample ID: **MB-72900A** SampType: **MBLK** TestCode: **7420_TC** Units: **mg/L** Prep Date: **5/16/2011** RunNo: **132988**
Client ID: **PBS** Batch ID: **72900** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **5/16/2011** SeqNo: **2168956**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **MB-72862B TCLP** SampType: **MBLK** TestCode: **7420_TC** Units: **mg/L** Prep Date: **5/16/2011** RunNo: **132988**
Client ID: **PBS** Batch ID: **72900** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **5/16/2011** SeqNo: **2168957**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **LCS-72900** SampType: **LCS** TestCode: **7420_TC** Units: **mg/L** Prep Date: **5/16/2011** RunNo: **132988**
Client ID: **LCSS** Batch ID: **72900** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **5/16/2011** SeqNo: **2168958**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.964	0.25	1.000	0	96.4	80	120				

Sample ID: **117512-025A-DUP** SampType: **DUP** TestCode: **7420_TC** Units: **mg/L** Prep Date: **5/16/2011** RunNo: **132988**
Client ID: **ZZZZZZ** Batch ID: **72900** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **5/16/2011** SeqNo: **2168969**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.426	0.25						0.4187	1.62	20	

Sample ID: **117512-025A-MS** SampType: **MS** TestCode: **7420_TC** Units: **mg/L** Prep Date: **5/16/2011** RunNo: **132988**
Client ID: **ZZZZZZ** Batch ID: **72900** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **5/16/2011** SeqNo: **2168970**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	3.282	0.25	2.500	0.4187	115	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_TC

Sample ID: **MB-72900B** SampType: **MBLK** TestCode: **7420_TC** Units: **mg/L** Prep Date: **5/16/2011** RunNo: **132988**
Client ID: **PBS** Batch ID: **72900** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **5/16/2011** SeqNo: **2168971**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **MB-72862B TCLP** SampType: **MBLK** TestCode: **7420_TC** Units: **mg/L** Prep Date: **5/16/2011** RunNo: **132988**
Client ID: **PBS** Batch ID: **72900** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **5/16/2011** SeqNo: **2168972**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **117519-010A-DUP** SampType: **DUP** TestCode: **7420_TC** Units: **mg/L** Prep Date: **5/16/2011** RunNo: **132988**
Client ID: **A-11-005-1** Batch ID: **72900** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **5/16/2011** SeqNo: **2168980**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.701	0.25						0.6941	1.00	20	

Sample ID: **117519-010A-MS** SampType: **MS** TestCode: **7420_TC** Units: **mg/L** Prep Date: **5/16/2011** RunNo: **132988**
Client ID: **A-11-005-1** Batch ID: **72900** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **5/16/2011** SeqNo: **2168981**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	3.263	0.25	2.500	0.6941	103	70	130				

Sample ID: **117519-010A-MSD** SampType: **MSD** TestCode: **7420_TC** Units: **mg/L** Prep Date: **5/16/2011** RunNo: **132988**
Client ID: **A-11-005-1** Batch ID: **72900** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **5/16/2011** SeqNo: **2168982**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	3.256	0.25	2.500	0.6941	102	70	130	3.263	0.229	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Diane Galvan

From: Lauren Vigliotti [vigliotti@geoconinc.com]
Sent: Tuesday, May 10, 2011 1:52 PM
To: Diane Galvan; day@geoconinc.com; merritt@geoconinc.com
Subject: RE: Additional Results/EDD - I-80 ICM (117519)

Hi Diane:
Please further analyze samples, standard TAT as follows:
DI-WET lead - A-11-006-5 and A-11-005-1
TCLP lead - A-11-005-1

Thanks!

Lauren Vigliotti, PG | *Project Geologist*
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, California 94550
Tel 925.371.5900 Fax 925.371.5915
www.geoconinc.com

July 07, 2011

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Workorder No.: 117519

Rick Day, L. Vigliotti, C. Merritt
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

TEL: (925) 371-5900
FAX: (925) 371-5915

RE: I-80 ICM, E8583-06-01

Attention: Rick Day, L. Vigliotti, C. Merritt

Enclosed are the results for sample(s) received on April 23, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

Eddie F. Rodriguez
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Project: I-80 ICM, E8583-06-01
Lab Order: 117519

CASE NARRATIVE

Analytical Comments for Method WET/6010

Dilution was necessary for sample 117519-014A, due to sample matrix.

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *07-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-010-5
Lab Order:	117519	**Collection Date:**	4/22/2011 1:25:00 PM
Project:	I-80 ICM, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117519-014A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP8_110706D	QC Batch: R134730			PrepDate:		Analyst: **CBB**
Chromium	ND	2.5		mg/L	50	7/6/2011 11:51 AM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **MB-74040A** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **PBS** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.050									
Lead	ND	0.050									

Sample ID: **MB-74040A STLC** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **PBS** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									
Lead	ND	1.0									

Sample ID: **LCS-74040** SampType: **LCS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **LCSS** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203740**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.952	0.050	1.000	0	95.2	85	115				
Lead	1.028	0.050	1.000	0	103	85	115				

Sample ID: **117519-014A-DUP** SampType: **DUP** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **A-11-010-5** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203743**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.192	2.5						0.2022	0	20	
Lead	2.110	2.5						2.299	0	20	

Sample ID: **117519-014A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **A-11-010-5** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203744**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	2.420	2.5	2.500	0.2022	88.7	78	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117519
Project: I-80 ICM, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **117519-014A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **A-11-010-5** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203744**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	4.527	2.5	2.500	2.299	89.1	80	118				

Sample ID: **117519-014A-MSD** SampType: **MSD** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **A-11-010-5** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203745**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	2.362	2.5	2.500	0.2022	86.4	78	115	2.420	0	20	
Lead	4.437	2.5	2.500	2.299	85.5	80	118	4.527	2.01	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

May 04, 2011

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Workorder No.: 117564

Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

TEL: (925) 371-5900
FAX: (925) 371-5915

RE: I-80 ICM Project, E8583-06-01

Attention: Rick Day

Enclosed are the results for sample(s) received on April 27, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

for Eddie F. Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Project: I-80 ICM Project, E8583-06-01
Lab Order: 117564

CASE NARRATIVE

Analytical Comments for Method 6010

Dilution was necessary for samples 117564-003C, 117564-006C and 117564-009C, due to dirty matrix.

Analytical Comments for Method 8015 (DRO/ORO)

Dilution was necessary for samples 117564-001A and 117564-004A, due to sample matrix.

Surrogate recovery was diluted out for samples 117564-001A and 117564-004A.

RPD for Duplicate (DUP) is outside criteria for sample 117564-007ADUP; however, the Laboratory Control Sample (LCS) validated the analytical batch.

Analytical Comments for Method 8021

Matrix Spike (MS) and /or Matrix Spike Duplicate (MSD) are/is outside recovery criteria for samples 117564-005AMS and 117564-005AMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

RPD for Matrix Spike (MS)/Matrix Spike Duplicate (MSD) is outside criteria for sample 117564-005AMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Analytical Comments for Method 8081

Dilution was necessary for samples 117564-001A and 117564-004A, due to black extracts.

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-008-1
Lab Order:	117564	**Collection Date:**	4/24/2011 11:35:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117564-001A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110502A	QC Batch: 72577			PrepDate:	5/2/2011	Analyst: **SRB**
Antimony	ND	2.0		mg/Kg	1	5/2/2011 05:02 PM
Arsenic	ND	1.0		mg/Kg	1	5/2/2011 05:02 PM
Barium	140	1.0		mg/Kg	1	5/2/2011 05:02 PM
Beryllium	ND	1.0		mg/Kg	1	5/2/2011 05:02 PM
Cadmium	ND	1.0		mg/Kg	1	5/2/2011 05:02 PM
Chromium	18	1.0		mg/Kg	1	5/2/2011 05:02 PM
Cobalt	6.5	1.0		mg/Kg	1	5/2/2011 05:02 PM
Copper	13	2.0		mg/Kg	1	5/2/2011 05:02 PM
Lead	43	1.0		mg/Kg	1	5/2/2011 05:02 PM
Molybdenum	ND	1.0		mg/Kg	1	5/2/2011 05:02 PM
Nickel	27	1.0		mg/Kg	1	5/2/2011 05:02 PM
Selenium	ND	1.0		mg/Kg	1	5/2/2011 05:02 PM
Silver	ND	1.0		mg/Kg	1	5/2/2011 05:02 PM
Thallium	ND	1.0		mg/Kg	1	5/2/2011 05:02 PM
Vanadium	21	1.0		mg/Kg	1	5/2/2011 05:02 PM
Zinc	41	1.0		mg/Kg	1	5/2/2011 05:02 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110502D	QC Batch: 72571			PrepDate:	5/2/2011	Analyst: **CBR**
DRO	500	50		mg/Kg	5	5/3/2011 06:59 PM
ORO	2700	50		mg/Kg	5	5/3/2011 06:59 PM
Surr: p-Terphenyl	0	30-128	SDO	%REC	5	5/3/2011 06:59 PM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC9_110503A	QC Batch: 72621			PrepDate:	5/3/2011	Analyst: **HL**
4,4´-DDD	ND	20		µg/Kg	10	5/3/2011 04:00 PM
4,4´-DDE	ND	20		µg/Kg	10	5/3/2011 04:00 PM
4,4´-DDT	ND	20		µg/Kg	10	5/3/2011 04:00 PM
Aldrin	ND	10		µg/Kg	10	5/3/2011 04:00 PM
alpha-BHC	ND	10		µg/Kg	10	5/3/2011 04:00 PM
alpha-Chlordane	ND	10		µg/Kg	10	5/3/2011 04:00 PM
beta-BHC	ND	10		µg/Kg	10	5/3/2011 04:00 PM
Chlordane	ND	85		µg/Kg	10	5/3/2011 04:00 PM
delta-BHC	ND	10		µg/Kg	10	5/3/2011 04:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-008-1
Lab Order:	117564	**Collection Date:**	4/24/2011 11:35:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117564-001A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110503A	QC Batch: 72621			PrepDate:	5/3/2011	Analyst: **HL**
Dieldrin	ND	20		µg/Kg	10	5/3/2011 04:00 PM
Endosulfan I	ND	10		µg/Kg	10	5/3/2011 04:00 PM
Endosulfan II	ND	20		µg/Kg	10	5/3/2011 04:00 PM
Endosulfan sulfate	ND	20		µg/Kg	10	5/3/2011 04:00 PM
Endrin	ND	20		µg/Kg	10	5/3/2011 04:00 PM
Endrin aldehyde	ND	20		µg/Kg	10	5/3/2011 04:00 PM
Endrin ketone	ND	20		µg/Kg	10	5/3/2011 04:00 PM
gamma-BHC	ND	10		µg/Kg	10	5/3/2011 04:00 PM
gamma-Chlordane	ND	10		µg/Kg	10	5/3/2011 04:00 PM
Heptachlor	ND	10		µg/Kg	10	5/3/2011 04:00 PM
Heptachlor epoxide	ND	10		µg/Kg	10	5/3/2011 04:00 PM
Methoxychlor	ND	50		µg/Kg	10	5/3/2011 04:00 PM
Toxaphene	ND	500		µg/Kg	10	5/3/2011 04:00 PM
Surr: Decachlorobiphenyl	70.8	31-107		%REC	10	5/3/2011 04:00 PM
Surr: Tetrachloro-m-xylene	66.6	35-108		%REC	10	5/3/2011 04:00 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110502D	QC Batch: 72576			PrepDate:	5/2/2011	Analyst: **VV**
Mercury	0.13	0.10		mg/Kg	1	5/2/2011 04:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-008-5
Lab Order:	117564	**Collection Date:**	4/24/2011 11:45:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117564-002A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110502A	QC Batch: 72577			PrepDate: 5/2/2011		Analyst: **SRB**
Antimony	ND	2.0		mg/Kg	1	5/2/2011 05:05 PM
Arsenic	ND	1.0		mg/Kg	1	5/2/2011 05:05 PM
Barium	33	1.0		mg/Kg	1	5/2/2011 05:05 PM
Beryllium	ND	1.0		mg/Kg	1	5/2/2011 05:05 PM
Cadmium	ND	1.0		mg/Kg	1	5/2/2011 05:05 PM
Chromium	23	1.0		mg/Kg	1	5/2/2011 05:05 PM
Cobalt	3.9	1.0		mg/Kg	1	5/2/2011 05:05 PM
Copper	6.7	2.0		mg/Kg	1	5/2/2011 05:05 PM
Lead	82	1.0		mg/Kg	1	5/2/2011 05:05 PM
Molybdenum	ND	1.0		mg/Kg	1	5/2/2011 05:05 PM
Nickel	20	1.0		mg/Kg	1	5/2/2011 05:05 PM
Selenium	ND	1.0		mg/Kg	1	5/2/2011 05:05 PM
Silver	ND	1.0		mg/Kg	1	5/2/2011 05:05 PM
Thallium	ND	1.0		mg/Kg	1	5/2/2011 05:05 PM
Vanadium	16	1.0		mg/Kg	1	5/2/2011 05:05 PM
Zinc	37	1.0		mg/Kg	1	5/2/2011 05:05 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110429C	QC Batch: E11VS174			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	4/30/2011 10:25 AM
Surr: Bromofluorobenzene (FID)	123	62-153		%REC	1	4/30/2011 10:25 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110429C	QC Batch: E11VS174			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	4/30/2011 10:25 AM
Ethylbenzene	ND	5.0		µg/Kg	1	4/30/2011 10:25 AM
m,p-Xylene	ND	10		µg/Kg	1	4/30/2011 10:25 AM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	4/30/2011 10:25 AM
o-Xylene	ND	5.0		µg/Kg	1	4/30/2011 10:25 AM
Toluene	ND	5.0		µg/Kg	1	4/30/2011 10:25 AM
Surr: Bromofluorobenzene (PID)	119	65-140		%REC	1	4/30/2011 10:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-008-5
Lab Order:	117564	**Collection Date:**	4/24/2011 11:45:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117564-002A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA1_110502D	QC Batch: 72576			PrepDate:	5/2/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	5/2/2011 04:42 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117564
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117564-003A

Client Sample ID: A-11-008
Collection Date: 4/25/2011 12:40:00 AM
Matrix: WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
			EPA 8260B			
RunID: MS2_110502A	QC Batch:	Q11VW060		PrepDate:		Analyst: **BD**
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,1,1-Trichloroethane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,1,2-Trichloroethane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,1-Dichloroethane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,1-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,1-Dichloropropene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,2,3-Trichloropropane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,2-Dibromoethane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,2-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,2-Dichloroethane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,2-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,3-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,3-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
1,4-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
2,2-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
2-Chlorotoluene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
4-Chlorotoluene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
4-Isopropyltoluene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Benzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Bromobenzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Bromodichloromethane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Bromoform	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Bromomethane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Carbon tetrachloride	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Chlorobenzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Chloroethane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Chloroform	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Chloromethane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
cis-1,2-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 05:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-008
Lab Order:	117564	**Collection Date:**	4/25/2011 12:40:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	WATER
Lab ID:	117564-003A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
			EPA 8260B			
RunID: MS2_110502A	QC Batch:	Q11VW060		PrepDate:		Analyst: **BD**
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Dibromochloromethane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Dibromomethane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Dichlorodifluoromethane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Ethylbenzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Hexachlorobutadiene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Isopropylbenzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
m,p-Xylene	ND	1.0		µg/L	1	5/2/2011 05:24 PM
Methylene chloride	ND	1.0		µg/L	1	5/2/2011 05:24 PM
n-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
n-Propylbenzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Naphthalene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
o-Xylene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
sec-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Styrene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
tert-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Tetrachloroethene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Toluene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
trans-1,2-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Trichloroethene	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Trichlorofluoromethane	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Vinyl chloride	ND	0.50		µg/L	1	5/2/2011 05:24 PM
Surr: 1,2-Dichloroethane-d4	103	70-130		%REC	1	5/2/2011 05:24 PM
Surr: 4-Bromofluorobenzene	95.1	70-130		%REC	1	5/2/2011 05:24 PM
Surr: Dibromofluoromethane	98.8	70-130		%REC	1	5/2/2011 05:24 PM
Surr: Toluene-d8	89.8	70-130		%REC	1	5/2/2011 05:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-008
Lab Order:	117564	**Collection Date:**	4/25/2011 12:40:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	WATER
Lab ID:	117564-003B		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC19_110428A	QC Batch:	M11VW083		PrepDate:		Analyst: **DDL**
GRO	ND	0.050		mg/L	1	4/28/2011 02:43 PM
Surr: Bromofluorobenzene (FID)	94.7	70-130		%REC	1	4/28/2011 02:43 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC19_110428A	QC Batch:	M11VW083		PrepDate:		Analyst: **DDL**
Benzene	ND	0.50		µg/L	1	4/28/2011 02:43 PM
Ethylbenzene	ND	0.50		µg/L	1	4/28/2011 02:43 PM
m,p-Xylene	ND	1.0		µg/L	1	4/28/2011 02:43 PM
Methyl tert-butyl ether	ND	0.50		µg/L	1	4/28/2011 02:43 PM
o-Xylene	ND	0.50		µg/L	1	4/28/2011 02:43 PM
Toluene	ND	0.50		µg/L	1	4/28/2011 02:43 PM
Surr: Bromofluorobenzene (PID)	91.1	70-130		%REC	1	4/28/2011 02:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-008
Lab Order:	117564	**Collection Date:**	4/25/2011 12:40:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	WATER
Lab ID:	117564-003C		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3010A			**EPA 6010B**		
RunID: ICP8_110428B	QC Batch: 72518			PrepDate:	4/28/2011	Analyst: **IL**
Antimony	0.054	0.050		mg/L	10	4/28/2011 04:05 PM
Arsenic	0.19	0.10		mg/L	10	4/28/2011 04:05 PM
Barium	3.2	0.030		mg/L	10	4/28/2011 04:05 PM
Beryllium	ND	0.030		mg/L	10	4/28/2011 04:05 PM
Cadmium	ND	0.030		mg/L	10	4/28/2011 04:05 PM
Chromium	1.2	0.030		mg/L	10	4/28/2011 04:05 PM
Cobalt	0.56	0.030		mg/L	10	4/28/2011 04:05 PM
Copper	0.86	0.050		mg/L	10	4/28/2011 04:05 PM
Lead	1.6	0.050		mg/L	10	4/28/2011 04:05 PM
Molybdenum	ND	0.050		mg/L	10	4/28/2011 04:05 PM
Nickel	1.9	0.050		mg/L	10	4/28/2011 04:05 PM
Selenium	ND	0.10		mg/L	10	4/28/2011 04:05 PM
Silver	ND	0.030		mg/L	10	4/28/2011 04:05 PM
Thallium	ND	0.15		mg/L	10	4/28/2011 04:05 PM
Vanadium	1.1	0.030		mg/L	10	4/28/2011 04:05 PM
Zinc	2.3	0.10		mg/L	10	4/28/2011 04:05 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7470A		
RunID: AA5_110428C	QC Batch: 72513			PrepDate:	4/28/2011	Analyst: **VV**
Mercury	4.0	0.20		µg/L	1	4/28/2011 12:24 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-008
Lab Order:	117564	**Collection Date:**	4/25/2011 12:40:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	WATER
Lab ID:	117564-003D		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3510C				**EPA 8015B(M)**		
RunID: GC16_110502C	QC Batch: 72548			PrepDate:	4/29/2011	Analyst: **CBR**
DRO	0.14	0.059		mg/L	1	5/2/2011 04:53 PM
ORO	0.21	0.059		mg/L	1	5/2/2011 04:53 PM
Surr: p-Terphenyl	108	36-126		%REC	1	5/2/2011 04:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *04-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117564
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117564-004A

Client Sample ID: A-11-007-1
Collection Date: 4/25/2011 10:30:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110502A	QC Batch: 72577			PrepDate:	5/2/2011	Analyst: **SRB**
Antimony	2.5	2.0		mg/Kg	1	5/2/2011 05:08 PM
Arsenic	2.9	1.0		mg/Kg	1	5/2/2011 05:08 PM
Barium	130	1.0		mg/Kg	1	5/2/2011 05:08 PM
Beryllium	ND	1.0		mg/Kg	1	5/2/2011 05:08 PM
Cadmium	1.1	1.0		mg/Kg	1	5/2/2011 05:08 PM
Chromium	42	1.0		mg/Kg	1	5/2/2011 05:08 PM
Cobalt	9.5	1.0		mg/Kg	1	5/2/2011 05:08 PM
Copper	35	2.0		mg/Kg	1	5/2/2011 05:08 PM
Lead	240	1.0		mg/Kg	1	5/2/2011 05:08 PM
Molybdenum	ND	1.0		mg/Kg	1	5/2/2011 05:08 PM
Nickel	49	1.0		mg/Kg	1	5/2/2011 05:08 PM
Selenium	ND	1.0		mg/Kg	1	5/2/2011 05:08 PM
Silver	ND	1.0		mg/Kg	1	5/2/2011 05:08 PM
Thallium	ND	1.0		mg/Kg	1	5/2/2011 05:08 PM
Vanadium	29	1.0		mg/Kg	1	5/2/2011 05:08 PM
Zinc	150	1.0		mg/Kg	1	5/2/2011 05:08 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110502D	QC Batch: 72571			PrepDate:	5/2/2011	Analyst: **CBR**
DRO	190	30		mg/Kg	5	5/3/2011 06:50 PM
ORO	860	30		mg/Kg	5	5/3/2011 06:50 PM
Surr: p-Terphenyl	0	30-128	SDO	%REC	5	5/3/2011 06:50 PM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC9_110503A	QC Batch: 72621			PrepDate:	5/3/2011	Analyst: **HL**
4,4´-DDD	38	20		µg/Kg	10	5/3/2011 04:13 PM
4,4´-DDE	ND	20		µg/Kg	10	5/3/2011 04:13 PM
4,4´-DDT	ND	20		µg/Kg	10	5/3/2011 04:13 PM
Aldrin	ND	10		µg/Kg	10	5/3/2011 04:13 PM
alpha-BHC	ND	10		µg/Kg	10	5/3/2011 04:13 PM
alpha-Chlordane	ND	10		µg/Kg	10	5/3/2011 04:13 PM
beta-BHC	ND	10		µg/Kg	10	5/3/2011 04:13 PM
Chlordane	ND	85		µg/Kg	10	5/3/2011 04:13 PM
delta-BHC	ND	10		µg/Kg	10	5/3/2011 04:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-007-1
Lab Order:	117564	**Collection Date:**	4/25/2011 10:30:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117564-004A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110503A	QC Batch: 72621			PrepDate:	5/3/2011	Analyst: **HL**
Dieldrin	ND	20		µg/Kg	10	5/3/2011 04:13 PM
Endosulfan I	ND	10		µg/Kg	10	5/3/2011 04:13 PM
Endosulfan II	ND	20		µg/Kg	10	5/3/2011 04:13 PM
Endosulfan sulfate	ND	20		µg/Kg	10	5/3/2011 04:13 PM
Endrin	ND	20		µg/Kg	10	5/3/2011 04:13 PM
Endrin aldehyde	ND	20		µg/Kg	10	5/3/2011 04:13 PM
Endrin ketone	ND	20		µg/Kg	10	5/3/2011 04:13 PM
gamma-BHC	ND	10		µg/Kg	10	5/3/2011 04:13 PM
gamma-Chlordane	ND	10		µg/Kg	10	5/3/2011 04:13 PM
Heptachlor	ND	10		µg/Kg	10	5/3/2011 04:13 PM
Heptachlor epoxide	ND	10		µg/Kg	10	5/3/2011 04:13 PM
Methoxychlor	ND	50		µg/Kg	10	5/3/2011 04:13 PM
Toxaphene	ND	500		µg/Kg	10	5/3/2011 04:13 PM
Surr: Decachlorobiphenyl	70.4	31-107		%REC	10	5/3/2011 04:13 PM
Surr: Tetrachloro-m-xylene	56.1	35-108		%REC	10	5/3/2011 04:13 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110502D	QC Batch: 72576			PrepDate:	5/2/2011	Analyst: **VV**
Mercury	0.26	0.10		mg/Kg	1	5/2/2011 04:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-007-5
Lab Order:	117564	**Collection Date:**	4/25/2011 10:45:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117564-005A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110502A	QC Batch: 72577			PrepDate: 5/2/2011		Analyst: **SRB**
Antimony	ND	2.0		mg/Kg	1	5/2/2011 05:11 PM
Arsenic	ND	1.0		mg/Kg	1	5/2/2011 05:11 PM
Barium	29	1.0		mg/Kg	1	5/2/2011 05:11 PM
Beryllium	ND	1.0		mg/Kg	1	5/2/2011 05:11 PM
Cadmium	ND	1.0		mg/Kg	1	5/2/2011 05:11 PM
Chromium	23	1.0		mg/Kg	1	5/2/2011 05:11 PM
Cobalt	4.2	1.0		mg/Kg	1	5/2/2011 05:11 PM
Copper	5.5	2.0		mg/Kg	1	5/2/2011 05:11 PM
Lead	48	1.0		mg/Kg	1	5/2/2011 05:11 PM
Molybdenum	ND	1.0		mg/Kg	1	5/2/2011 05:11 PM
Nickel	20	1.0		mg/Kg	1	5/2/2011 05:11 PM
Selenium	ND	1.0		mg/Kg	1	5/2/2011 05:11 PM
Silver	ND	1.0		mg/Kg	1	5/2/2011 05:11 PM
Thallium	ND	1.0		mg/Kg	1	5/2/2011 05:11 PM
Vanadium	16	1.0		mg/Kg	1	5/2/2011 05:11 PM
Zinc	31	1.0		mg/Kg	1	5/2/2011 05:11 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110429C	QC Batch: E11VS174			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	4/30/2011 10:41 AM
Surr: Bromofluorobenzene (FID)	119	62-153		%REC	1	4/30/2011 10:41 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110429C	QC Batch: E11VS174			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	4/30/2011 10:41 AM
Ethylbenzene	ND	5.0		µg/Kg	1	4/30/2011 10:41 AM
m,p-Xylene	ND	10		µg/Kg	1	4/30/2011 10:41 AM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	4/30/2011 10:41 AM
o-Xylene	ND	5.0		µg/Kg	1	4/30/2011 10:41 AM
Toluene	ND	5.0		µg/Kg	1	4/30/2011 10:41 AM
Surr: Bromofluorobenzene (PID)	115	65-140		%REC	1	4/30/2011 10:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-007-5
Lab Order:	117564	**Collection Date:**	4/25/2011 10:45:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117564-005A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA1_110502D	QC Batch: 72576			PrepDate:	5/2/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	5/2/2011 04:46 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117564
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117564-006A

Client Sample ID: A-11-007
Collection Date: 4/25/2011 11:16:00 PM
Matrix: WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
			EPA 8260B			
RunID: MS2_110502A	QC Batch:	Q11VW060		PrepDate:		Analyst: **BD**
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,1,1-Trichloroethane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,1,2-Trichloroethane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,1-Dichloroethane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,1-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,1-Dichloropropene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,2,3-Trichloropropane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,2-Dibromoethane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,2-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,2-Dichloroethane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,2-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,3-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,3-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
1,4-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
2,2-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
2-Chlorotoluene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
4-Chlorotoluene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
4-Isopropyltoluene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Benzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Bromobenzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Bromodichloromethane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Bromoform	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Bromomethane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Carbon tetrachloride	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Chlorobenzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Chloroethane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Chloroform	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Chloromethane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
cis-1,2-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 05:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-007
Lab Order:	117564	**Collection Date:**	4/25/2011 11:16:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	WATER
Lab ID:	117564-006A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
			EPA 8260B			
RunID: MS2_110502A	QC Batch:	Q11VW060		PrepDate:		Analyst: **BD**
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Dibromochloromethane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Dibromomethane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Dichlorodifluoromethane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Ethylbenzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Hexachlorobutadiene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Isopropylbenzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
m,p-Xylene	ND	1.0		µg/L	1	5/2/2011 05:45 PM
Methylene chloride	ND	1.0		µg/L	1	5/2/2011 05:45 PM
n-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
n-Propylbenzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Naphthalene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
o-Xylene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
sec-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Styrene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
tert-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Tetrachloroethene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Toluene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
trans-1,2-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Trichloroethene	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Trichlorofluoromethane	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Vinyl chloride	ND	0.50		µg/L	1	5/2/2011 05:45 PM
Surr: 1,2-Dichloroethane-d4	103	70-130		%REC	1	5/2/2011 05:45 PM
Surr: 4-Bromofluorobenzene	95.9	70-130		%REC	1	5/2/2011 05:45 PM
Surr: Dibromofluoromethane	101	70-130		%REC	1	5/2/2011 05:45 PM
Surr: Toluene-d8	88.9	70-130		%REC	1	5/2/2011 05:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-007
Lab Order:	117564	**Collection Date:**	4/25/2011 11:16:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	WATER
Lab ID:	117564-006B		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC19_110428A	QC Batch:	M11VW083		PrepDate:		Analyst: **DDL**
GRO	ND	0.050		mg/L	1	4/28/2011 03:29 PM
Surr: Bromofluorobenzene (FID)	95.2	70-130		%REC	1	4/28/2011 03:29 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC19_110428A	QC Batch:	M11VW083		PrepDate:		Analyst: **DDL**
Benzene	ND	0.50		µg/L	1	4/28/2011 03:29 PM
Ethylbenzene	ND	0.50		µg/L	1	4/28/2011 03:29 PM
m,p-Xylene	ND	1.0		µg/L	1	4/28/2011 03:29 PM
Methyl tert-butyl ether	ND	0.50		µg/L	1	4/28/2011 03:29 PM
o-Xylene	ND	0.50		µg/L	1	4/28/2011 03:29 PM
Toluene	ND	0.50		µg/L	1	4/28/2011 03:29 PM
Surr: Bromofluorobenzene (PID)	92.3	70-130		%REC	1	4/28/2011 03:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *04-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117564
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117564-006C

Client Sample ID: A-11-007
Collection Date: 4/25/2011 11:16:00 PM
Matrix: WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3010A			**EPA 6010B**		
RunID: ICP8_110428B	QC Batch: 72518			PrepDate:	4/28/2011	Analyst: **IL**
Antimony	0.087	0.050		mg/L	10	4/28/2011 04:15 PM
Arsenic	ND	0.10		mg/L	10	4/28/2011 04:15 PM
Barium	4.3	0.030		mg/L	10	4/28/2011 04:15 PM
Beryllium	ND	0.030		mg/L	10	4/28/2011 04:15 PM
Cadmium	0.030	0.030		mg/L	10	4/28/2011 04:15 PM
Chromium	2.5	0.030		mg/L	10	4/28/2011 04:15 PM
Cobalt	0.48	0.030		mg/L	10	4/28/2011 04:15 PM
Copper	0.90	0.050		mg/L	10	4/28/2011 04:15 PM
Lead	2.4	0.050		mg/L	10	4/28/2011 04:15 PM
Molybdenum	ND	0.050		mg/L	10	4/28/2011 04:15 PM
Nickel	2.6	0.050		mg/L	10	4/28/2011 04:15 PM
Selenium	ND	0.10		mg/L	10	4/28/2011 04:15 PM
Silver	ND	0.030		mg/L	10	4/28/2011 04:15 PM
Thallium	ND	0.15		mg/L	10	4/28/2011 04:15 PM
Vanadium	1.7	0.030		mg/L	10	4/28/2011 04:15 PM
Zinc	3.8	0.10		mg/L	10	4/28/2011 04:15 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7470A		
RunID: AA5_110428C	QC Batch: 72513			PrepDate:	4/28/2011	Analyst: **VV**
Mercury	2.9	0.20		µg/L	1	4/28/2011 12:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-007
Lab Order:	117564	**Collection Date:**	4/25/2011 11:16:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	WATER
Lab ID:	117564-006D		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3510C				**EPA 8015B(M)**		
RunID: GC16_110502C	QC Batch: 72548			PrepDate:	4/29/2011	Analyst: **CBR**
DRO	0.33	0.059		mg/L	1	5/2/2011 05:14 PM
ORO	0.43	0.059		mg/L	1	5/2/2011 05:14 PM
Surr: p-Terphenyl	97.2	36-126		%REC	1	5/2/2011 05:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-004-1
Lab Order:	117564	**Collection Date:**	4/26/2011 2:55:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117564-007A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110502A	QC Batch: 72577			PrepDate:	5/2/2011	Analyst: **SRB**
Antimony	ND	2.0		mg/Kg	1	5/2/2011 05:14 PM
Arsenic	ND	1.0		mg/Kg	1	5/2/2011 05:14 PM
Barium	22	1.0		mg/Kg	1	5/2/2011 05:14 PM
Beryllium	ND	1.0		mg/Kg	1	5/2/2011 05:14 PM
Cadmium	ND	1.0		mg/Kg	1	5/2/2011 05:14 PM
Chromium	22	1.0		mg/Kg	1	5/2/2011 05:14 PM
Cobalt	3.7	1.0		mg/Kg	1	5/2/2011 05:14 PM
Copper	2.4	2.0		mg/Kg	1	5/2/2011 05:14 PM
Lead	5.1	1.0		mg/Kg	1	5/2/2011 05:14 PM
Molybdenum	ND	1.0		mg/Kg	1	5/2/2011 05:14 PM
Nickel	20	1.0		mg/Kg	1	5/2/2011 05:14 PM
Selenium	ND	1.0		mg/Kg	1	5/2/2011 05:14 PM
Silver	ND	1.0		mg/Kg	1	5/2/2011 05:14 PM
Thallium	ND	1.0		mg/Kg	1	5/2/2011 05:14 PM
Vanadium	16	1.0		mg/Kg	1	5/2/2011 05:14 PM
Zinc	15	1.0		mg/Kg	1	5/2/2011 05:14 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110502D	QC Batch: 72571			PrepDate:	5/2/2011	Analyst: **CBR**
DRO	28	4.0		mg/Kg	1	5/3/2011 07:41 PM
ORO	150	4.0		mg/Kg	1	5/3/2011 07:41 PM
Surr: p-Terphenyl	73.5	30-128		%REC	1	5/3/2011 07:41 PM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC9_110503A	QC Batch: 72621			PrepDate:	5/3/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	5/3/2011 03:47 PM
4,4´-DDE	ND	2.0		µg/Kg	1	5/3/2011 03:47 PM
4,4´-DDT	ND	2.0		µg/Kg	1	5/3/2011 03:47 PM
Aldrin	ND	1.0		µg/Kg	1	5/3/2011 03:47 PM
alpha-BHC	ND	1.0		µg/Kg	1	5/3/2011 03:47 PM
alpha-Chlordane	ND	1.0		µg/Kg	1	5/3/2011 03:47 PM
beta-BHC	ND	1.0		µg/Kg	1	5/3/2011 03:47 PM
Chlordane	ND	8.5		µg/Kg	1	5/3/2011 03:47 PM
delta-BHC	ND	1.0		µg/Kg	1	5/3/2011 03:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-004-1
Lab Order:	117564	**Collection Date:**	4/26/2011 2:55:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117564-007A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110503A	QC Batch: 72621			PrepDate:	5/3/2011	Analyst: **HL**
Dieldrin	ND	2.0		µg/Kg	1	5/3/2011 03:47 PM
Endosulfan I	ND	1.0		µg/Kg	1	5/3/2011 03:47 PM
Endosulfan II	ND	2.0		µg/Kg	1	5/3/2011 03:47 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	5/3/2011 03:47 PM
Endrin	ND	2.0		µg/Kg	1	5/3/2011 03:47 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	5/3/2011 03:47 PM
Endrin ketone	ND	2.0		µg/Kg	1	5/3/2011 03:47 PM
gamma-BHC	ND	1.0		µg/Kg	1	5/3/2011 03:47 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	5/3/2011 03:47 PM
Heptachlor	ND	1.0		µg/Kg	1	5/3/2011 03:47 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	5/3/2011 03:47 PM
Methoxychlor	ND	5.0		µg/Kg	1	5/3/2011 03:47 PM
Toxaphene	ND	50		µg/Kg	1	5/3/2011 03:47 PM
Surr: Decachlorobiphenyl	72.0	31-107		%REC	1	5/3/2011 03:47 PM
Surr: Tetrachloro-m-xylene	69.7	35-108		%REC	1	5/3/2011 03:47 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110502D	QC Batch: 72576			PrepDate:	5/2/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	5/2/2011 04:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-004-5
Lab Order:	117564	**Collection Date:**	4/26/2011 2:59:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117564-008A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110502A	QC Batch: 72577			PrepDate: 5/2/2011		Analyst: **SRB**
Antimony	ND	2.0		mg/Kg	1	5/2/2011 05:17 PM
Arsenic	ND	1.0		mg/Kg	1	5/2/2011 05:17 PM
Barium	12	1.0		mg/Kg	1	5/2/2011 05:17 PM
Beryllium	ND	1.0		mg/Kg	1	5/2/2011 05:17 PM
Cadmium	ND	1.0		mg/Kg	1	5/2/2011 05:17 PM
Chromium	20	1.0		mg/Kg	1	5/2/2011 05:17 PM
Cobalt	3.7	1.0		mg/Kg	1	5/2/2011 05:17 PM
Copper	2.1	2.0		mg/Kg	1	5/2/2011 05:17 PM
Lead	1.5	1.0		mg/Kg	1	5/2/2011 05:17 PM
Molybdenum	ND	1.0		mg/Kg	1	5/2/2011 05:17 PM
Nickel	21	1.0		mg/Kg	1	5/2/2011 05:17 PM
Selenium	ND	1.0		mg/Kg	1	5/2/2011 05:17 PM
Silver	ND	1.0		mg/Kg	1	5/2/2011 05:17 PM
Thallium	ND	1.0		mg/Kg	1	5/2/2011 05:17 PM
Vanadium	15	1.0		mg/Kg	1	5/2/2011 05:17 PM
Zinc	12	1.0		mg/Kg	1	5/2/2011 05:17 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110429C	QC Batch: E11VS174			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	4/30/2011 11:12 AM
Surr: Bromofluorobenzene (FID)	123	62-153		%REC	1	4/30/2011 11:12 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110429C	QC Batch: E11VS174			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	4/30/2011 11:12 AM
Ethylbenzene	ND	5.0		µg/Kg	1	4/30/2011 11:12 AM
m,p-Xylene	ND	10		µg/Kg	1	4/30/2011 11:12 AM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	4/30/2011 11:12 AM
o-Xylene	ND	5.0		µg/Kg	1	4/30/2011 11:12 AM
Toluene	ND	5.0		µg/Kg	1	4/30/2011 11:12 AM
Surr: Bromofluorobenzene (PID)	119	65-140		%REC	1	4/30/2011 11:12 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-004-5
Lab Order:	117564	**Collection Date:**	4/26/2011 2:59:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117564-008A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA1_110502D	QC Batch: 72576			PrepDate:	5/2/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	5/2/2011 04:50 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-004
Lab Order:	117564	**Collection Date:**	4/26/2011 3:15:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	WATER
Lab ID:	117564-009A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
			EPA 8260B			
RunID: MS2_110502A	QC Batch:	Q11VW060		PrepDate:		Analyst: **BD**
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,1,1-Trichloroethane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,1,2-Trichloroethane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,1-Dichloroethane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,1-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,1-Dichloropropene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,2,3-Trichloropropane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,2-Dibromoethane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,2-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,2-Dichloroethane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,2-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,3-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,3-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
1,4-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
2,2-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
2-Chlorotoluene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
4-Chlorotoluene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
4-Isopropyltoluene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Benzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Bromobenzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Bromodichloromethane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Bromoform	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Bromomethane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Carbon tetrachloride	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Chlorobenzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Chloroethane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Chloroform	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Chloromethane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
cis-1,2-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 06:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-004
Lab Order:	117564	**Collection Date:**	4/26/2011 3:15:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	WATER
Lab ID:	117564-009A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
			EPA 8260B			
RunID: MS2_110502A	QC Batch:	Q11VW060		PrepDate:		Analyst: **BD**
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Dibromochloromethane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Dibromomethane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Dichlorodifluoromethane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Ethylbenzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Hexachlorobutadiene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Isopropylbenzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
m,p-Xylene	ND	1.0		µg/L	1	5/2/2011 06:05 PM
Methylene chloride	ND	1.0		µg/L	1	5/2/2011 06:05 PM
n-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
n-Propylbenzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Naphthalene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
o-Xylene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
sec-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Styrene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
tert-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Tetrachloroethene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Toluene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
trans-1,2-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Trichloroethene	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Trichlorofluoromethane	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Vinyl chloride	ND	0.50		µg/L	1	5/2/2011 06:05 PM
Surr: 1,2-Dichloroethane-d4	95.4	70-130		%REC	1	5/2/2011 06:05 PM
Surr: 4-Bromofluorobenzene	93.7	70-130		%REC	1	5/2/2011 06:05 PM
Surr: Dibromofluoromethane	94.8	70-130		%REC	1	5/2/2011 06:05 PM
Surr: Toluene-d8	88.4	70-130		%REC	1	5/2/2011 06:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-004
Lab Order:	117564	**Collection Date:**	4/26/2011 3:15:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	WATER
Lab ID:	117564-009B		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC19_110428A	QC Batch:	M11VW083		PrepDate:		Analyst: **DDL**
GRO	0.20	0.050		mg/L	1	4/28/2011 03:07 PM
Surr: Bromofluorobenzene (FID)	100	70-130		%REC	1	4/28/2011 03:07 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC19_110428A	QC Batch:	M11VW083		PrepDate:		Analyst: **DDL**
Benzene	ND	0.50		µg/L	1	4/28/2011 03:07 PM
Ethylbenzene	ND	0.50		µg/L	1	4/28/2011 03:07 PM
m,p-Xylene	ND	1.0		µg/L	1	4/28/2011 03:07 PM
Methyl tert-butyl ether	ND	0.50		µg/L	1	4/28/2011 03:07 PM
o-Xylene	ND	0.50		µg/L	1	4/28/2011 03:07 PM
Toluene	ND	0.50		µg/L	1	4/28/2011 03:07 PM
Surr: Bromofluorobenzene (PID)	93.8	70-130		%REC	1	4/28/2011 03:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-004
Lab Order:	117564	**Collection Date:**	4/26/2011 3:15:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	WATER
Lab ID:	117564-009C		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3010A			**EPA 6010B**		
RunID: ICP8_110428B	QC Batch: 72518			PrepDate:	4/28/2011	Analyst: **IL**
Antimony	0.079	0.050		mg/L	10	4/28/2011 04:19 PM
Arsenic	ND	0.10		mg/L	10	4/28/2011 04:19 PM
Barium	8.7	0.030		mg/L	10	4/28/2011 04:19 PM
Beryllium	ND	0.030		mg/L	10	4/28/2011 04:19 PM
Cadmium	0.036	0.030		mg/L	10	4/28/2011 04:19 PM
Chromium	3.9	0.030		mg/L	10	4/28/2011 04:19 PM
Cobalt	0.84	0.030		mg/L	10	4/28/2011 04:19 PM
Copper	2.8	0.050		mg/L	10	4/28/2011 04:19 PM
Lead	0.76	0.050		mg/L	10	4/28/2011 04:19 PM
Molybdenum	ND	0.050		mg/L	10	4/28/2011 04:19 PM
Nickel	4.0	0.050		mg/L	10	4/28/2011 04:19 PM
Selenium	ND	0.10		mg/L	10	4/28/2011 04:19 PM
Silver	ND	0.030		mg/L	10	4/28/2011 04:19 PM
Thallium	ND	0.15		mg/L	10	4/28/2011 04:19 PM
Vanadium	2.6	0.030		mg/L	10	4/28/2011 04:19 PM
Zinc	4.6	0.10		mg/L	10	4/28/2011 04:19 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7470A		
RunID: AA5_110428C	QC Batch: 72513			PrepDate:	4/28/2011	Analyst: **VV**
Mercury	2.1	0.20		µg/L	1	4/28/2011 12:29 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *04-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-004
Lab Order:	117564	**Collection Date:**	4/26/2011 3:15:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	WATER
Lab ID:	117564-009D		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3510C			**EPA 8015B(M)**			
RunID: GC16_110502C	QC Batch: 72548			PrepDate:	4/29/2011	Analyst: **CBR**
DRO	0.40	0.059		mg/L	1	5/2/2011 05:35 PM
ORO	0.35	0.059		mg/L	1	5/2/2011 05:35 PM
Surr: p-Terphenyl	77.7	36-126		%REC	1	5/2/2011 05:35 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **MB-72577** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132526**
Client ID: **PBS** Batch ID: **72577** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **5/2/2011** SeqNo: **2159421**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	1.0									
Vanadium	ND	1.0									
Zinc	0.315	1.0									

Sample ID: **LCS-72577** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132526**
Client ID: **LCSS** Batch ID: **72577** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **5/2/2011** SeqNo: **2159422**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	49.901	2.0	50.00	0	99.8	80	120				
Arsenic	48.705	1.0	50.00	0	97.4	80	120				
Barium	51.534	1.0	50.00	0	103	80	120				
Beryllium	51.110	1.0	50.00	0	102	80	120				
Cadmium	48.760	1.0	50.00	0	97.5	80	120				
Chromium	46.646	1.0	50.00	0	93.3	80	120				
Cobalt	49.394	1.0	50.00	0	98.8	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **LCS-72577** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132526**
Client ID: **LCSS** Batch ID: **72577** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **5/2/2011** SeqNo: **2159422**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	51.627	2.0	50.00	0	103	80	120				
Lead	49.643	1.0	50.00	0	99.3	80	120				
Molybdenum	51.621	1.0	50.00	0	103	80	120				
Nickel	48.897	1.0	50.00	0	97.8	80	120				
Selenium	45.601	1.0	50.00	0	91.2	80	120				
Silver	48.011	1.0	50.00	0	96.0	80	120				
Thallium	48.110	1.0	50.00	0	96.2	80	120				
Vanadium	51.468	1.0	50.00	0	103	80	120				
Zinc	48.439	1.0	50.00	0.3148	96.2	80	120				

Sample ID: **117564-008A-DUP** SampType: **DUP** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132526**
Client ID: **A-11-004-5** Batch ID: **72577** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **5/2/2011** SeqNo: **2159433**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.523	2.0						0.2829	0	20	
Arsenic	ND	1.0						0	0	20	
Barium	11.489	1.0						12.14	5.50	20	
Beryllium	ND	1.0						0	0	20	
Cadmium	0.162	1.0						0.2684	0	20	
Chromium	24.873	1.0						20.46	19.5	20	
Cobalt	3.896	1.0						3.741	4.06	20	
Copper	2.002	2.0						2.070	3.31	20	
Lead	0.887	1.0						1.463	0	20	
Molybdenum	ND	1.0						0	0	20	
Nickel	22.810	1.0						21.21	7.27	20	
Selenium	ND	1.0						0	0	20	
Silver	ND	1.0						0	0	20	
Thallium	ND	1.0						0	0	20	
Vanadium	16.170	1.0						14.99	7.59	20	
Zinc	12.543	1.0						12.27	2.18	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **117564-008A-MS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132526**
Client ID: **A-11-004-5** Batch ID: **72577** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **5/2/2011** SeqNo: **2159434**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	106.085	2.0	125.0	0.2829	84.6	32	105				
Arsenic	105.185	1.0	125.0	0	84.1	49	106				
Barium	122.321	1.0	125.0	12.14	88.1	31	133				
Beryllium	115.455	1.0	125.0	0	92.4	56	106				
Cadmium	105.529	1.0	125.0	0.2684	84.2	51	103				
Chromium	128.521	1.0	125.0	20.46	86.5	45	114				
Cobalt	111.478	1.0	125.0	3.741	86.2	52	106				
Copper	117.872	2.0	125.0	2.070	92.6	54	125				
Lead	107.753	1.0	125.0	1.463	85.0	34	126				
Molybdenum	111.868	1.0	125.0	0	89.5	54	106				
Nickel	126.379	1.0	125.0	21.21	84.1	45	111				
Selenium	100.708	1.0	125.0	0	80.6	47	104				
Silver	111.855	1.0	125.0	0	89.5	56	112				
Thallium	104.313	1.0	125.0	0	83.5	46	101				
Vanadium	129.148	1.0	125.0	14.99	91.3	54	114				
Zinc	116.007	1.0	125.0	12.27	83.0	28	125				

Sample ID: **117564-008A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132526**
Client ID: **A-11-004-5** Batch ID: **72577** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **5/2/2011** SeqNo: **2159435**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	108.796	2.0	125.0	0.2829	86.8	32	105	106.1	2.52	20	
Arsenic	107.774	1.0	125.0	0	86.2	49	106	105.2	2.43	20	
Barium	126.329	1.0	125.0	12.14	91.4	31	133	122.3	3.22	20	
Beryllium	115.584	1.0	125.0	0	92.5	56	106	115.5	0.111	20	
Cadmium	107.587	1.0	125.0	0.2684	85.9	51	103	105.5	1.93	20	
Chromium	130.250	1.0	125.0	20.46	87.8	45	114	128.5	1.34	20	
Cobalt	113.786	1.0	125.0	3.741	88.0	52	106	111.5	2.05	20	
Copper	119.213	2.0	125.0	2.070	93.7	54	125	117.9	1.13	20	
Lead	110.351	1.0	125.0	1.463	87.1	34	126	107.8	2.38	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **117564-008A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132526**
Client ID: **A-11-004-5** Batch ID: **72577** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **5/2/2011** SeqNo: **2159435**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	114.492	1.0	125.0	0	91.6	54	106	111.9	2.32	20	
Nickel	129.422	1.0	125.0	21.21	86.6	45	111	126.4	2.38	20	
Selenium	103.820	1.0	125.0	0	83.1	47	104	100.7	3.04	20	
Silver	113.237	1.0	125.0	0	90.6	56	112	111.9	1.23	20	
Thallium	106.143	1.0	125.0	0	84.9	46	101	104.3	1.74	20	
Vanadium	131.999	1.0	125.0	14.99	93.6	54	114	129.1	2.18	20	
Zinc	117.656	1.0	125.0	12.27	84.3	28	125	116.0	1.41	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **LCS-72518** SampType: **LCS** TestCode: **6010_W** Units: **mg/L** Prep Date: **4/28/2011** RunNo: **132443**
Client ID: **LCSW** Batch ID: **72518** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **4/28/2011** SeqNo: **2157659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	1.074	0.0050	1.000	0	107	85	115				
Arsenic	1.057	0.010	1.000	0	106	85	115				
Barium	1.067	0.0030	1.000	0	107	85	115				
Beryllium	1.061	0.0030	1.000	0	106	85	115				
Cadmium	1.055	0.0030	1.000	0	105	85	115				
Chromium	0.955	0.0030	1.000	0	95.5	85	115				
Cobalt	1.045	0.0030	1.000	0	105	85	115				
Copper	1.036	0.0050	1.000	0	104	85	115				
Lead	1.060	0.0050	1.000	0	106	85	115				
Molybdenum	1.061	0.0050	1.000	0	106	85	115				
Nickel	1.040	0.0050	1.000	0	104	85	115				
Selenium	1.022	0.010	1.000	0	102	85	115				
Silver	0.931	0.0030	1.000	0	93.1	85	115				
Thallium	1.034	0.015	1.000	0	103	85	115				
Vanadium	1.059	0.0030	1.000	0	106	85	115				
Zinc	1.053	0.010	1.000	0	105	85	115				

Sample ID: **MB-72518** SampType: **MBLK** TestCode: **6010_W** Units: **mg/L** Prep Date: **4/28/2011** RunNo: **132443**
Client ID: **PBW** Batch ID: **72518** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **4/28/2011** SeqNo: **2157660**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.0050									
Arsenic	ND	0.010									
Barium	ND	0.0030									
Beryllium	ND	0.0030									
Cadmium	ND	0.0030									
Chromium	ND	0.0030									
Cobalt	ND	0.0030									
Copper	ND	0.0050									
Lead	ND	0.0050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **MB-72518** SampType: **MBLK** TestCode: **6010_W** Units: **mg/L** Prep Date: **4/28/2011** RunNo: **132443**
Client ID: **PBW** Batch ID: **72518** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **4/28/2011** SeqNo: **2157660**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	ND	0.0050									
Nickel	ND	0.0050									
Selenium	ND	0.010									
Silver	ND	0.0030									
Thallium	ND	0.015									
Vanadium	ND	0.0030									
Zinc	ND	0.010									

Sample ID: **117525-020C-MS** SampType: **MS** TestCode: **6010_W** Units: **mg/L** Prep Date: **4/28/2011** RunNo: **132443**
Client ID: **ZZZZZZ** Batch ID: **72518** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **4/28/2011** SeqNo: **2157662**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	2.565	0.0050	2.500	0.003775	102	73	128				
Arsenic	2.529	0.010	2.500	0	101	79	121				
Barium	2.510	0.0030	2.500	0	100	82	118				
Beryllium	2.617	0.0030	2.500	0	105	84	119				
Cadmium	2.535	0.0030	2.500	0	101	79	117				
Chromium	2.347	0.0030	2.500	0	93.9	78	115				
Cobalt	2.530	0.0030	2.500	0	101	80	118				
Copper	2.464	0.0050	2.500	0	98.5	81	127				
Lead	2.542	0.0050	2.500	0	102	80	118				
Molybdenum	2.496	0.0050	2.500	0.0005088	99.8	81	118				
Nickel	2.466	0.0050	2.500	0.001050	98.6	78	120				
Selenium	2.484	0.010	2.500	0	99.4	78	120				
Silver	2.492	0.0030	2.500	0	99.7	79	125				
Thallium	2.559	0.015	2.500	0	102	74	115				
Vanadium	2.539	0.0030	2.500	0	102	84	119				
Zinc	2.523	0.010	2.500	0	101	75	122				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **117525-020C-MSD** SampType: **MSD** TestCode: **6010_W** Units: **mg/L** Prep Date: **4/28/2011** RunNo: **132443**
Client ID: **ZZZZZZ** Batch ID: **72518** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **4/28/2011** SeqNo: **2157663**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	2.580	0.0050	2.500	0.003775	103	73	128	2.565	0.592	20	
Arsenic	2.540	0.010	2.500	0	102	79	121	2.529	0.433	20	
Barium	2.504	0.0030	2.500	0	100	82	118	2.510	0.274	20	
Beryllium	2.600	0.0030	2.500	0	104	84	119	2.617	0.620	20	
Cadmium	2.524	0.0030	2.500	0	101	79	117	2.535	0.428	20	
Chromium	2.340	0.0030	2.500	0	93.6	78	115	2.347	0.267	20	
Cobalt	2.520	0.0030	2.500	0	101	80	118	2.530	0.390	20	
Copper	2.453	0.0050	2.500	0	98.1	81	127	2.464	0.426	20	
Lead	2.543	0.0050	2.500	0	102	80	118	2.542	0.0398	20	
Molybdenum	2.487	0.0050	2.500	0.0005088	99.5	81	118	2.496	0.357	20	
Nickel	2.463	0.0050	2.500	0.001050	98.5	78	120	2.466	0.125	20	
Selenium	2.477	0.010	2.500	0	99.1	78	120	2.484	0.291	20	
Silver	2.486	0.0030	2.500	0	99.5	79	125	2.492	0.222	20	
Thallium	2.568	0.015	2.500	0	103	74	115	2.559	0.363	20	
Vanadium	2.528	0.0030	2.500	0	101	84	119	2.539	0.462	20	
Zinc	2.514	0.010	2.500	0	101	75	122	2.523	0.384	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W

Sample ID: **MB-72513** SampType: **MBLK** TestCode: **7470_W** Units: **µg/L** Prep Date: **4/28/2011** RunNo: **132421**
Client ID: **PBW** Batch ID: **72513** TestNo: **EPA 7470A** Analysis Date: **4/28/2011** SeqNo: **2157279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.092	0.20									

Sample ID: **LCS-72513** SampType: **LCS** TestCode: **7470_W** Units: **µg/L** Prep Date: **4/28/2011** RunNo: **132421**
Client ID: **LCSW** Batch ID: **72513** TestNo: **EPA 7470A** Analysis Date: **4/28/2011** SeqNo: **2157280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	9.707	0.20	10.00	0.09214	96.1	85	115				

Sample ID: **117499-001A-MS** SampType: **MS** TestCode: **7470_W** Units: **µg/L** Prep Date: **4/28/2011** RunNo: **132421**
Client ID: **ZZZZZZ** Batch ID: **72513** TestNo: **EPA 7470A** Analysis Date: **4/28/2011** SeqNo: **2157281**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	10.740	0.20	10.00	0.07380	107	70	130				

Sample ID: **117499-001A-MSD** SampType: **MSD** TestCode: **7470_W** Units: **µg/L** Prep Date: **4/28/2011** RunNo: **132421**
Client ID: **ZZZZZZ** Batch ID: **72513** TestNo: **EPA 7470A** Analysis Date: **4/28/2011** SeqNo: **2157282**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	10.719	0.20	10.00	0.07380	106	70	130	10.74	0.192	20	

Sample ID: **117499-001A-DUP** SampType: **DUP** TestCode: **7470_W** Units: **µg/L** Prep Date: **4/28/2011** RunNo: **132421**
Client ID: **ZZZZZZ** Batch ID: **72513** TestNo: **EPA 7470A** Analysis Date: **4/28/2011** SeqNo: **2157284**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.066	0.20						0.07380	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S

Sample ID: **MB-72576** SampType: **MBLK** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132535**
Client ID: **PBS** Batch ID: **72576** TestNo: **EPA 7471A** Analysis Date: **5/2/2011** SeqNo: **2159650**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID: **LCS-72576** SampType: **LCS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132535**
Client ID: **LCSS** Batch ID: **72576** TestNo: **EPA 7471A** Analysis Date: **5/2/2011** SeqNo: **2159651**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.826	0.10	0.8300	0	99.6	80	120				

Sample ID: **117564-001A-MS** SampType: **MS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132535**
Client ID: **A-11-008-1** Batch ID: **72576** TestNo: **EPA 7471A** Analysis Date: **5/2/2011** SeqNo: **2159652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.954	0.10	0.8300	0.1337	98.8	70	130				

Sample ID: **117564-001A-MSD** SampType: **MSD** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132535**
Client ID: **A-11-008-1** Batch ID: **72576** TestNo: **EPA 7471A** Analysis Date: **5/2/2011** SeqNo: **2159653**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.961	0.10	0.8300	0.1337	99.6	70	130	0.9537	0.725	20	

Sample ID: **117564-001A-DUP** SampType: **DUP** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132535**
Client ID: **A-11-008-1** Batch ID: **72576** TestNo: **EPA 7471A** Analysis Date: **5/2/2011** SeqNo: **2159655**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.132	0.10						0.1337	1.31	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **MB-72571** SampType: **MBLK** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132587**
Client ID: **PBS** Batch ID: **72571** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **5/2/2011** SeqNo: **2160292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	1.0									
ORO	ND	1.0									
Surr: p-Terphenyl	2.400		2.670		89.9	30	128				

Sample ID: **LCS-72571** SampType: **LCS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132587**
Client ID: **LCSS** Batch ID: **72571** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **5/2/2011** SeqNo: **2160293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	28.441	1.0	33.00	0	86.2	35	118				
Surr: p-Terphenyl	2.308		2.670		86.4	30	128				

Sample ID: **117568-008AMS** SampType: **MS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132587**
Client ID: **ZZZZZZ** Batch ID: **72571** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **5/2/2011** SeqNo: **2160294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	27.150	1.0	33.00	0	82.3	25	129				
Surr: p-Terphenyl	2.596		2.670		97.2	30	128				

Sample ID: **117568-008AMSD** SampType: **MSD** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132587**
Client ID: **ZZZZZZ** Batch ID: **72571** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **5/2/2011** SeqNo: **2160295**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	30.429	1.0	33.00	0	92.2	25	129	27.15	11.4	20	
Surr: p-Terphenyl	3.144		2.670		118	30	128		0	0	

Sample ID: **117564-007ADUP** SampType: **DUP** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132587**
Client ID: **A-11-004-1** Batch ID: **72571** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160324**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **117564-007ADUP** SampType: **DUP** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **5/2/2011** RunNo: **132587**
Client ID: **A-11-004-1** Batch ID: **72571** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160324**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	36.860	4.0						28.42	25.9	20	R
ORO	186.591	4.0						146.2	24.3	20	R
Surr: p-Terphenyl	2.320		2.670		86.9	30	128		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **E110429LC5** SampType: **LCS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132505**
Client ID: **LCSS** Batch ID: **E11VS174** TestNo: **EPA 8015B(M** Analysis Date: **4/30/2011** SeqNo: **2158858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.010	1.0	5.000	0	100	70	130				
Surr: Bromofluorobenzene (FID)	110.775		100.0		111	62	153				

Sample ID: **E110429MB3MS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132505**
Client ID: **ZZZZZZ** Batch ID: **E11VS174** TestNo: **EPA 8015B(M** Analysis Date: **4/30/2011** SeqNo: **2158859**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.885	1.0	5.000	0	97.7	49	131				
Surr: Bromofluorobenzene (FID)	126.532		100.0		127	62	153				

Sample ID: **E110429MB3MSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132505**
Client ID: **ZZZZZZ** Batch ID: **E11VS174** TestNo: **EPA 8015B(M** Analysis Date: **4/30/2011** SeqNo: **2158860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.922	1.0	5.000	0	98.4	49	131	4.885	0.755	20	
Surr: Bromofluorobenzene (FID)	126.297		100.0		126	62	153		0	0	

Sample ID: **E110429MB3** SampType: **MBLK** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132505**
Client ID: **PBS** Batch ID: **E11VS174** TestNo: **EPA 8015B(M** Analysis Date: **4/30/2011** SeqNo: **2158861**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0									
Surr: Bromofluorobenzene (FID)	101.545		100.0		102	62	153				

Sample ID: **117564-005ADUP** SampType: **DUP** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132505**
Client ID: **A-11-007-5** Batch ID: **E11VS174** TestNo: **EPA 8015B(M** Analysis Date: **4/30/2011** SeqNo: **2158864**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **117564-005ADUP** SampType: **DUP** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132505**
Client ID: **A-11-007-5** Batch ID: **E11VS174** TestNo: **EPA 8015B(M** Analysis Date: **4/30/2011** SeqNo: **2158864**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	125.075		100.0		125	62	153		0	0	

Sample ID: **117564-005AMS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132505**
Client ID: **A-11-007-5** Batch ID: **E11VS174** TestNo: **EPA 8015B(M** Analysis Date: **4/30/2011** SeqNo: **2158866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	3.369	1.0	5.000	0	67.4	49	131				
Surr: Bromofluorobenzene (FID)	136.284		100.0		136	62	153				

Sample ID: **117564-005AMSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132505**
Client ID: **A-11-007-5** Batch ID: **E11VS174** TestNo: **EPA 8015B(M** Analysis Date: **4/30/2011** SeqNo: **2158867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	2.919	1.0	5.000	0	58.4	49	131	3.369	14.3	20	
Surr: Bromofluorobenzene (FID)	133.440		100.0		133	62	153		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_DM_LL

Sample ID: **MB-72548** SampType: **MBLK** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **4/29/2011** RunNo: **132580**
Client ID: **PBW** Batch ID: **72548** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **5/2/2011** SeqNo: **2160224**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	0.050									
ORO	ND	0.050									
Surr: p-Terphenyl	0.059		0.08000		73.5	36	126				

Sample ID: **MB-72548MSD** SampType: **MSD** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **4/29/2011** RunNo: **132580**
Client ID: **ZZZZZZ** Batch ID: **72548** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **5/2/2011** SeqNo: **2160225**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.941	0.050	1.000	0	94.1	52	128	1.052	11.1	20	
Surr: p-Terphenyl	0.054		0.08000		67.1	36	126		0	0	

Sample ID: **MB-72548MS** SampType: **MS** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **4/29/2011** RunNo: **132580**
Client ID: **ZZZZZZ** Batch ID: **72548** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **5/2/2011** SeqNo: **2160226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	1.052	0.050	1.000	0	105	52	128				
Surr: p-Terphenyl	0.060		0.08000		75.6	36	126				

Sample ID: **LCS-72548** SampType: **LCS** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **4/29/2011** RunNo: **132580**
Client ID: **LCSW** Batch ID: **72548** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **5/2/2011** SeqNo: **2160227**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.818	0.050	1.000	0	81.8	52	128				
Surr: p-Terphenyl	0.052		0.08000		64.8	36	126				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_GP LL

Sample ID: **M110428LCS2** SampType: **LCS** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132449**
Client ID: **LCSW** Batch ID: **M11VW083** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.945	0.050	1.000	0	94.5	70	130				
Surr: Bromofluorobenzene (FID)	97.552		100.0		97.6	70	130				

Sample ID: **M110428MB1MS** SampType: **MS** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132449**
Client ID: **ZZZZZZ** Batch ID: **M11VW083** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157795**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.969	0.050	1.000	0	96.9	70	130				
Surr: Bromofluorobenzene (FID)	98.977		100.0		99.0	70	130				

Sample ID: **M110428MB1MSD** SampType: **MSD** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132449**
Client ID: **ZZZZZZ** Batch ID: **M11VW083** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	1.003	0.050	1.000	0	100	70	130	0.9690	3.45	20	
Surr: Bromofluorobenzene (FID)	100.351		100.0		100	70	130		0	0	

Sample ID: **M110428MB1** SampType: **MBLK** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132449**
Client ID: **PBW** Batch ID: **M11VW083** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157797**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050									
Surr: Bromofluorobenzene (FID)	97.255		100.0		97.3	70	130				

Sample ID: **117525-020DDUP** SampType: **DUP** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132449**
Client ID: **ZZZZZZ** Batch ID: **M11VW083** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157799**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_GP LL

Sample ID: **117525-020DDUP** SampType: **DUP** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132449**
Client ID: **ZZZZZZ** Batch ID: **M11VW083** TestNo: **EPA 8015B(M** Analysis Date: **4/28/2011** SeqNo: **2157799**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	96.835		100.0		96.8	70	130		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110429LC6** SampType: **LCS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132505**
Client ID: **LCSS** Batch ID: **E11VS174** TestNo: **EPA 8021B** Analysis Date: **4/30/2011** SeqNo: **2158868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	106.069	5.0	100.0	0	106	70	130				
Ethylbenzene	103.563	5.0	100.0	0	104	70	130				
m,p-Xylene	209.141	10	200.0	0	105	70	130				
Methyl tert-butyl ether	103.649	5.0	100.0	0	104	70	130				
o-Xylene	107.124	5.0	100.0	0	107	70	130				
Toluene	106.675	5.0	100.0	0	107	70	130				
Surr: Bromofluorobenzene (PID)	104.210		100.0		104	65	140				

Sample ID: **E110429LC6** SampType: **LCSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132505**
Client ID: **LCSS02** Batch ID: **E11VS174** TestNo: **EPA 8021B** Analysis Date: **4/30/2011** SeqNo: **2158869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	97.004	5.0	100.0	0	97.0	70	130	106.1	8.93	20	
Ethylbenzene	96.247	5.0	100.0	0	96.2	70	130	103.6	7.32	20	
m,p-Xylene	195.689	10	200.0	0	97.8	70	130	209.1	6.65	20	
Methyl tert-butyl ether	95.337	5.0	100.0	0	95.3	70	130	103.6	8.35	20	
o-Xylene	99.811	5.0	100.0	0	99.8	70	130	107.1	7.07	20	
Toluene	98.125	5.0	100.0	0	98.1	70	130	106.7	8.35	20	
Surr: Bromofluorobenzene (PID)	101.629		100.0		102	65	140		0	0	

Sample ID: **E110429MB3MS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132505**
Client ID: **ZZZZZZ** Batch ID: **E11VS174** TestNo: **EPA 8021B** Analysis Date: **4/30/2011** SeqNo: **2158870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	36.727	5.0	22.15	0	166	69	264				
Ethylbenzene	55.675	5.0	42.30	0	132	37	161				
m,p-Xylene	188.713	10	180.2	0	105	30	149				
Methyl tert-butyl ether	439.903	5.0	578.9	0	76.0	39	121				
o-Xylene	71.139	5.0	64.80	0	110	31	166				
Toluene	177.388	5.0	172.6	0	103	44	150				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110429MB3MS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132505**
Client ID: **ZZZZZZ** Batch ID: **E11VS174** TestNo: **EPA 8021B** Analysis Date: **4/30/2011** SeqNo: **2158870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (PID)	104.112		100.0		104	65	140				

Sample ID: **E110429MB3MSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132505**
Client ID: **ZZZZZZ** Batch ID: **E11VS174** TestNo: **EPA 8021B** Analysis Date: **4/30/2011** SeqNo: **2158871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	36.833	5.0	22.15	0	166	69	264	36.73	0.288	20	
Ethylbenzene	56.029	5.0	42.30	0	132	37	161	55.68	0.634	20	
m,p-Xylene	189.790	10	180.2	0	105	30	149	188.7	0.569	20	
Methyl tert-butyl ether	446.877	5.0	578.9	0	77.2	39	121	439.9	1.57	20	
o-Xylene	71.333	5.0	64.80	0	110	31	166	71.14	0.272	20	
Toluene	179.219	5.0	172.6	0	104	44	150	177.4	1.03	20	
Surr: Bromofluorobenzene (PID)	104.389		100.0		104	65	140		0	20	

Sample ID: **E110429MB3** SampType: **MBLK** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132505**
Client ID: **PBS** Batch ID: **E11VS174** TestNo: **EPA 8021B** Analysis Date: **4/30/2011** SeqNo: **2158872**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0									
Ethylbenzene	ND	5.0									
m,p-Xylene	ND	10									
Methyl tert-butyl ether	ND	5.0									
o-Xylene	ND	5.0									
Toluene	ND	5.0									
Surr: Bromofluorobenzene (PID)	98.823		100.0		98.8	65	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **117564-005ADUP** SampType: **DUP** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132505**
Client ID: **A-11-007-5** Batch ID: **E11VS174** TestNo: **EPA 8021B** Analysis Date: **4/30/2011** SeqNo: **2158875**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0						0	0	20	
Ethylbenzene	ND	5.0						0	0	20	
m,p-Xylene	ND	10						0	0	20	
Methyl tert-butyl ether	ND	5.0						0	0	20	
o-Xylene	ND	5.0						0	0	20	
Toluene	ND	5.0						0	0	20	
Surr: Bromofluorobenzene (PID)	120.602		100.0		121	65	140		0	0	

Sample ID: **117564-005AMS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132505**
Client ID: **A-11-007-5** Batch ID: **E11VS174** TestNo: **EPA 8021B** Analysis Date: **4/30/2011** SeqNo: **2158877**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	27.277	5.0	22.15	0	123	69	264				
Ethylbenzene	7.393	5.0	42.30	0	17.5	37	161				S
m,p-Xylene	105.219	10	180.2	0	58.4	30	149				
Methyl tert-butyl ether	402.624	5.0	578.9	0	69.6	39	121				
o-Xylene	54.112	5.0	64.80	0	83.5	31	166				
Toluene	86.776	5.0	172.6	0	50.3	44	150				
Xylenes, Total	159.331	15	245.0	0	65.0	30	149				
Surr: Bromofluorobenzene (PID)	126.035		100.0		126	65	140				

Sample ID: **117564-005AMSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132505**
Client ID: **A-11-007-5** Batch ID: **E11VS174** TestNo: **EPA 8021B** Analysis Date: **4/30/2011** SeqNo: **2158878**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	24.103	5.0	22.15	0	109	69	264	27.28	12.4	20	
Ethylbenzene	5.283	5.0	42.30	0	12.5	37	161	7.393	33.3	20	SR
m,p-Xylene	88.537	10	180.2	0	49.1	30	149	105.2	17.2	20	
Methyl tert-butyl ether	352.312	5.0	578.9	0	60.9	39	121	402.6	13.3	20	
o-Xylene	45.067	5.0	64.80	0	69.5	31	166	54.11	18.2	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **117564-005AMSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132505**
Client ID: **A-11-007-5** Batch ID: **E11VS174** TestNo: **EPA 8021B** Analysis Date: **4/30/2011** SeqNo: **2158878**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	70.309	5.0	172.6	0	40.7	44	150	86.78	21.0	20	SR
Xylenes, Total	133.604	15	245.0	0	54.5	30	149	159.3	17.6	20	
Surr: Bromofluorobenzene (PID)	124.132		100.0		124	65	140		0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_WP_BTEX

Sample ID: **M110428LCS1** SampType: **LCS** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132449**
Client ID: **LCSW** Batch ID: **M11VW083** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	98.587	0.50	100.0	0	98.6	70	130				
Toluene	95.846	0.50	100.0	0	95.8	70	130				
Ethylbenzene	98.239	0.50	100.0	0	98.2	70	130				
m,p-Xylene	200.364	1.0	200.0	0	100	70	130				
o-Xylene	101.596	0.50	100.0	0	102	70	130				
Methyl tert-butyl ether	102.314	0.50	100.0	0	102	70	130				
Surr: Bromofluorobenzene (PID)	94.179		100.0		94.2	70	130				

Sample ID: **M110428LCS1D** SampType: **LCSD** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132449**
Client ID: **LCSS02** Batch ID: **M11VW083** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	98.017	0.50	100.0	0	98.0	70	130	98.59	0.580	20	
Toluene	96.263	0.50	100.0	0	96.3	70	130	95.85	0.434	20	
Ethylbenzene	98.495	0.50	100.0	0	98.5	70	130	98.24	0.260	20	
m,p-Xylene	201.192	1.0	200.0	0	101	70	130	200.4	0.412	20	
o-Xylene	101.975	0.50	100.0	0	102	70	130	101.6	0.372	20	
Methyl tert-butyl ether	105.917	0.50	100.0	0	106	70	130	102.3	3.46	20	
Surr: Bromofluorobenzene (PID)	95.008		100.0		95.0	70	130		0	0	

Sample ID: **M110428MB1** SampType: **MBLK** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132449**
Client ID: **PBW** Batch ID: **M11VW083** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
o-Xylene	ND	0.50									
Methyl tert-butyl ether	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_WP_BTEX

Sample ID: **M110428MB1** SampType: **MBLK** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132449**
Client ID: **PBW** Batch ID: **M11VW083** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (PID)	93.868		100.0		93.9	70	130				

Sample ID: **117525-020DDUP** SampType: **DUP** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132449**
Client ID: **ZZZZZZ** Batch ID: **M11VW083** TestNo: **EPA 8021B** Analysis Date: **4/28/2011** SeqNo: **2157780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50						0	0	20	
Toluene	ND	0.50						0	0	20	
Ethylbenzene	ND	0.50						0	0	20	
m,p-Xylene	ND	1.0						0	0	20	
o-Xylene	ND	0.50						0	0	20	
Methyl tert-butyl ether	ND	0.50						0	0	20	
Surr: Bromofluorobenzene (PID)	93.192		100.0		93.2	70	130		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **LCS-72621** SampType: **LCS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **LCSS** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	13.192	1.0	16.67	0	79.1	59	105				
Dieldrin	13.566	2.0	16.67	0	81.4	56	112				
Endrin	15.967	2.0	16.67	0	95.8	53	116				
gamma-BHC	14.469	1.0	16.67	0	86.8	59	110				
Heptachlor	13.462	1.0	16.67	0	80.8	53	118				
Surr: Tetrachloro-m-xylene	13.087		16.67		78.5	35	108				
Surr: Decachlorobiphenyl	12.484		16.67		74.9	31	107				

Sample ID: **MB-72621** SampType: **MBLK** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **PBS** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	2.0									
4,4´-DDE	ND	2.0									
4,4´-DDT	ND	2.0									
Aldrin	ND	1.0									
alpha-BHC	ND	1.0									
alpha-Chlordane	ND	1.0									
beta-BHC	ND	1.0									
Chlordane	ND	8.5									
delta-BHC	ND	1.0									
Dieldrin	ND	2.0									
Endosulfan I	ND	1.0									
Endosulfan II	ND	2.0									
Endosulfan sulfate	ND	2.0									
Endrin	ND	2.0									
Endrin aldehyde	ND	2.0									
Endrin ketone	ND	2.0									
gamma-BHC	ND	1.0									
gamma-Chlordane	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **MB-72621** SampType: **MBLK** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **PBS** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Heptachlor	ND	1.0									
Heptachlor epoxide	ND	1.0									
Methoxychlor	ND	5.0									
Toxaphene	ND	50									
Surr: Tetrachloro-m-xylene	14.432		16.67		86.6	35	108				
Surr: Decachlorobiphenyl	12.075		16.67		72.4	31	107				

Sample ID: **117564-007AMS** SampType: **MS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **A-11-004-1** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160281**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	12.609	2.0	16.67	0	75.6	38	130				
Aldrin	12.439	1.0	16.67	0	74.6	35	122				
Dieldrin	12.016	2.0	16.67	0	72.1	31	138				
Endrin	14.591	2.0	16.67	0	87.5	39	132				
gamma-BHC	13.137	1.0	16.67	0	78.8	36	126				
Heptachlor	12.967	1.0	16.67	0	77.8	34	131				
Surr: Tetrachloro-m-xylene	12.441		16.67		74.6	35	108				
Surr: Decachlorobiphenyl	12.563		16.67		75.4	31	107				

Sample ID: **117564-007AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **A-11-004-1** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160282**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	12.779	2.0	16.67	0	76.7	38	130	12.61	1.34	20	
Aldrin	12.304	1.0	16.67	0	73.8	35	122	12.44	1.09	20	
Dieldrin	11.983	2.0	16.67	0	71.9	31	138	12.02	0.279	20	
Endrin	14.896	2.0	16.67	0	89.4	39	132	14.59	2.07	20	
gamma-BHC	12.967	1.0	16.67	0	77.8	36	126	13.14	1.30	20	
Heptachlor	12.956	1.0	16.67	0	77.7	34	131	12.97	0.0913	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **117564-007AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **A-11-004-1** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160282**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Tetrachloro-m-xylene	11.890		16.67		71.3	35	108		0	0	
Surr: Decachlorobiphenyl	12.305		16.67		73.8	31	107		0	0	

Sample ID: **117622-006ADUP** SampType: **DUP** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **ZZZZZZ** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160289**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	2.0						0	0	20	
4,4´-DDE	ND	2.0						0	0	20	
4,4´-DDT	ND	2.0						0	0	20	
Aldrin	ND	1.0						0	0	20	
alpha-BHC	ND	1.0						0	0	20	
alpha-Chlordane	ND	1.0						0	0	20	
beta-BHC	ND	1.0						0	0	20	
Chlordane	ND	8.5						0	0	20	
delta-BHC	ND	1.0						0	0	20	
Dieldrin	ND	2.0						0	0	20	
Endosulfan I	ND	1.0						0	0	20	
Endosulfan II	ND	2.0						0	0	20	
Endosulfan sulfate	ND	2.0						0	0	20	
Endrin	ND	2.0						0	0	20	
Endrin aldehyde	ND	2.0						0	0	20	
Endrin ketone	ND	2.0						0	0	20	
gamma-BHC	ND	1.0						0	0	20	
gamma-Chlordane	ND	1.0						0	0	20	
Heptachlor	ND	1.0						0	0	20	
Heptachlor epoxide	ND	1.0						0	0	20	
Methoxychlor	ND	5.0						0	0	20	
Toxaphene	ND	50						0	0	20	
Surr: Tetrachloro-m-xylene	11.800		16.67		70.8	35	108		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **117622-006ADUP** SampType: **DUP** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **ZZZZZZ** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160289**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	12.005		16.67		72.0	31	107		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **Q110502LC1** SampType: **LCS** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **LCSW** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	20.200	0.50	20.00	0	101	70	130				
Benzene	40.840	0.50	40.00	0	102	70	130				
Chlorobenzene	21.850	0.50	20.00	0	109	70	130				
MTBE	23.100	0.50	20.00	0	116	70	130				
Toluene	41.580	0.50	40.00	0	104	70	130				
Trichloroethene	20.840	0.50	20.00	0	104	70	130				
Surr: 1,2-Dichloroethane-d4	24.480		25.00		97.9	70	130				
Surr: 4-Bromofluorobenzene	24.250		25.00		97.0	70	130				
Surr: Dibromofluoromethane	23.560		25.00		94.2	70	130				
Surr: Toluene-d8	23.560		25.00		94.2	70	130				

Sample ID: **Q110502MB3MS** SampType: **MS** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **ZZZZZZ** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	22.010	0.50	20.00	0	110	70	130				
Benzene	42.020	0.50	40.00	0	105	70	130				
Chlorobenzene	21.930	0.50	20.00	0	110	70	130				
MTBE	23.580	0.50	20.00	0	118	70	130				
Toluene	43.250	0.50	40.00	0	108	70	130				
Trichloroethene	21.590	0.50	20.00	0	108	70	130				
Surr: 1,2-Dichloroethane-d4	24.910		25.00		99.6	70	130				
Surr: 4-Bromofluorobenzene	24.220		25.00		96.9	70	130				
Surr: Dibromofluoromethane	24.090		25.00		96.4	70	130				
Surr: Toluene-d8	23.760		25.00		95.0	70	130				

Sample ID: **Q110502MB3MSD** SampType: **MSD** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **ZZZZZZ** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **Q110502MB3MSD** SampType: **MSD** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **ZZZZZZ** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	21.960	0.50	20.00	0	110	70	130	22.01	0.227	20	
Benzene	42.110	0.50	40.00	0	105	70	130	42.02	0.214	20	
Chlorobenzene	22.500	0.50	20.00	0	112	70	130	21.93	2.57	20	
MTBE	24.190	0.50	20.00	0	121	70	130	23.58	2.55	20	
Toluene	43.310	0.50	40.00	0	108	70	130	43.25	0.139	20	
Trichloroethene	22.490	0.50	20.00	0	112	70	130	21.59	4.08	20	
Surr: 1,2-Dichloroethane-d4	25.120		25.00		100	70	130		0	0	
Surr: 4-Bromofluorobenzene	24.490		25.00		98.0	70	130		0	0	
Surr: Dibromofluoromethane	24.240		25.00		97.0	70	130		0	0	
Surr: Toluene-d8	23.720		25.00		94.9	70	130		0	0	

Sample ID: **Q110502MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **PBW** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50									
1,1,1-Trichloroethane	ND	0.50									
1,1,2,2-Tetrachloroethane	ND	0.50									
1,1,2-Trichloroethane	ND	0.50									
1,1-Dichloroethane	ND	0.50									
1,1-Dichloroethene	ND	0.50									
1,1-Dichloropropene	ND	0.50									
1,2,3-Trichlorobenzene	ND	0.50									
1,2,3-Trichloropropane	ND	0.50									
1,2,4-Trichlorobenzene	ND	0.50									
1,2,4-Trimethylbenzene	ND	0.50									
1,2-Dibromo-3-chloropropane	ND	0.50									
1,2-Dibromoethane	ND	0.50									
1,2-Dichlorobenzene	ND	0.50									
1,2-Dichloroethane	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **Q110502MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **PBW** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloropropane	ND	0.50									
1,3,5-Trimethylbenzene	ND	0.50									
1,3-Dichlorobenzene	ND	0.50									
1,3-Dichloropropane	ND	0.50									
1,4-Dichlorobenzene	ND	0.50									
2,2-Dichloropropane	ND	0.50									
2-Chlorotoluene	ND	0.50									
4-Chlorotoluene	ND	0.50									
4-Isopropyltoluene	ND	0.50									
Benzene	ND	0.50									
Bromobenzene	ND	0.50									
Bromodichloromethane	ND	0.50									
Bromoform	ND	0.50									
Bromomethane	ND	0.50									
Carbon tetrachloride	ND	0.50									
Chlorobenzene	ND	0.50									
Chloroethane	ND	0.50									
Chloroform	ND	0.50									
Chloromethane	0.220	0.50									
cis-1,2-Dichloroethene	ND	0.50									
cis-1,3-Dichloropropene	ND	0.50									
Dibromochloromethane	ND	0.50									
Dibromomethane	ND	0.50									
Dichlorodifluoromethane	ND	0.50									
Ethylbenzene	ND	0.50									
Hexachlorobutadiene	ND	0.50									
Isopropylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
Methylene chloride	ND	1.0									
MTBE	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **Q110502MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **PBW** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Butylbenzene	ND	0.50									
n-Propylbenzene	ND	0.50									
Naphthalene	ND	0.50									
o-Xylene	ND	0.50									
sec-Butylbenzene	ND	0.50									
Styrene	ND	0.50									
tert-Butylbenzene	ND	0.50									
Tetrachloroethene	ND	0.50									
Toluene	ND	0.50									
trans-1,2-Dichloroethene	ND	0.50									
Trichloroethene	ND	0.50									
Trichlorofluoromethane	ND	0.50									
Vinyl chloride	ND	0.50									
Surr: 1,2-Dichloroethane-d4	25.470		25.00		102	70	130				
Surr: 4-Bromofluorobenzene	24.020		25.00		96.1	70	130				
Surr: Dibromofluoromethane	24.630		25.00		98.5	70	130				
Surr: Toluene-d8	22.850		25.00		91.4	70	130				

Sample ID: **117530-004ADUP** SampType: **DUP** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **ZZZZZZ** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159686**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50						0	0	20	
1,1,1-Trichloroethane	ND	0.50						0	0	20	
1,1,2,2-Tetrachloroethane	ND	0.50						0	0	20	
1,1,2-Trichloroethane	ND	0.50						0	0	20	
1,1-Dichloroethane	ND	0.50						0	0	20	
1,1-Dichloroethene	ND	0.50						0	0	20	
1,1-Dichloropropene	ND	0.50						0	0	20	
1,2,3-Trichlorobenzene	ND	0.50						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **117530-004ADUP** SampType: **DUP** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **ZZZZZZ** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159686**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichloropropane	ND	0.50						0	0	20	
1,2,4-Trichlorobenzene	ND	0.50						0	0	20	
1,2,4-Trimethylbenzene	ND	0.50						0	0	20	
1,2-Dibromo-3-chloropropane	ND	0.50						0	0	20	
1,2-Dibromoethane	ND	0.50						0	0	20	
1,2-Dichlorobenzene	ND	0.50						0	0	20	
1,2-Dichloroethane	ND	0.50						0	0	20	
1,2-Dichloropropane	ND	0.50						0	0	20	
1,3,5-Trimethylbenzene	ND	0.50						0	0	20	
1,3-Dichlorobenzene	ND	0.50						0	0	20	
1,3-Dichloropropane	ND	0.50						0	0	20	
1,4-Dichlorobenzene	ND	0.50						0	0	20	
2,2-Dichloropropane	ND	0.50						0	0	20	
2-Chlorotoluene	ND	0.50						0	0	20	
4-Chlorotoluene	ND	0.50						0	0	20	
4-Isopropyltoluene	ND	0.50						0	0	20	
Benzene	ND	0.50						0	0	20	
Bromobenzene	ND	0.50						0	0	20	
Bromodichloromethane	ND	0.50						0	0	20	
Bromoform	ND	0.50						0	0	20	
Bromomethane	ND	0.50						0	0	20	
Carbon tetrachloride	ND	0.50						0	0	20	
Chlorobenzene	ND	0.50						0	0	20	
Chloroethane	ND	0.50						0	0	20	
Chloroform	ND	0.50						0	0	20	
Chloromethane	ND	0.50						0	0	20	
cis-1,2-Dichloroethene	ND	0.50						0	0	20	
cis-1,3-Dichloropropene	ND	0.50						0	0	20	
Dibromochloromethane	ND	0.50						0	0	20	
Dibromomethane	ND	0.50						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **117530-004ADUP** SampType: **DUP** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **ZZZZZZ** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159686**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.50						0	0	20	
Ethylbenzene	ND	0.50						0	0	20	
Hexachlorobutadiene	ND	0.50						0	0	20	
Isopropylbenzene	ND	0.50						0	0	20	
m,p-Xylene	ND	1.0						0	0	20	
Methylene chloride	ND	1.0						0	0	20	
MTBE	ND	0.50						0	0	20	
n-Butylbenzene	ND	0.50						0	0	20	
n-Propylbenzene	ND	0.50						0	0	20	
Naphthalene	ND	0.50						0	0	20	
o-Xylene	ND	0.50						0	0	20	
sec-Butylbenzene	ND	0.50						0	0	20	
Styrene	ND	0.50						0	0	20	
tert-Butylbenzene	ND	0.50						0	0	20	
Tetrachloroethene	ND	0.50						0	0	20	
Toluene	ND	0.50						0	0	20	
trans-1,2-Dichloroethene	ND	0.50						0	0	20	
Trichloroethene	1.350	0.50						1.290	4.55	20	
Trichlorofluoromethane	ND	0.50						0	0	20	
Vinyl chloride	ND	0.50						0	0	20	
Surr: 1,2-Dichloroethane-d4	25.270		25.00		101	70	130		0	20	
Surr: 4-Bromofluorobenzene	23.440		25.00		93.8	70	130		0	20	
Surr: Dibromofluoromethane	24.340		25.00		97.4	70	130		0	20	
Surr: Toluene-d8	21.630		25.00		86.5	70	130		0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CHAIN OF CUSTODY RECORD

1/2

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #: _____
Logged By: _____ Date: 4/27/11

Method of Transport: Client ☐ ATL ☐ CA OverN ☑ FedEx ☐ Other: _____

Sample Condition Upon Receipt:
1. CHILLED 3.6 Y ☑ N ☐
2. HEADSPACE (VOA) Y ☐ N ☐
3. CONTAINER INTACT Y ☑ N ☐
4. SEALED Y ☐ N ☑
5. # OF SPLS MATCH COC Y ☑ N ☐
6. PRESERVED Y ☑ N ☑

Client: GEOCON Consultants, Inc
Attention: Rick Day
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
Tel: 925.371.5900
Fax: 925.371.5915

Project Name: I-80 ICM Project
Project #: E8583-06-01
Sampler: (Printed Name) Mike O'Brien (Signature)

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
Mike O'Brien	4/26/11	0513	Geocon Cold Storage	4/26/11	0513
Geocon Cold Storage / R. Silva	4/26/11	1630	ontrac	4/26/11	1630
			Mary	4/27/11	8:31

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter:
Print Name Date
Signature

Send Report To:
Attn:
Co: SAME AS ABOVE
Addr:
City: State: Zip:

Bill To:
Attn:
Co: SAME AS ABOVE
Addr:
City: State: Zip:

Special Instructions/Comments:
Caltrans Contract 04A3578

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.

Storage Fees (applies when storage is requested):
- Sample :$2.00 / sample /mo (after 45 days)
- Records: $1 /ATL workorder /mo (after 1 year)

Circle or Add Analysis(es) Requested

QA/QC: RTNE ☑ CT ☐ SWRCB ☐ Logcode _____ OTHER _____

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample Description: Sample ID / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8020 (BTEX)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	TPHd/TPHmo	TPHg/BTEX/MTBE	SOIL	WATER	GROUND WATER	WASTEWATER	CARBON	TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
	117564-1	A-11-008-1	4/24/11	2335	X							X		X			X					E	1	SS T	C
	-2	A-11-008-5	4/24/11	2345								X			X		X					E	1	SS T	C
	-3	A-11-008	4/25/11	040								X						X				E	1	Poly	N
		A-11-008	↓	040										X				X				E	2	G L	C
		A-11-008	↓	040			X								X			X				E	6	G V	H
	-4	A-11-007-1	4/25/11	2230	X							X		X			X					E	1	SS T	C
	-5	A-11-007-5	4/25/11	2245								X			X		X					E	1	SS T	C
	-6	A-11-007	↓	2316								X						X				E	1	Poly	N
		A-11-007	↓	2316										X				X				E	2	G L	C
		A-11-007	↓	2316			X								X			X				E	6	G V	H

- TAT starts 8AM the following day if samples received after 3 PM

TAT: A = Overnight ≤ 24 hrs; B = Emergency Next Workday; C = Critical 2 Workdays; D = Urgent 3 Workdays; E = Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

CHAIN OF CUSTODY RECORD

2/2

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #: _____
Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FedEx ☐ Other: _____

Sample Condition Upon Receipt:
1. CHILLED Y ☐ N ☐
2. HEADSPACE (VOA) Y ☐ N ☐
3. CONTAINER INTACT Y ☐ N ☐
4. SEALED Y ☐ N ☐
5. # OF SPLS MATCH COC Y ☐ N ☐
6. PRESERVED Y ☐ N ☐

Client: GEOCON Consultants, Inc
Attention: Rick Day
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
Tel: 925.371.5900
Fax: 925.371.5915

Project Name: I-80 ICM Project
Project #: E8583-06-01
Sampler: (Printed Name) Mike O'Brien (Signature)

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
Mike O'Brien	4/26/11	0513	Geocon Cold storage	4/26/11	0513
Geocon Cold Storage / R Silva	4/26/11	1630	Ontrac	4/26/11	1630
			Margo	4/27/11	8:31

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter:
Print Name Date
Signature

Send Report To:
Attn:
Co: SAME AS ABOVE
Addr:
City: State: Zip:

Bill To:
Attn:
Co: SAME AS ABOVE
Addr:
City: State: Zip:

Special Instructions/Comments:
Caltrans Contract 04A3578

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.

Storage Fees (applies when storage is requested):
- Sample :$2.00 / sample /mo (after 45 days)
- Records: $1 /ATL workorder /mo (after 1 year)

Circle or Add Analysis(es) Requested

QA/QC: RTNE ☑ CT ☐ SWRCB Logcode ☐ OTHER _____

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample Description: Sample ID / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8020 (BTEX)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	TPHd/TPHmo	TPHg/BTEX/MTBE	SOIL	WATER	GROUND WATER	WASTEWATER	CARBON	TAT	Container(s) #	Type	PRESERVATION	REMARKS
	117564 - 7	A-11-004-1	4/26/11	0255	X							X		X			X					E	1	SS	T	C
	- 8	A-11-004-5		0259								X			X		X						1	SS	T	C
	- 9	A-11-004		0315								X						X					1	poly		N
		A-11-004		0315										X				X					2	G	L	C
		A-11-004		0315			X								X			X					6	G	V	H

- TAT starts 8AM the following day if samples received after 3 PM

TAT: A = Overnight ≤ 24 hrs; B = Emergency Next Workday; C = Critical 2 Workdays; D = Urgent 3 Workdays; E = Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

July 07, 2011

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Workorder No.: 117564

Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

TEL: (925) 371-5900
FAX: (925) 371-5915

RE: I-80 ICM Project, E8583-06-01

Attention: Rick Day

Enclosed are the results for sample(s) received on April 27, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

for Eddie F. Rodriguez
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Project: I-80 ICM Project, E8583-06-01
Lab Order: 117564

CASE NARRATIVE

Analytical Comments for Method WET/6010

Dilution was necessary for sample 117564-004A due to sample matrix.

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *07-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-007-1
Lab Order:	117564	**Collection Date:**	4/25/2011 10:30:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117564-004A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
WET/ EPA 6010B						
RunID: ICP8_110706D QC Batch: R134730 PrepDate: Analyst: **CBB**						
Lead	14	1.0		mg/L	20	7/6/2011 12:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **MB-74040A** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **PBS** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.050									

Sample ID: **MB-74040A STLC** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **PBS** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.0									

Sample ID: **LCS-74040** SampType: **LCS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **LCSS** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203740**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.028	0.050	1.000	0	103	85	115				

Sample ID: **117519-014A-DUP** SampType: **DUP** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **ZZZZZZ** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203743**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.110	2.5						2.299	0	20	

Sample ID: **117519-014A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **ZZZZZZ** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203744**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	4.527	2.5	2.500	2.299	89.1	80	118				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **117519-014A-MSD** SampType: **MSD** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **ZZZZZZ** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203745**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	4.437	2.5	2.500	2.299	85.5	80	118	4.527	2.01	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Diane Galvan

From: Luann Beadle [beadle@geoconinc.com]
Sent: Friday, July 01, 2011 1:42 PM
To: Diane Galvan
Subject: RE: E8583-06-01 Kim/Horn Lab

Thank you. We also don't have WET Lead data for 117564-004A or 118062-003A. Could you please run these if they haven't been done please?

Thanks again,
Luann

Luann Beadle | *Senior Staff Scientist*
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, California 94550
Tel 925.371.5900 Fax 925.371.5915
www.geoconinc.com

July 15, 2011

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Workorder No.: 117564

Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

TEL: (925) 371-5900
FAX: (925) 371-5915

RE: I-80 ICM Project, E8583-06-01

Attention: Rick Day

Enclosed are the results for sample(s) received on April 27, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

Eddie F. Rodriguez
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *15-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-007-1
Lab Order:	117564	**Collection Date:**	4/25/2011 10:30:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117564-004A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION						
WET			**WET DI/ EPA 7420**			
RunID: AA2_110714A QC Batch: 74158				PrepDate:	7/11/2011	Analyst: **VV**
Lead	ND	0.25		mg/L	1	7/14/2011 05:13 PM
LEAD BY ATOMIC ABSORPTION (TCLP)						
EPA3010A			**EPA 1311/ 7420**			
RunID: AA2_110714B QC Batch: 74201				PrepDate:	7/13/2011	Analyst: **VV**
Lead	0.47	0.25		mg/L	1	7/14/2011 04:58 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_DI_GEOCON

Sample ID: **MB-74158A** SampType: **MBLK** TestCode: **7420_DI_GEO** Units: **mg/L** Prep Date: **7/11/2011** RunNo: **134975**
Client ID: **PBS** Batch ID: **74158** TestNo: **WET DI/ EPA WET** Analysis Date: **7/14/2011** SeqNo: **2208754**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **LCS-74158** SampType: **LCS** TestCode: **7420_DI_GEO** Units: **mg/L** Prep Date: **7/11/2011** RunNo: **134975**
Client ID: **LCSS** Batch ID: **74158** TestNo: **WET DI/ EPA WET** Analysis Date: **7/14/2011** SeqNo: **2208755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.191	0.25	5.000	0	104	80	120				

Sample ID: **117564-004A-DUP** SampType: **DUP** TestCode: **7420_DI_GEO** Units: **mg/L** Prep Date: **7/11/2011** RunNo: **134975**
Client ID: **A-11-007-1** Batch ID: **74158** TestNo: **WET DI/ EPA WET** Analysis Date: **7/14/2011** SeqNo: **2208757**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25						0	0	20	

Sample ID: **117564-004A-MS** SampType: **MS** TestCode: **7420_DI_GEO** Units: **mg/L** Prep Date: **7/11/2011** RunNo: **134975**
Client ID: **A-11-007-1** Batch ID: **74158** TestNo: **WET DI/ EPA WET** Analysis Date: **7/14/2011** SeqNo: **2208758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.115	0.25	5.000	0	102	70	130				

Sample ID: **117564-004A-MSD** SampType: **MSD** TestCode: **7420_DI_GEO** Units: **mg/L** Prep Date: **7/11/2011** RunNo: **134975**
Client ID: **A-11-007-1** Batch ID: **74158** TestNo: **WET DI/ EPA WET** Analysis Date: **7/14/2011** SeqNo: **2208759**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.306	0.25	5.000	0	106	70	130	5.115	3.67	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_TC

Sample ID: **MB-74201** SampType: **MBLK** TestCode: **7420_TC** Units: **mg/L** Prep Date: **7/13/2011** RunNo: **134976**
Client ID: **PBS** Batch ID: **74201** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **7/14/2011** SeqNo: **2208760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **MB-74193 TCLP** SampType: **MBLK** TestCode: **7420_TC** Units: **mg/L** Prep Date: **7/13/2011** RunNo: **134976**
Client ID: **PBS** Batch ID: **74201** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **7/14/2011** SeqNo: **2208761**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **LCS-74201** SampType: **LCS** TestCode: **7420_TC** Units: **mg/L** Prep Date: **7/13/2011** RunNo: **134976**
Client ID: **LCSS** Batch ID: **74201** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **7/14/2011** SeqNo: **2208762**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.151	0.25	1.000	0	115	80	120				

Sample ID: **117564-004A-DUP** SampType: **DUP** TestCode: **7420_TC** Units: **mg/L** Prep Date: **7/13/2011** RunNo: **134976**
Client ID: **A-11-007-1** Batch ID: **74201** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **7/14/2011** SeqNo: **2208764**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.440	0.25						0.4749	7.73	20	

Sample ID: **117564-004A-MS** SampType: **MS** TestCode: **7420_TC** Units: **mg/L** Prep Date: **7/13/2011** RunNo: **134976**
Client ID: **A-11-007-1** Batch ID: **74201** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **7/14/2011** SeqNo: **2208765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	3.425	0.25	2.500	0.4749	118	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117564
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_TC

Sample ID: **117564-004A-MSD** SampType: **MSD** TestCode: **7420_TC** Units: **mg/L** Prep Date: **7/13/2011** RunNo: **134976**
Client ID: **A-11-007-1** Batch ID: **74201** TestNo: **EPA 1311/ 74 EPA3010A** Analysis Date: **7/14/2011** SeqNo: **2208766**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	3.293	0.25	2.500	0.4749	113	70	130	3.425	3.93	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Diane Galvan

From: Luann Beadle [beadle@geoconinc.com]
Sent: Friday, July 08, 2011 9:15 AM
To: Diane Galvan
Subject: E8583-06-01 Kimley/Horn

Hello Diane,
Please run DI-WET and TCLP analyses on Lab ID 117564-004A.
Thank you,
Luann

Luann Beadle | *Senior Staff Scientist*
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, California 94550
Tel 925.371.5900 Fax 925.371.5915
www.geoconinc.com

May 06, 2011

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Workorder No.: 117622

Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

TEL: (925) 371-5900
FAX: (925) 371-5915

RE: I-80 ICM Project, E8583-06-01

Attention: Rick Day

Enclosed are the results for sample(s) received on April 29, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

for Eddie F. Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Project: I-80 ICM Project, E8583-06-01
Lab Order: 117622

CASE NARRATIVE

Analytical Comments for Method 6010

Dilution was necessary for sample 117622-010A, due to sample matrix.

Analytical Comments for Method 8081

Dilution was necessary for sample 117622-004A, due to black extract.

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-001

Client Sample ID: A-11-011-1
Collection Date: 4/27/2011 1:50:00 AM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110505C	QC Batch: 72648			PrepDate:	5/4/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	5/5/2011 01:47 PM
Arsenic	3.1	1.0		mg/Kg	1	5/5/2011 01:47 PM
Barium	100	1.0		mg/Kg	1	5/5/2011 01:47 PM
Beryllium	ND	1.0		mg/Kg	1	5/5/2011 01:47 PM
Cadmium	ND	1.0		mg/Kg	1	5/5/2011 01:47 PM
Chromium	28	1.0		mg/Kg	1	5/5/2011 01:47 PM
Cobalt	6.7	1.0		mg/Kg	1	5/5/2011 01:47 PM
Copper	18	2.0		mg/Kg	1	5/5/2011 01:47 PM
Lead	23	1.0		mg/Kg	1	5/5/2011 01:47 PM
Molybdenum	ND	1.0		mg/Kg	1	5/5/2011 01:47 PM
Nickel	36	1.0		mg/Kg	1	5/5/2011 01:47 PM
Selenium	ND	1.0		mg/Kg	1	5/5/2011 01:47 PM
Silver	ND	1.0		mg/Kg	1	5/5/2011 01:47 PM
Thallium	ND	1.0		mg/Kg	1	5/5/2011 01:47 PM
Vanadium	21	1.0		mg/Kg	1	5/5/2011 01:47 PM
Zinc	40	1.0		mg/Kg	1	5/5/2011 01:47 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110505C	QC Batch: 72674			PrepDate:	5/5/2011	Analyst: **CBR**
DRO	46	10		mg/Kg	5	5/5/2011 06:28 PM
ORO	260	10		mg/Kg	5	5/5/2011 06:28 PM
Surr: p-Terphenyl	33.2	30-128		%REC	5	5/5/2011 06:28 PM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC9_110503A	QC Batch: 72621			PrepDate:	5/3/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	5/3/2011 04:27 PM
4,4´-DDE	ND	2.0		µg/Kg	1	5/3/2011 04:27 PM
4,4´-DDT	ND	2.0		µg/Kg	1	5/3/2011 04:27 PM
Aldrin	ND	1.0		µg/Kg	1	5/3/2011 04:27 PM
alpha-BHC	ND	1.0		µg/Kg	1	5/3/2011 04:27 PM
alpha-Chlordane	ND	1.0		µg/Kg	1	5/3/2011 04:27 PM
beta-BHC	ND	1.0		µg/Kg	1	5/3/2011 04:27 PM
Chlordane	ND	8.5		µg/Kg	1	5/3/2011 04:27 PM
delta-BHC	ND	1.0		µg/Kg	1	5/3/2011 04:27 PM
Dieldrin	ND	2.0		µg/Kg	1	5/3/2011 04:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-001

Client Sample ID: A-11-011-1
Collection Date: 4/27/2011 1:50:00 AM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110503A	QC Batch: 72621			PrepDate:	5/3/2011	Analyst: **HL**
Endosulfan I	ND	1.0		µg/Kg	1	5/3/2011 04:27 PM
Endosulfan II	ND	2.0		µg/Kg	1	5/3/2011 04:27 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	5/3/2011 04:27 PM
Endrin	ND	2.0		µg/Kg	1	5/3/2011 04:27 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	5/3/2011 04:27 PM
Endrin ketone	ND	2.0		µg/Kg	1	5/3/2011 04:27 PM
gamma-BHC	ND	1.0		µg/Kg	1	5/3/2011 04:27 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	5/3/2011 04:27 PM
Heptachlor	ND	1.0		µg/Kg	1	5/3/2011 04:27 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	5/3/2011 04:27 PM
Methoxychlor	ND	5.0		µg/Kg	1	5/3/2011 04:27 PM
Toxaphene	ND	50		µg/Kg	1	5/3/2011 04:27 PM
Surr: Decachlorobiphenyl	69.5	31-107		%REC	1	5/3/2011 04:27 PM
Surr: Tetrachloro-m-xylene	71.3	35-108		%REC	1	5/3/2011 04:27 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110505A	QC Batch: 72651			PrepDate:	5/4/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	5/5/2011 01:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-002

Client Sample ID: A-11-011-5
Collection Date: 4/27/2011 1:55:00 AM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110505C	QC Batch: 72648			PrepDate: 5/4/2011		Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	5/5/2011 02:00 PM
Arsenic	3.9	1.0		mg/Kg	1	5/5/2011 02:00 PM
Barium	160	1.0		mg/Kg	1	5/5/2011 02:00 PM
Beryllium	ND	1.0		mg/Kg	1	5/5/2011 02:00 PM
Cadmium	1.4	1.0		mg/Kg	1	5/5/2011 02:00 PM
Chromium	25	1.0		mg/Kg	1	5/5/2011 02:00 PM
Cobalt	8.6	1.0		mg/Kg	1	5/5/2011 02:00 PM
Copper	14	2.0		mg/Kg	1	5/5/2011 02:00 PM
Lead	46	1.0		mg/Kg	1	5/5/2011 02:00 PM
Molybdenum	ND	1.0		mg/Kg	1	5/5/2011 02:00 PM
Nickel	35	1.0		mg/Kg	1	5/5/2011 02:00 PM
Selenium	ND	1.0		mg/Kg	1	5/5/2011 02:00 PM
Silver	ND	1.0		mg/Kg	1	5/5/2011 02:00 PM
Thallium	ND	1.0		mg/Kg	1	5/5/2011 02:00 PM
Vanadium	23	1.0		mg/Kg	1	5/5/2011 02:00 PM
Zinc	81	1.0		mg/Kg	1	5/5/2011 02:00 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110504B	QC Batch: E11VS182			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	5/5/2011 02:05 AM
Surr: Bromofluorobenzene (FID)	122	62-153		%REC	1	5/5/2011 02:05 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110504B	QC Batch: E11VS182			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	5/5/2011 02:05 AM
Ethylbenzene	ND	5.0		µg/Kg	1	5/5/2011 02:05 AM
m,p-Xylene	ND	10		µg/Kg	1	5/5/2011 02:05 AM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	5/5/2011 02:05 AM
o-Xylene	ND	5.0		µg/Kg	1	5/5/2011 02:05 AM
Toluene	ND	5.0		µg/Kg	1	5/5/2011 02:05 AM
Surr: Bromofluorobenzene (PID)	118	65-140		%REC	1	5/5/2011 02:05 AM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110505A	QC Batch: 72651			PrepDate: 5/4/2011		Analyst: **VV**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-011-5
Lab Order:	117622	**Collection Date:**	4/27/2011 1:55:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117622-002		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA5_110505A	QC Batch: 72651			PrepDate:	5/4/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	5/5/2011 01:15 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-003

Client Sample ID: A-11-011
Collection Date: 4/27/2011 2:40:00 AM
Matrix: WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3010A			**EPA 6010B**		
RunID: ICP8_110504C	QC Batch: 72628			PrepDate:	5/3/2011	Analyst: **SRB**
Antimony	0.11	0.025		mg/L	5	5/4/2011 11:30 AM
Arsenic	0.22	0.050		mg/L	5	5/4/2011 11:30 AM
Barium	9.6	0.015		mg/L	5	5/4/2011 11:30 AM
Beryllium	0.017	0.015		mg/L	5	5/4/2011 11:30 AM
Cadmium	0.042	0.015		mg/L	5	5/4/2011 11:30 AM
Chromium	4.3	0.015		mg/L	5	5/4/2011 11:30 AM
Cobalt	0.68	0.015		mg/L	5	5/4/2011 11:30 AM
Copper	1.8	0.025		mg/L	5	5/4/2011 11:30 AM
Lead	0.33	0.025		mg/L	5	5/4/2011 11:30 AM
Molybdenum	ND	0.025		mg/L	5	5/4/2011 11:30 AM
Nickel	5.3	0.025		mg/L	5	5/4/2011 11:30 AM
Selenium	ND	0.050		mg/L	5	5/4/2011 11:30 AM
Silver	ND	0.015		mg/L	5	5/4/2011 11:30 AM
Thallium	ND	0.075		mg/L	5	5/4/2011 11:30 AM
Vanadium	2.9	0.015		mg/L	5	5/4/2011 11:30 AM
Zinc	2.9	0.050		mg/L	5	5/4/2011 11:30 AM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3510C			**EPA 8015B(M)**		
RunID: GC16_110503A	QC Batch: 72566			PrepDate:	5/2/2011	Analyst: **CBR**
DRO	0.31	0.050		mg/L	1	5/3/2011 05:04 PM
ORO	0.19	0.050		mg/L	1	5/3/2011 05:04 PM
Surr: p-Terphenyl	97.8	36-126		%REC	1	5/3/2011 05:04 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC19_110502A	QC Batch: M11VW085			PrepDate:		Analyst: **DDL**
GRO	0.25	0.050		mg/L	1	5/2/2011 03:28 PM
Surr: Bromofluorobenzene (FID)	97.0	70-130		%REC	1	5/2/2011 03:28 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC19_110502A	QC Batch: M11VW085			PrepDate:		Analyst: **DDL**
Benzene	ND	0.50		µg/L	1	5/2/2011 03:28 PM
Ethylbenzene	ND	0.50		µg/L	1	5/2/2011 03:28 PM
m,p-Xylene	ND	1.0		µg/L	1	5/2/2011 03:28 PM
Methyl tert-butyl ether	ND	0.50		µg/L	1	5/2/2011 03:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-003

Client Sample ID: A-11-011
Collection Date: 4/27/2011 2:40:00 AM
Matrix: WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
EPA 8021B						
RunID: GC19_110502A QC Batch: M11VW085 PrepDate: Analyst: **DDL**						
o-Xylene	ND	0.50		µg/L	1	5/2/2011 03:28 PM
Toluene	ND	0.50		µg/L	1	5/2/2011 03:28 PM
Surr: Bromofluorobenzene (PID)	90.7	70-130		%REC	1	5/2/2011 03:28 PM
MERCURY BY COLD VAPOR TECHNIQUE						
EPA 7470A						
RunID: AA1_110504A QC Batch: 72586 PrepDate: 5/2/2011 Analyst: **VV**						
Mercury	9.2	0.20		µg/L	1	5/4/2011 05:35 PM
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
EPA 8260B						
RunID: MS2_110502A QC Batch: Q11VW060 PrepDate: Analyst: **BD**						
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,1,1-Trichloroethane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,1,2-Trichloroethane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,1-Dichloroethane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,1-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,1-Dichloropropene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,2,3-Trichloropropane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,2-Dibromoethane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,2-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,2-Dichloroethane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,2-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,3-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,3-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
1,4-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
2,2-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
2-Chlorotoluene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
4-Chlorotoluene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
4-Isopropyltoluene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Benzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-003

Client Sample ID: A-11-011
Collection Date: 4/27/2011 2:40:00 AM
Matrix: WATER

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: MS2_110502A QC Batch: Q11VW060 PrepDate: Analyst: **BD**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Bromobenzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Bromodichloromethane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Bromoform	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Bromomethane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Carbon tetrachloride	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Chlorobenzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Chloroethane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Chloroform	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Chloromethane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
cis-1,2-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Dibromochloromethane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Dibromomethane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Dichlorodifluoromethane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Ethylbenzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Hexachlorobutadiene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Isopropylbenzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
m,p-Xylene	ND	1.0		µg/L	1	5/2/2011 06:47 PM
Methylene chloride	ND	1.0		µg/L	1	5/2/2011 06:47 PM
n-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
n-Propylbenzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Naphthalene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
o-Xylene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
sec-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Styrene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
tert-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Tetrachloroethene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Toluene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
trans-1,2-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Trichloroethene	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Trichlorofluoromethane	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Vinyl chloride	ND	0.50		µg/L	1	5/2/2011 06:47 PM
Surr: 1,2-Dichloroethane-d4	98.7	70-130		%REC	1	5/2/2011 06:47 PM
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	5/2/2011 06:47 PM
Surr: Dibromofluoromethane	98.8	70-130		%REC	1	5/2/2011 06:47 PM
Surr: Toluene-d8	93.2	70-130		%REC	1	5/2/2011 06:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-009-1
Lab Order:	117622	**Collection Date:**	4/27/2011 10:00:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117622-004		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110505C	QC Batch: 72648			PrepDate:	5/4/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	5/5/2011 02:03 PM
Arsenic	ND	1.0		mg/Kg	1	5/5/2011 02:03 PM
Barium	86	1.0		mg/Kg	1	5/5/2011 02:03 PM
Beryllium	ND	1.0		mg/Kg	1	5/5/2011 02:03 PM
Cadmium	ND	1.0		mg/Kg	1	5/5/2011 02:03 PM
Chromium	17	1.0		mg/Kg	1	5/5/2011 02:03 PM
Cobalt	6.1	1.0		mg/Kg	1	5/5/2011 02:03 PM
Copper	12	2.0		mg/Kg	1	5/5/2011 02:03 PM
Lead	18	1.0		mg/Kg	1	5/5/2011 02:03 PM
Molybdenum	ND	1.0		mg/Kg	1	5/5/2011 02:03 PM
Nickel	26	1.0		mg/Kg	1	5/5/2011 02:03 PM
Selenium	ND	1.0		mg/Kg	1	5/5/2011 02:03 PM
Silver	ND	1.0		mg/Kg	1	5/5/2011 02:03 PM
Thallium	ND	1.0		mg/Kg	1	5/5/2011 02:03 PM
Vanadium	21	1.0		mg/Kg	1	5/5/2011 02:03 PM
Zinc	35	1.0		mg/Kg	1	5/5/2011 02:03 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110505C	QC Batch: 72674			PrepDate:	5/5/2011	Analyst: **CBR**
DRO	730	50		mg/Kg	5	5/5/2011 06:56 PM
ORO	4500	50		mg/Kg	5	5/5/2011 06:56 PM
Surr: p-Terphenyl	45.6	30-128		%REC	5	5/5/2011 06:56 PM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC9_110503A	QC Batch: 72621			PrepDate:	5/3/2011	Analyst: **HL**
4,4´-DDD	ND	20		µg/Kg	10	5/3/2011 04:40 PM
4,4´-DDE	ND	20		µg/Kg	10	5/3/2011 04:40 PM
4,4´-DDT	ND	20		µg/Kg	10	5/3/2011 04:40 PM
Aldrin	ND	10		µg/Kg	10	5/3/2011 04:40 PM
alpha-BHC	ND	10		µg/Kg	10	5/3/2011 04:40 PM
alpha-Chlordane	ND	10		µg/Kg	10	5/3/2011 04:40 PM
beta-BHC	ND	10		µg/Kg	10	5/3/2011 04:40 PM
Chlordane	ND	85		µg/Kg	10	5/3/2011 04:40 PM
delta-BHC	ND	10		µg/Kg	10	5/3/2011 04:40 PM
Dieldrin	ND	20		µg/Kg	10	5/3/2011 04:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-004

Client Sample ID: A-11-009-1
Collection Date: 4/27/2011 10:00:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110503A	QC Batch: 72621			PrepDate:	5/3/2011	Analyst: **HL**
Endosulfan I	ND	10		µg/Kg	10	5/3/2011 04:40 PM
Endosulfan II	ND	20		µg/Kg	10	5/3/2011 04:40 PM
Endosulfan sulfate	ND	20		µg/Kg	10	5/3/2011 04:40 PM
Endrin	ND	20		µg/Kg	10	5/3/2011 04:40 PM
Endrin aldehyde	ND	20		µg/Kg	10	5/3/2011 04:40 PM
Endrin ketone	ND	20		µg/Kg	10	5/3/2011 04:40 PM
gamma-BHC	ND	10		µg/Kg	10	5/3/2011 04:40 PM
gamma-Chlordane	ND	10		µg/Kg	10	5/3/2011 04:40 PM
Heptachlor	ND	10		µg/Kg	10	5/3/2011 04:40 PM
Heptachlor epoxide	ND	10		µg/Kg	10	5/3/2011 04:40 PM
Methoxychlor	ND	50		µg/Kg	10	5/3/2011 04:40 PM
Toxaphene	ND	500		µg/Kg	10	5/3/2011 04:40 PM
Surr: Decachlorobiphenyl	65.8	31-107		%REC	10	5/3/2011 04:40 PM
Surr: Tetrachloro-m-xylene	57.2	35-108		%REC	10	5/3/2011 04:40 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110505A	QC Batch: 72651			PrepDate:	5/4/2011	Analyst: **VV**
Mercury	0.31	0.10		mg/Kg	1	5/5/2011 01:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-005

Client Sample ID: A-11-009-5
Collection Date: 4/27/2011 10:10:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110505C	QC Batch: 72648			PrepDate: 5/4/2011		Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	5/5/2011 02:06 PM
Arsenic	2.9	1.0		mg/Kg	1	5/5/2011 02:06 PM
Barium	110	1.0		mg/Kg	1	5/5/2011 02:06 PM
Beryllium	ND	1.0		mg/Kg	1	5/5/2011 02:06 PM
Cadmium	ND	1.0		mg/Kg	1	5/5/2011 02:06 PM
Chromium	19	1.0		mg/Kg	1	5/5/2011 02:06 PM
Cobalt	6.4	1.0		mg/Kg	1	5/5/2011 02:06 PM
Copper	14	2.0		mg/Kg	1	5/5/2011 02:06 PM
Lead	30	1.0		mg/Kg	1	5/5/2011 02:06 PM
Molybdenum	ND	1.0		mg/Kg	1	5/5/2011 02:06 PM
Nickel	25	1.0		mg/Kg	1	5/5/2011 02:06 PM
Selenium	ND	1.0		mg/Kg	1	5/5/2011 02:06 PM
Silver	ND	1.0		mg/Kg	1	5/5/2011 02:06 PM
Thallium	ND	1.0		mg/Kg	1	5/5/2011 02:06 PM
Vanadium	21	1.0		mg/Kg	1	5/5/2011 02:06 PM
Zinc	43	1.0		mg/Kg	1	5/5/2011 02:06 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110504B	QC Batch: E11VS182			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	5/5/2011 02:20 AM
Surr: Bromofluorobenzene (FID)	122	62-153		%REC	1	5/5/2011 02:20 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110504B	QC Batch: E11VS182			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	5/5/2011 02:20 AM
Ethylbenzene	ND	5.0		µg/Kg	1	5/5/2011 02:20 AM
m,p-Xylene	ND	10		µg/Kg	1	5/5/2011 02:20 AM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	5/5/2011 02:20 AM
o-Xylene	ND	5.0		µg/Kg	1	5/5/2011 02:20 AM
Toluene	ND	5.0		µg/Kg	1	5/5/2011 02:20 AM
Surr: Bromofluorobenzene (PID)	119	65-140		%REC	1	5/5/2011 02:20 AM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110505A	QC Batch: 72651			PrepDate: 5/4/2011		Analyst: **VV**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-009-5
Lab Order:	117622	**Collection Date:**	4/27/2011 10:10:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117622-005		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA5_110505A	QC Batch: 72651			PrepDate:	5/4/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	5/5/2011 01:19 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-013-1
Lab Order:	117622	**Collection Date:**	4/27/2011 11:50:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117622-006		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110505C	QC Batch: 72648			PrepDate:	5/4/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	5/5/2011 02:10 PM
Arsenic	3.4	1.0		mg/Kg	1	5/5/2011 02:10 PM
Barium	120	1.0		mg/Kg	1	5/5/2011 02:10 PM
Beryllium	ND	1.0		mg/Kg	1	5/5/2011 02:10 PM
Cadmium	ND	1.0		mg/Kg	1	5/5/2011 02:10 PM
Chromium	26	1.0		mg/Kg	1	5/5/2011 02:10 PM
Cobalt	8.2	1.0		mg/Kg	1	5/5/2011 02:10 PM
Copper	12	2.0		mg/Kg	1	5/5/2011 02:10 PM
Lead	6.5	1.0		mg/Kg	1	5/5/2011 02:10 PM
Molybdenum	ND	1.0		mg/Kg	1	5/5/2011 02:10 PM
Nickel	34	1.0		mg/Kg	1	5/5/2011 02:10 PM
Selenium	ND	1.0		mg/Kg	1	5/5/2011 02:10 PM
Silver	ND	1.0		mg/Kg	1	5/5/2011 02:10 PM
Thallium	ND	1.0		mg/Kg	1	5/5/2011 02:10 PM
Vanadium	24	1.0		mg/Kg	1	5/5/2011 02:10 PM
Zinc	30	1.0		mg/Kg	1	5/5/2011 02:10 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110505C	QC Batch: 72674			PrepDate:	5/5/2011	Analyst: **CBR**
DRO	5.2	1.0		mg/Kg	1	5/5/2011 06:16 PM
ORO	23	1.0		mg/Kg	1	5/5/2011 06:16 PM
Surr: p-Terphenyl	65.6	30-128		%REC	1	5/5/2011 06:16 PM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC9_110503A	QC Batch: 72621			PrepDate:	5/3/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	5/3/2011 04:54 PM
4,4´-DDE	ND	2.0		µg/Kg	1	5/3/2011 04:54 PM
4,4´-DDT	ND	2.0		µg/Kg	1	5/3/2011 04:54 PM
Aldrin	ND	1.0		µg/Kg	1	5/3/2011 04:54 PM
alpha-BHC	ND	1.0		µg/Kg	1	5/3/2011 04:54 PM
alpha-Chlordane	ND	1.0		µg/Kg	1	5/3/2011 04:54 PM
beta-BHC	ND	1.0		µg/Kg	1	5/3/2011 04:54 PM
Chlordane	ND	8.5		µg/Kg	1	5/3/2011 04:54 PM
delta-BHC	ND	1.0		µg/Kg	1	5/3/2011 04:54 PM
Dieldrin	ND	2.0		µg/Kg	1	5/3/2011 04:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-006

Client Sample ID: A-11-013-1
Collection Date: 4/27/2011 11:50:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110503A	QC Batch: 72621			PrepDate:	5/3/2011	Analyst: **HL**
Endosulfan I	ND	1.0		µg/Kg	1	5/3/2011 04:54 PM
Endosulfan II	ND	2.0		µg/Kg	1	5/3/2011 04:54 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	5/3/2011 04:54 PM
Endrin	ND	2.0		µg/Kg	1	5/3/2011 04:54 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	5/3/2011 04:54 PM
Endrin ketone	ND	2.0		µg/Kg	1	5/3/2011 04:54 PM
gamma-BHC	ND	1.0		µg/Kg	1	5/3/2011 04:54 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	5/3/2011 04:54 PM
Heptachlor	ND	1.0		µg/Kg	1	5/3/2011 04:54 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	5/3/2011 04:54 PM
Methoxychlor	ND	5.0		µg/Kg	1	5/3/2011 04:54 PM
Toxaphene	ND	50		µg/Kg	1	5/3/2011 04:54 PM
Surr: Decachlorobiphenyl	66.9	31-107		%REC	1	5/3/2011 04:54 PM
Surr: Tetrachloro-m-xylene	64.9	35-108		%REC	1	5/3/2011 04:54 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110505A	QC Batch: 72651			PrepDate:	5/4/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	5/5/2011 01:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-007

Client Sample ID: A-11-013-5
Collection Date: 4/27/2011 11:55:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110505C	QC Batch: 72648			PrepDate: 5/4/2011		Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	5/5/2011 02:19 PM
Arsenic	5.0	1.0		mg/Kg	1	5/5/2011 02:19 PM
Barium	110	1.0		mg/Kg	1	5/5/2011 02:19 PM
Beryllium	ND	1.0		mg/Kg	1	5/5/2011 02:19 PM
Cadmium	ND	1.0		mg/Kg	1	5/5/2011 02:19 PM
Chromium	24	1.0		mg/Kg	1	5/5/2011 02:19 PM
Cobalt	6.5	1.0		mg/Kg	1	5/5/2011 02:19 PM
Copper	15	2.0		mg/Kg	1	5/5/2011 02:19 PM
Lead	26	1.0		mg/Kg	1	5/5/2011 02:19 PM
Molybdenum	ND	1.0		mg/Kg	1	5/5/2011 02:19 PM
Nickel	32	1.0		mg/Kg	1	5/5/2011 02:19 PM
Selenium	ND	1.0		mg/Kg	1	5/5/2011 02:19 PM
Silver	ND	1.0		mg/Kg	1	5/5/2011 02:19 PM
Thallium	ND	1.0		mg/Kg	1	5/5/2011 02:19 PM
Vanadium	22	1.0		mg/Kg	1	5/5/2011 02:19 PM
Zinc	38	1.0		mg/Kg	1	5/5/2011 02:19 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110504B	QC Batch: E11VS182			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	5/5/2011 02:36 AM
Surr: Bromofluorobenzene (FID)	124	62-153		%REC	1	5/5/2011 02:36 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110504B	QC Batch: E11VS182			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	5/5/2011 02:36 AM
Ethylbenzene	ND	5.0		µg/Kg	1	5/5/2011 02:36 AM
m,p-Xylene	ND	10		µg/Kg	1	5/5/2011 02:36 AM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	5/5/2011 02:36 AM
o-Xylene	ND	5.0		µg/Kg	1	5/5/2011 02:36 AM
Toluene	ND	5.0		µg/Kg	1	5/5/2011 02:36 AM
Surr: Bromofluorobenzene (PID)	121	65-140		%REC	1	5/5/2011 02:36 AM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110505A	QC Batch: 72651			PrepDate: 5/4/2011		Analyst: **VV**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-013-5
Lab Order:	117622	**Collection Date:**	4/27/2011 11:55:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117622-007		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA5_110505A	QC Batch: 72651			PrepDate:	5/4/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	5/5/2011 01:27 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-008

Client Sample ID: A-11-013
Collection Date: 4/28/2011 12:47:00 AM
Matrix: WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3010A			**EPA 6010B**		
RunID: ICP8_110504C	QC Batch: 72628			PrepDate:	5/3/2011	Analyst: **SRB**
Antimony	0.17	0.025		mg/L	5	5/4/2011 11:49 AM
Arsenic	0.35	0.050		mg/L	5	5/4/2011 11:49 AM
Barium	7.8	0.015		mg/L	5	5/4/2011 11:49 AM
Beryllium	0.024	0.015		mg/L	5	5/4/2011 11:49 AM
Cadmium	0.059	0.015		mg/L	5	5/4/2011 11:49 AM
Chromium	7.6	0.015		mg/L	5	5/4/2011 11:49 AM
Cobalt	1.1	0.015		mg/L	5	5/4/2011 11:49 AM
Copper	2.8	0.025		mg/L	5	5/4/2011 11:49 AM
Lead	0.34	0.025		mg/L	5	5/4/2011 11:49 AM
Molybdenum	ND	0.025		mg/L	5	5/4/2011 11:49 AM
Nickel	12	0.025		mg/L	5	5/4/2011 11:49 AM
Selenium	ND	0.050		mg/L	5	5/4/2011 11:49 AM
Silver	ND	0.015		mg/L	5	5/4/2011 11:49 AM
Thallium	ND	0.075		mg/L	5	5/4/2011 11:49 AM
Vanadium	3.1	0.015		mg/L	5	5/4/2011 11:49 AM
Zinc	4.2	0.050		mg/L	5	5/4/2011 11:49 AM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3510C			**EPA 8015B(M)**		
RunID: GC16_110503A	QC Batch: 72566			PrepDate:	5/2/2011	Analyst: **CBR**
DRO	0.17	0.050		mg/L	1	5/3/2011 04:33 PM
ORO	0.078	0.050		mg/L	1	5/3/2011 04:33 PM
Surr: p-Terphenyl	106	36-126		%REC	1	5/3/2011 04:33 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC19_110502A	QC Batch: M11VW085			PrepDate:		Analyst: **DDL**
GRO	0.15	0.050		mg/L	1	5/2/2011 03:48 PM
Surr: Bromofluorobenzene (FID)	95.5	70-130		%REC	1	5/2/2011 03:48 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC19_110502A	QC Batch: M11VW085			PrepDate:		Analyst: **DDL**
Benzene	ND	0.50		µg/L	1	5/2/2011 03:48 PM
Ethylbenzene	ND	0.50		µg/L	1	5/2/2011 03:48 PM
m,p-Xylene	ND	1.0		µg/L	1	5/2/2011 03:48 PM
Methyl tert-butyl ether	ND	0.50		µg/L	1	5/2/2011 03:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-008

Client Sample ID: A-11-013
Collection Date: 4/28/2011 12:47:00 AM
Matrix: WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
EPA 8021B						
RunID: GC19_110502A QC Batch: M11VW085 PrepDate: Analyst: **DDL**						
o-Xylene	ND	0.50		µg/L	1	5/2/2011 03:48 PM
Toluene	ND	0.50		µg/L	1	5/2/2011 03:48 PM
Surr: Bromofluorobenzene (PID)	90.8	70-130		%REC	1	5/2/2011 03:48 PM
MERCURY BY COLD VAPOR TECHNIQUE						
EPA 7470A						
RunID: AA1_110504A QC Batch: 72586 PrepDate: 5/2/2011 Analyst: **VV**						
Mercury	7.5	0.20		µg/L	1	5/4/2011 05:40 PM
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
EPA 8260B						
RunID: MS2_110502A QC Batch: Q11VW060 PrepDate: Analyst: **BD**						
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,1,1-Trichloroethane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,1,2-Trichloroethane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,1-Dichloroethane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,1-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,1-Dichloropropene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,2,3-Trichloropropane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,2-Dibromoethane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,2-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,2-Dichloroethane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,2-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,3-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,3-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
1,4-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
2,2-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
2-Chlorotoluene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
4-Chlorotoluene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
4-Isopropyltoluene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Benzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-008

Client Sample ID: A-11-013
Collection Date: 4/28/2011 12:47:00 AM
Matrix: WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
			EPA 8260B			
RunID: MS2_110502A	QC Batch:	Q11VW060		PrepDate:		Analyst: **BD**
Bromobenzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Bromodichloromethane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Bromoform	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Bromomethane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Carbon tetrachloride	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Chlorobenzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Chloroethane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Chloroform	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Chloromethane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
cis-1,2-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Dibromochloromethane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Dibromomethane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Dichlorodifluoromethane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Ethylbenzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Hexachlorobutadiene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Isopropylbenzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
m,p-Xylene	ND	1.0		µg/L	1	5/2/2011 07:07 PM
Methylene chloride	ND	1.0		µg/L	1	5/2/2011 07:07 PM
n-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
n-Propylbenzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Naphthalene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
o-Xylene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
sec-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Styrene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
tert-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Tetrachloroethene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Toluene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
trans-1,2-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Trichloroethene	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Trichlorofluoromethane	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Vinyl chloride	ND	0.50		µg/L	1	5/2/2011 07:07 PM
Surr: 1,2-Dichloroethane-d4	93.3	70-130		%REC	1	5/2/2011 07:07 PM
Surr: 4-Bromofluorobenzene	96.5	70-130		%REC	1	5/2/2011 07:07 PM
Surr: Dibromofluoromethane	95.2	70-130		%REC	1	5/2/2011 07:07 PM
Surr: Toluene-d8	87.6	70-130		%REC	1	5/2/2011 07:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-012-1
Lab Order:	117622	**Collection Date:**	4/28/2011 1:55:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117622-009		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110505C	QC Batch: 72648			PrepDate:	5/4/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	5/5/2011 02:23 PM
Arsenic	ND	1.0		mg/Kg	1	5/5/2011 02:23 PM
Barium	190	1.0		mg/Kg	1	5/5/2011 02:23 PM
Beryllium	ND	1.0		mg/Kg	1	5/5/2011 02:23 PM
Cadmium	ND	1.0		mg/Kg	1	5/5/2011 02:23 PM
Chromium	18	1.0		mg/Kg	1	5/5/2011 02:23 PM
Cobalt	8.5	1.0		mg/Kg	1	5/5/2011 02:23 PM
Copper	16	2.0		mg/Kg	1	5/5/2011 02:23 PM
Lead	8.0	1.0		mg/Kg	1	5/5/2011 02:23 PM
Molybdenum	ND	1.0		mg/Kg	1	5/5/2011 02:23 PM
Nickel	29	1.0		mg/Kg	1	5/5/2011 02:23 PM
Selenium	ND	1.0		mg/Kg	1	5/5/2011 02:23 PM
Silver	ND	1.0		mg/Kg	1	5/5/2011 02:23 PM
Thallium	ND	1.0		mg/Kg	1	5/5/2011 02:23 PM
Vanadium	21	1.0		mg/Kg	1	5/5/2011 02:23 PM
Zinc	39	1.0		mg/Kg	1	5/5/2011 02:23 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110505C	QC Batch: 72674			PrepDate:	5/5/2011	Analyst: **CBR**
DRO	34	2.0		mg/Kg	2	5/5/2011 06:47 PM
ORO	150	2.0		mg/Kg	2	5/5/2011 06:47 PM
Surr: p-Terphenyl	64.7	30-128		%REC	2	5/5/2011 06:47 PM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC9_110503A	QC Batch: 72621			PrepDate:	5/3/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	5/3/2011 05:20 PM
4,4´-DDE	ND	2.0		µg/Kg	1	5/3/2011 05:20 PM
4,4´-DDT	ND	2.0		µg/Kg	1	5/3/2011 05:20 PM
Aldrin	ND	1.0		µg/Kg	1	5/3/2011 05:20 PM
alpha-BHC	ND	1.0		µg/Kg	1	5/3/2011 05:20 PM
alpha-Chlordane	ND	1.0		µg/Kg	1	5/3/2011 05:20 PM
beta-BHC	ND	1.0		µg/Kg	1	5/3/2011 05:20 PM
Chlordane	ND	8.5		µg/Kg	1	5/3/2011 05:20 PM
delta-BHC	ND	1.0		µg/Kg	1	5/3/2011 05:20 PM
Dieldrin	ND	2.0		µg/Kg	1	5/3/2011 05:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-009

Client Sample ID: A-11-012-1
Collection Date: 4/28/2011 1:55:00 AM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110503A	QC Batch: 72621			PrepDate:	5/3/2011	Analyst: **HL**
Endosulfan I	ND	1.0		µg/Kg	1	5/3/2011 05:20 PM
Endosulfan II	ND	2.0		µg/Kg	1	5/3/2011 05:20 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	5/3/2011 05:20 PM
Endrin	ND	2.0		µg/Kg	1	5/3/2011 05:20 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	5/3/2011 05:20 PM
Endrin ketone	ND	2.0		µg/Kg	1	5/3/2011 05:20 PM
gamma-BHC	ND	1.0		µg/Kg	1	5/3/2011 05:20 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	5/3/2011 05:20 PM
Heptachlor	ND	1.0		µg/Kg	1	5/3/2011 05:20 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	5/3/2011 05:20 PM
Methoxychlor	ND	5.0		µg/Kg	1	5/3/2011 05:20 PM
Toxaphene	ND	50		µg/Kg	1	5/3/2011 05:20 PM
Surr: Decachlorobiphenyl	75.0	31-107		%REC	1	5/3/2011 05:20 PM
Surr: Tetrachloro-m-xylene	76.4	35-108		%REC	1	5/3/2011 05:20 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110505A	QC Batch: 72651			PrepDate:	5/4/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	5/5/2011 01:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-010

Client Sample ID: A-11-012-5
Collection Date: 4/28/2011 2:05:00 AM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110505C	QC Batch: 72648			PrepDate: 5/4/2011		Analyst: **IL**
Antimony	ND	40		mg/Kg	20	5/5/2011 02:44 PM
Arsenic	ND	20		mg/Kg	20	5/5/2011 02:44 PM
Barium	140	20		mg/Kg	20	5/5/2011 02:44 PM
Beryllium	ND	20		mg/Kg	20	5/5/2011 02:44 PM
Cadmium	ND	20		mg/Kg	20	5/5/2011 02:44 PM
Chromium	43	20		mg/Kg	20	5/5/2011 02:44 PM
Cobalt	ND	20		mg/Kg	20	5/5/2011 02:44 PM
Copper	ND	40		mg/Kg	20	5/5/2011 02:44 PM
Lead	ND	20		mg/Kg	20	5/5/2011 02:44 PM
Molybdenum	ND	20		mg/Kg	20	5/5/2011 02:44 PM
Nickel	63	20		mg/Kg	20	5/5/2011 02:44 PM
Selenium	ND	20		mg/Kg	20	5/5/2011 02:44 PM
Silver	ND	20		mg/Kg	20	5/5/2011 02:44 PM
Thallium	ND	20		mg/Kg	20	5/5/2011 02:44 PM
Vanadium	36	20		mg/Kg	20	5/5/2011 02:44 PM
Zinc	120	20		mg/Kg	20	5/5/2011 02:44 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110504B	QC Batch: E11VS182			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	5/5/2011 02:51 AM
Surr: Bromofluorobenzene (FID)	126	62-153		%REC	1	5/5/2011 02:51 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110504B	QC Batch: E11VS182			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	5/5/2011 02:51 AM
Ethylbenzene	ND	5.0		µg/Kg	1	5/5/2011 02:51 AM
m,p-Xylene	ND	10		µg/Kg	1	5/5/2011 02:51 AM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	5/5/2011 02:51 AM
o-Xylene	ND	5.0		µg/Kg	1	5/5/2011 02:51 AM
Toluene	ND	5.0		µg/Kg	1	5/5/2011 02:51 AM
Surr: Bromofluorobenzene (PID)	122	65-140		%REC	1	5/5/2011 02:51 AM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110505A	QC Batch: 72651			PrepDate: 5/4/2011		Analyst: **VV**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-012-5
Lab Order:	117622	**Collection Date:**	4/28/2011 2:05:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	117622-010		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA5_110505A	QC Batch: 72651			PrepDate:	5/4/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	5/5/2011 01:31 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-011

Client Sample ID: A-11-012
Collection Date: 4/28/2011 2:45:00 AM
Matrix: WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3010A			**EPA 6010B**		
RunID: ICP8_110504C	QC Batch: 72628			PrepDate:	5/3/2011	Analyst: **SRB**
Antimony	0.040	0.025		mg/L	5	5/4/2011 11:52 AM
Arsenic	0.17	0.050		mg/L	5	5/4/2011 11:52 AM
Barium	72	0.015		mg/L	5	5/4/2011 11:52 AM
Beryllium	ND	0.015		mg/L	5	5/4/2011 11:52 AM
Cadmium	0.021	0.015		mg/L	5	5/4/2011 11:52 AM
Chromium	2.1	0.015		mg/L	5	5/4/2011 11:52 AM
Cobalt	1.7	0.015		mg/L	5	5/4/2011 11:52 AM
Copper	0.80	0.025		mg/L	5	5/4/2011 11:52 AM
Lead	0.31	0.025		mg/L	5	5/4/2011 11:52 AM
Molybdenum	0.075	0.025		mg/L	5	5/4/2011 11:52 AM
Nickel	5.6	0.025		mg/L	5	5/4/2011 11:52 AM
Selenium	0.18	0.050		mg/L	5	5/4/2011 11:52 AM
Silver	ND	0.015		mg/L	5	5/4/2011 11:52 AM
Thallium	ND	0.075		mg/L	5	5/4/2011 11:52 AM
Vanadium	1.2	0.015		mg/L	5	5/4/2011 11:52 AM
Zinc	1.4	0.050		mg/L	5	5/4/2011 11:52 AM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3510C			**EPA 8015B(M)**		
RunID: GC16_110503A	QC Batch: 72566			PrepDate:	5/2/2011	Analyst: **CBR**
DRO	0.13	0.050		mg/L	1	5/3/2011 05:15 PM
ORO	0.066	0.050		mg/L	1	5/3/2011 05:15 PM
Surr: p-Terphenyl	102	36-126		%REC	1	5/3/2011 05:15 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC19_110502A	QC Batch: M11VW085			PrepDate:		Analyst: **DDL**
GRO	0.17	0.050		mg/L	1	5/2/2011 04:09 PM
Surr: Bromofluorobenzene (FID)	96.6	70-130		%REC	1	5/2/2011 04:09 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC19_110502A	QC Batch: M11VW085			PrepDate:		Analyst: **DDL**
Benzene	ND	0.50		µg/L	1	5/2/2011 04:09 PM
Ethylbenzene	ND	0.50		µg/L	1	5/2/2011 04:09 PM
m,p-Xylene	ND	1.0		µg/L	1	5/2/2011 04:09 PM
Methyl tert-butyl ether	ND	0.50		µg/L	1	5/2/2011 04:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-011

Client Sample ID: A-11-012
Collection Date: 4/28/2011 2:45:00 AM
Matrix: WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
EPA 8021B						
RunID: GC19_110502A QC Batch: M11VW085 PrepDate: Analyst: **DDL**						
o-Xylene	ND	0.50		µg/L	1	5/2/2011 04:09 PM
Toluene	ND	0.50		µg/L	1	5/2/2011 04:09 PM
Surr: Bromofluorobenzene (PID)	91.4	70-130		%REC	1	5/2/2011 04:09 PM
MERCURY BY COLD VAPOR TECHNIQUE						
EPA 7470A						
RunID: AA1_110504A QC Batch: 72586 PrepDate: 5/2/2011 Analyst: **VV**						
Mercury	3.3	0.20		µg/L	1	5/4/2011 05:43 PM
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
EPA 8260B						
RunID: MS2_110502A QC Batch: Q11VW060 PrepDate: Analyst: **BD**						
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,1,1-Trichloroethane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,1,2-Trichloroethane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,1-Dichloroethane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,1-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,1-Dichloropropene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,2,3-Trichloropropane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,2-Dibromoethane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,2-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,2-Dichloroethane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,2-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,3-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,3-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
1,4-Dichlorobenzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
2,2-Dichloropropane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
2-Chlorotoluene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
4-Chlorotoluene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
4-Isopropyltoluene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Benzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *06-May-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 117622
Project: I-80 ICM Project, E8583-06-01
Lab ID: 117622-011

Client Sample ID: A-11-012
Collection Date: 4/28/2011 2:45:00 AM
Matrix: WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
				EPA 8260B		
RunID: MS2_110502A	QC Batch:	Q11VW060			PrepDate:	Analyst: **BD**
Bromobenzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Bromodichloromethane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Bromoform	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Bromomethane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Carbon tetrachloride	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Chlorobenzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Chloroethane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Chloroform	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Chloromethane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
cis-1,2-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Dibromochloromethane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Dibromomethane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Dichlorodifluoromethane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Ethylbenzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Hexachlorobutadiene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Isopropylbenzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
m,p-Xylene	ND	1.0		µg/L	1	5/2/2011 07:28 PM
Methylene chloride	ND	1.0		µg/L	1	5/2/2011 07:28 PM
n-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
n-Propylbenzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Naphthalene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
o-Xylene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
sec-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Styrene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
tert-Butylbenzene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Tetrachloroethene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Toluene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
trans-1,2-Dichloroethene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Trichloroethene	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Trichlorofluoromethane	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Vinyl chloride	ND	0.50		µg/L	1	5/2/2011 07:28 PM
Surr: 1,2-Dichloroethane-d4	94.7	70-130		%REC	1	5/2/2011 07:28 PM
Surr: 4-Bromofluorobenzene	96.7	70-130		%REC	1	5/2/2011 07:28 PM
Surr: Dibromofluoromethane	95.8	70-130		%REC	1	5/2/2011 07:28 PM
Surr: Toluene-d8	89.7	70-130		%REC	1	5/2/2011 07:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **MB-72648** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **5/4/2011** RunNo: **132646**
Client ID: **PBS** Batch ID: **72648** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **5/5/2011** SeqNo: **2161837**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.184	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	1.0									
Vanadium	ND	1.0									
Zinc	0.188	1.0									

Sample ID: **LCS-72648** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **5/4/2011** RunNo: **132646**
Client ID: **LCSS** Batch ID: **72648** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **5/5/2011** SeqNo: **2161838**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	44.975	2.0	50.00	0.1841	89.6	80	120				
Arsenic	44.470	1.0	50.00	0	88.9	80	120				
Barium	46.335	1.0	50.00	0	92.7	80	120				
Beryllium	45.674	1.0	50.00	0	91.3	80	120				
Cadmium	45.026	1.0	50.00	0	90.1	80	120				
Chromium	41.672	1.0	50.00	0	83.3	80	120				
Cobalt	45.212	1.0	50.00	0	90.4	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **LCS-72648** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **5/4/2011** RunNo: **132646**
Client ID: **LCSS** Batch ID: **72648** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **5/5/2011** SeqNo: **2161838**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	45.534	2.0	50.00	0	91.1	80	120				
Lead	45.426	1.0	50.00	0	90.9	80	120				
Molybdenum	46.332	1.0	50.00	0	92.7	80	120				
Nickel	44.749	1.0	50.00	0	89.5	80	120				
Selenium	41.720	1.0	50.00	0	83.4	80	120				
Silver	42.972	1.0	50.00	0	85.9	80	120				
Thallium	43.687	1.0	50.00	0	87.4	80	120				
Vanadium	46.189	1.0	50.00	0	92.4	80	120				
Zinc	44.714	1.0	50.00	0.1880	89.1	80	120				

Sample ID: **117622-001A-DUP** SampType: **DUP** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **5/4/2011** RunNo: **132646**
Client ID: **A-11-011-1** Batch ID: **72648** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **5/5/2011** SeqNo: **2161840**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.924	2.0						0.9082	0	20	
Arsenic	3.162	1.0						3.096	2.10	20	
Barium	121.818	1.0						102.3	17.4	20	
Beryllium	0.098	1.0						0.1675	0	20	
Cadmium	0.636	1.0						0.6465	0	20	
Chromium	28.249	1.0						28.34	0.306	20	
Cobalt	7.692	1.0						6.679	14.1	20	
Copper	21.080	2.0						17.92	16.2	20	
Lead	28.963	1.0						22.90	23.4	20	R
Molybdenum	ND	1.0						0	0	20	
Nickel	37.181	1.0						36.11	2.93	20	
Selenium	ND	1.0						0	0	20	
Silver	ND	1.0						0	0	20	
Thallium	ND	1.0						0	0	20	
Vanadium	25.155	1.0						20.63	19.8	20	
Zinc	53.873	1.0						40.48	28.4	20	R

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **117622-001A-MS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **5/4/2011** RunNo: **132646**
Client ID: **A-11-011-1** Batch ID: **72648** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **5/5/2011** SeqNo: **2161841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	88.638	2.0	125.0	0.9082	70.2	32	105				
Arsenic	97.764	1.0	125.0	3.096	75.7	49	106				
Barium	205.354	1.0	125.0	102.3	82.4	31	133				
Beryllium	98.569	1.0	125.0	0.1675	78.7	56	106				
Cadmium	93.098	1.0	125.0	0.6465	74.0	51	103				
Chromium	123.017	1.0	125.0	28.34	75.7	45	114				
Cobalt	101.266	1.0	125.0	6.679	75.7	52	106				
Copper	171.561	2.0	125.0	17.92	123	54	125				
Lead	115.801	1.0	125.0	22.90	74.3	34	126				
Molybdenum	94.764	1.0	125.0	0	75.8	54	106				
Nickel	134.933	1.0	125.0	36.11	79.1	45	111				
Selenium	90.445	1.0	125.0	0	72.4	47	104				
Silver	98.416	1.0	125.0	0	78.7	56	112				
Thallium	87.692	1.0	125.0	0	70.2	46	101				
Vanadium	124.163	1.0	125.0	20.63	82.8	54	114				
Zinc	140.224	1.0	125.0	40.48	79.8	28	125				

Sample ID: **117622-001A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **5/4/2011** RunNo: **132646**
Client ID: **A-11-011-1** Batch ID: **72648** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **5/5/2011** SeqNo: **2161842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	80.797	2.0	125.0	0.9082	63.9	32	105	88.64	9.26	20	
Arsenic	88.899	1.0	125.0	3.096	68.6	49	106	97.76	9.50	20	
Barium	167.806	1.0	125.0	102.3	52.4	31	133	205.4	20.1	20	R
Beryllium	89.053	1.0	125.0	0.1675	71.1	56	106	98.57	10.1	20	
Cadmium	84.793	1.0	125.0	0.6465	67.3	51	103	93.10	9.34	20	
Chromium	106.606	1.0	125.0	28.34	62.6	45	114	123.0	14.3	20	
Cobalt	91.776	1.0	125.0	6.679	68.1	52	106	101.3	9.83	20	
Copper	121.225	2.0	125.0	17.92	82.6	54	125	171.6	34.4	20	R
Lead	105.069	1.0	125.0	22.90	65.7	34	126	115.8	9.72	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **117622-001A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **5/4/2011** RunNo: **132646**
Client ID: **A-11-011-1** Batch ID: **72648** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **5/5/2011** SeqNo: **2161842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	86.807	1.0	125.0	0	69.4	54	106	94.76	8.76	20	
Nickel	115.435	1.0	125.0	36.11	63.5	45	111	134.9	15.6	20	
Selenium	82.182	1.0	125.0	0	65.7	47	104	90.45	9.57	20	
Silver	89.483	1.0	125.0	0	71.6	56	112	98.42	9.51	20	
Thallium	79.927	1.0	125.0	0	63.9	46	101	87.69	9.26	20	
Vanadium	115.015	1.0	125.0	20.63	75.5	54	114	124.2	7.65	20	
Zinc	130.950	1.0	125.0	40.48	72.4	28	125	140.2	6.84	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **LCS-72628** SampType: **LCS** TestCode: **6010_W** Units: **mg/L** Prep Date: **5/3/2011** RunNo: **132612**
Client ID: **LCSW** Batch ID: **72628** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **5/4/2011** SeqNo: **2161097**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	1.057	0.0050	1.000	0	106	85	115				
Arsenic	1.032	0.010	1.000	0	103	85	115				
Barium	1.057	0.0030	1.000	0	106	85	115				
Beryllium	1.053	0.0030	1.000	0	105	85	115				
Cadmium	1.036	0.0030	1.000	0	104	85	115				
Chromium	0.936	0.0030	1.000	0	93.6	85	115				
Cobalt	1.026	0.0030	1.000	0	103	85	115				
Copper	1.027	0.0050	1.000	0	103	85	115				
Lead	1.024	0.0050	1.000	0	102	85	115				
Molybdenum	1.034	0.0050	1.000	0	103	85	115				
Nickel	1.013	0.0050	1.000	0.0009353	101	85	115				
Selenium	0.997	0.010	1.000	0	99.7	85	115				
Silver	0.929	0.0030	1.000	0	92.9	85	115				
Thallium	0.995	0.015	1.000	0	99.5	85	115				
Vanadium	1.035	0.0030	1.000	0	103	85	115				
Zinc	1.032	0.010	1.000	0	103	85	115				

Sample ID: **117622-003C-DUP** SampType: **DUP** TestCode: **6010_W** Units: **mg/L** Prep Date: **5/3/2011** RunNo: **132612**
Client ID: **A-11-011** Batch ID: **72628** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **5/4/2011** SeqNo: **2161099**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.111	0.025						0.1131	1.63	20	
Arsenic	0.248	0.050						0.2219	11.2	20	
Barium	9.969	0.015						9.572	4.07	20	
Beryllium	0.021	0.015						0.01676	20.2	20	R
Cadmium	0.045	0.015						0.04226	5.68	20	
Chromium	4.444	0.015						4.273	3.92	20	
Cobalt	0.705	0.015						0.6776	3.99	20	
Copper	1.843	0.025						1.752	5.08	20	
Lead	0.360	0.025						0.3343	7.28	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **117622-003C-DUP** SampType: **DUP** TestCode: **6010_W** Units: **mg/L** Prep Date: **5/3/2011** RunNo: **132612**
Client ID: **A-11-011** Batch ID: **72628** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **5/4/2011** SeqNo: **2161099**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	ND	0.025						0	0	20	
Nickel	5.535	0.025						5.265	5.00	20	
Selenium	ND	0.050						0	0	20	
Silver	ND	0.015						0	0	20	
Thallium	ND	0.075						0	0	20	
Vanadium	2.940	0.015						2.859	2.78	20	
Zinc	3.077	0.050						2.948	4.27	20	

Sample ID: **117622-003C-MS** SampType: **MS** TestCode: **6010_W** Units: **mg/L** Prep Date: **5/3/2011** RunNo: **132612**
Client ID: **A-11-011** Batch ID: **72628** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **5/4/2011** SeqNo: **2161100**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.319	0.025	2.500	0.1131	8.22	73	128				S
Arsenic	1.840	0.050	2.500	0.2219	64.7	79	121				S
Barium	11.042	0.015	2.500	9.572	58.8	82	118				S
Beryllium	1.848	0.015	2.500	0.01676	73.2	84	119				S
Cadmium	1.849	0.015	2.500	0.04226	72.3	79	117				S
Chromium	5.834	0.015	2.500	4.273	62.4	78	115				S
Cobalt	2.462	0.015	2.500	0.6776	71.4	80	118				S
Copper	3.548	0.025	2.500	1.752	71.8	81	127				S
Lead	2.138	0.025	2.500	0.3343	72.1	80	118				S
Molybdenum	1.170	0.025	2.500	0	46.8	81	118				S
Nickel	6.882	0.025	2.500	5.265	64.7	78	120				S
Selenium	1.455	0.050	2.500	0	58.2	78	120				S
Silver	1.730	0.015	2.500	0	69.2	79	125				S
Thallium	1.580	0.075	2.500	0	63.2	74	115				S
Vanadium	4.496	0.015	2.500	2.859	65.5	84	119				S
Zinc	4.683	0.050	2.500	2.948	69.4	75	122				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **117622-003C-MSD** SampType: **MSD** TestCode: **6010_W** Units: **mg/L** Prep Date: **5/3/2011** RunNo: **132612**
Client ID: **A-11-011** Batch ID: **72628** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **5/4/2011** SeqNo: **2161101**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.363	0.025	2.500	0.1131	10.0	73	128	0.3186	13.0	20	S
Arsenic	1.945	0.050	2.500	0.2219	68.9	79	121	1.840	5.53	20	S
Barium	11.766	0.015	2.500	9.572	87.8	82	118	11.04	6.35	20	
Beryllium	1.972	0.015	2.500	0.01676	78.2	84	119	1.848	6.51	20	S
Cadmium	1.961	0.015	2.500	0.04226	76.8	79	117	1.849	5.90	20	S
Chromium	6.212	0.015	2.500	4.273	77.6	78	115	5.834	6.28	20	S
Cobalt	2.617	0.015	2.500	0.6776	77.6	80	118	2.462	6.14	20	S
Copper	3.775	0.025	2.500	1.752	80.9	81	127	3.548	6.18	20	S
Lead	2.261	0.025	2.500	0.3343	77.1	80	118	2.138	5.61	20	S
Molybdenum	1.227	0.025	2.500	0	49.1	81	118	1.170	4.76	20	S
Nickel	7.359	0.025	2.500	5.265	83.8	78	120	6.882	6.70	20	
Selenium	1.538	0.050	2.500	0	61.5	78	120	1.455	5.54	20	S
Silver	1.817	0.015	2.500	0	72.7	79	125	1.730	4.92	20	S
Thallium	1.664	0.075	2.500	0	66.6	74	115	1.580	5.20	20	S
Vanadium	4.804	0.015	2.500	2.859	77.8	84	119	4.496	6.62	20	S
Zinc	4.973	0.050	2.500	2.948	81.0	75	122	4.683	6.01	20	

Sample ID: **MB-72628** SampType: **MBLK** TestCode: **6010_W** Units: **mg/L** Prep Date: **5/3/2011** RunNo: **132612**
Client ID: **PBW** Batch ID: **72628** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **5/4/2011** SeqNo: **2161104**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.0050									
Arsenic	ND	0.010									
Barium	ND	0.0030									
Beryllium	ND	0.0030									
Cadmium	ND	0.0030									
Chromium	ND	0.0030									
Cobalt	ND	0.0030									
Copper	ND	0.0050									
Lead	ND	0.0050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **MB-72628** SampType: **MBLK** TestCode: **6010_W** Units: **mg/L** Prep Date: **5/3/2011** RunNo: **132612**
Client ID: **PBW** Batch ID: **72628** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **5/4/2011** SeqNo: **2161104**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	ND	0.0050									
Nickel	0.000935	0.0050									
Selenium	ND	0.010									
Silver	ND	0.0030									
Thallium	ND	0.015									
Vanadium	ND	0.0030									
Zinc	ND	0.010									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 *Tel: 562. 989.4045* *Fax: 562.989.4040*

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W

Sample ID: **MB-72586** SampType: **MBLK** TestCode: **7470_W** Units: **µg/L** Prep Date: **5/2/2011** RunNo: **132628**
Client ID: **PBW** Batch ID: **72586** TestNo: **EPA 7470A** Analysis Date: **5/4/2011** SeqNo: **2161331**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID: **LCS-72586** SampType: **LCS** TestCode: **7470_W** Units: **µg/L** Prep Date: **5/2/2011** RunNo: **132628**
Client ID: **LCSW** Batch ID: **72586** TestNo: **EPA 7470A** Analysis Date: **5/4/2011** SeqNo: **2161332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	10.260	0.20	10.00	0	103	85	115				

Sample ID: **117623-007C-MS** SampType: **MS** TestCode: **7470_W** Units: **µg/L** Prep Date: **5/2/2011** RunNo: **132628**
Client ID: **ZZZZZZ** Batch ID: **72586** TestNo: **EPA 7470A** Analysis Date: **5/4/2011** SeqNo: **2161333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	10.233	0.20	10.00	0.2321	100	70	130				

Sample ID: **117623-007C-MSD** SampType: **MSD** TestCode: **7470_W** Units: **µg/L** Prep Date: **5/2/2011** RunNo: **132628**
Client ID: **ZZZZZZ** Batch ID: **72586** TestNo: **EPA 7470A** Analysis Date: **5/4/2011** SeqNo: **2161334**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	10.315	0.20	10.00	0.2321	101	70	130	10.23	0.797	20	

Sample ID: **117622-003C-DUP** SampType: **DUP** TestCode: **7470_W** Units: **µg/L** Prep Date: **5/2/2011** RunNo: **132628**
Client ID: **A-11-011** Batch ID: **72586** TestNo: **EPA 7470A** Analysis Date: **5/4/2011** SeqNo: **2161337**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	9.125	0.20						9.161	0.394	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S

Sample ID: **MB-72651** SampType: **MBLK** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **5/4/2011** RunNo: **132644**
Client ID: **PBS** Batch ID: **72651** TestNo: **EPA 7471A** Analysis Date: **5/5/2011** SeqNo: **2161766**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID: **LCS-72651** SampType: **LCS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **5/4/2011** RunNo: **132644**
Client ID: **LCSS** Batch ID: **72651** TestNo: **EPA 7471A** Analysis Date: **5/5/2011** SeqNo: **2161767**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.799	0.10	0.8300	0	96.3	80	120				

Sample ID: **117622-001A-MS** SampType: **MS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **5/4/2011** RunNo: **132644**
Client ID: **A-11-011-1** Batch ID: **72651** TestNo: **EPA 7471A** Analysis Date: **5/5/2011** SeqNo: **2161768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.662	0.10	0.8300	0.07495	70.7	70	130				

Sample ID: **117622-001A-MSD** SampType: **MSD** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **5/4/2011** RunNo: **132644**
Client ID: **A-11-011-1** Batch ID: **72651** TestNo: **EPA 7471A** Analysis Date: **5/5/2011** SeqNo: **2161769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.660	0.10	0.8300	0.07495	70.5	70	130	0.6620	0.316	20	

Sample ID: **117622-001A-DUP** SampType: **DUP** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **5/4/2011** RunNo: **132644**
Client ID: **A-11-011-1** Batch ID: **72651** TestNo: **EPA 7471A** Analysis Date: **5/5/2011** SeqNo: **2161771**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.074	0.10						0.07495	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **E110504LC3** SampType: **LCS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132635**
Client ID: **LCSS** Batch ID: **E11VS182** TestNo: **EPA 8015B(M** Analysis Date: **5/4/2011** SeqNo: **2161509**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.512	1.0	5.000	0	110	70	130				
Surr: Bromofluorobenzene (FID)	121.181		100.0		121	62	153				

Sample ID: **E110504MB2MS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132635**
Client ID: **ZZZZZZ** Batch ID: **E11VS182** TestNo: **EPA 8015B(M** Analysis Date: **5/4/2011** SeqNo: **2161510**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.363	1.0	5.000	0	107	49	131				
Surr: Bromofluorobenzene (FID)	113.367		100.0		113	62	153				

Sample ID: **E110504MB2MSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132635**
Client ID: **ZZZZZZ** Batch ID: **E11VS182** TestNo: **EPA 8015B(M** Analysis Date: **5/4/2011** SeqNo: **2161511**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.150	1.0	5.000	0	103	49	131	5.363	4.05	20	
Surr: Bromofluorobenzene (FID)	113.758		100.0		114	62	153		0	0	

Sample ID: **E110504MB2** SampType: **MBLK** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132635**
Client ID: **PBS** Batch ID: **E11VS182** TestNo: **EPA 8015B(M** Analysis Date: **5/4/2011** SeqNo: **2161512**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0									
Surr: Bromofluorobenzene (FID)	108.163		100.0		108	62	153				

Sample ID: **117619-005ADUP** SampType: **DUP** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132635**
Client ID: **ZZZZZZ** Batch ID: **E11VS182** TestNo: **EPA 8015B(M** Analysis Date: **5/5/2011** SeqNo: **2161519**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **117619-005ADUP** SampType: **DUP** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132635**
Client ID: **ZZZZZZ** Batch ID: **E11VS182** TestNo: **EPA 8015B(M** Analysis Date: **5/5/2011** SeqNo: **2161519**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	127.906		100.0		128	62	153		0	0	

Sample ID: **117622-005AMS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132635**
Client ID: **A-11-009-5** Batch ID: **E11VS182** TestNo: **EPA 8015B(M** Analysis Date: **5/5/2011** SeqNo: **2161526**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	3.744	1.0	5.000	0	74.9	49	131				
Surr: Bromofluorobenzene (FID)	134.479		100.0		134	62	153				

Sample ID: **117622-005AMSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **132635**
Client ID: **A-11-009-5** Batch ID: **E11VS182** TestNo: **EPA 8015B(M** Analysis Date: **5/5/2011** SeqNo: **2161527**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.425	1.0	5.000	0	88.5	49	131	3.744	16.7	20	
Surr: Bromofluorobenzene (FID)	138.980		100.0		139	62	153		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_DM_LL

Sample ID: **MB-72566** SampType: **MBLK** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **5/2/2011** RunNo: **132588**
Client ID: **PBW** Batch ID: **72566** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **5/3/2011** SeqNo: **2160354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	0.050									
ORO	ND	0.050									
Surr: p-Terphenyl	0.076		0.08000		94.5	36	126				

Sample ID: **MB-72566MS** SampType: **MS** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **5/2/2011** RunNo: **132588**
Client ID: **ZZZZZZ** Batch ID: **72566** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **5/3/2011** SeqNo: **2160355**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.721	0.050	1.000	0	72.1	52	128				
Surr: p-Terphenyl	0.078		0.08000		97.8	36	126				

Sample ID: **LCS-72566LCS** SampType: **LCS** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **5/2/2011** RunNo: **132588**
Client ID: **LCSW** Batch ID: **72566** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **5/3/2011** SeqNo: **2160356**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.852	0.050	1.000	0	85.2	52	128				
Surr: p-Terphenyl	0.095		0.08000		118	36	126				

Sample ID: **MB-72566MSD** SampType: **MSD** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **5/2/2011** RunNo: **132588**
Client ID: **ZZZZZZ** Batch ID: **72566** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **5/3/2011** SeqNo: **2160357**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.772	0.050	1.000	0	77.2	52	128	0.7208	6.87	20	
Surr: p-Terphenyl	0.085		0.08000		106	36	126		0	0	

Sample ID: **117622-011DDUP** SampType: **DUP** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **5/2/2011** RunNo: **132588**
Client ID: **A-11-012** Batch ID: **72566** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **5/3/2011** SeqNo: **2160367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_DM_LL

Sample ID: **117622-011DDUP** SampType: **DUP** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **5/2/2011** RunNo: **132588**
Client ID: **A-11-012** Batch ID: **72566** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **5/3/2011** SeqNo: **2160367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.149	0.050						0.1306	13.0	20	
ORO	0.081	0.050						0.06588	20.4	20	R
Surr: p-Terphenyl	0.078		0.08000		97.9	36	126		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_GP LL

Sample ID: **M110502LCS2** SampType: **LCS** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132530**
Client ID: **LCSW** Batch ID: **M11VW085** TestNo: **EPA 8015B(M** Analysis Date: **5/2/2011** SeqNo: **2159564**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.935	0.050	1.000	0	93.5	70	130				
Surr: Bromofluorobenzene (FID)	93.659		100.0		93.7	70	130				

Sample ID: **M110502MB1MS** SampType: **MS** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132530**
Client ID: **ZZZZZZ** Batch ID: **M11VW085** TestNo: **EPA 8015B(M** Analysis Date: **5/2/2011** SeqNo: **2159565**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.918	0.050	1.000	0	91.8	70	130				
Surr: Bromofluorobenzene (FID)	95.953		100.0		96.0	70	130				

Sample ID: **M110502MB1MSD** SampType: **MSD** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132530**
Client ID: **ZZZZZZ** Batch ID: **M11VW085** TestNo: **EPA 8015B(M** Analysis Date: **5/2/2011** SeqNo: **2159566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.927	0.050	1.000	0	92.7	70	130	0.9180	0.976	20	
Surr: Bromofluorobenzene (FID)	96.761		100.0		96.8	70	130		0	0	

Sample ID: **M110502MB1** SampType: **MBLK** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132530**
Client ID: **PBW** Batch ID: **M11VW085** TestNo: **EPA 8015B(M** Analysis Date: **5/2/2011** SeqNo: **2159567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050									
Surr: Bromofluorobenzene (FID)	92.105		100.0		92.1	70	130				

Sample ID: **117623-002BDUP** SampType: **DUP** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132530**
Client ID: **ZZZZZZ** Batch ID: **M11VW085** TestNo: **EPA 8015B(M** Analysis Date: **5/2/2011** SeqNo: **2159569**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_GP LL

Sample ID: **117623-002BDUP** SampType: **DUP** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **132530**
Client ID: **ZZZZZZ** Batch ID: **M11VW085** TestNo: **EPA 8015B(M** Analysis Date: **5/2/2011** SeqNo: **2159569**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	93.809		100.0		93.8	70	130		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110504LC4** SampType: **LCS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132635**
Client ID: **LCSS** Batch ID: **E11VS182** TestNo: **EPA 8021B** Analysis Date: **5/4/2011** SeqNo: **2161528**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	110.575	5.0	100.0	0	111	70	130				
Ethylbenzene	108.059	5.0	100.0	0	108	70	130				
m,p-Xylene	219.147	10	200.0	0	110	70	130				
Methyl tert-butyl ether	108.318	5.0	100.0	0	108	70	130				
o-Xylene	112.122	5.0	100.0	0	112	70	130				
Toluene	111.063	5.0	100.0	0	111	70	130				
Surr: Bromofluorobenzene (PID)	110.431		100.0		110	65	140				

Sample ID: **E110504LC4** SampType: **LCSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132635**
Client ID: **LCSS02** Batch ID: **E11VS182** TestNo: **EPA 8021B** Analysis Date: **5/4/2011** SeqNo: **2161529**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	103.669	5.0	100.0	0	104	70	130	110.6	6.45	20	
Ethylbenzene	103.534	5.0	100.0	0	104	70	130	108.1	4.28	20	
m,p-Xylene	210.867	10	200.0	0	105	70	130	219.1	3.85	20	
Methyl tert-butyl ether	101.613	5.0	100.0	0	102	70	130	108.3	6.39	20	
o-Xylene	108.241	5.0	100.0	0	108	70	130	112.1	3.52	20	
Toluene	105.534	5.0	100.0	0	106	70	130	111.1	5.11	20	
Surr: Bromofluorobenzene (PID)	110.322		100.0		110	65	140		0	0	

Sample ID: **E110504MB2MS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132635**
Client ID: **ZZZZZZ** Batch ID: **E11VS182** TestNo: **EPA 8021B** Analysis Date: **5/4/2011** SeqNo: **2161530**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	44.248	5.0	22.15	0	200	69	264				
Ethylbenzene	64.459	5.0	42.30	0	152	37	161				
m,p-Xylene	218.852	10	180.2	0	121	30	149				
Methyl tert-butyl ether	538.427	5.0	578.9	0	93.0	39	121				
o-Xylene	83.577	5.0	64.80	0	129	31	166				
Toluene	210.488	5.0	172.6	0	122	44	150				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110504MB2MS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132635**
Client ID: **ZZZZZZ** Batch ID: **E11VS182** TestNo: **EPA 8021B** Analysis Date: **5/4/2011** SeqNo: **2161530**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (PID)	111.722		100.0		112	65	140				

Sample ID: **E110504MB2MSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132635**
Client ID: **ZZZZZZ** Batch ID: **E11VS182** TestNo: **EPA 8021B** Analysis Date: **5/4/2011** SeqNo: **2161531**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	41.218	5.0	22.15	0	186	69	264	44.25	7.09	20	
Ethylbenzene	61.396	5.0	42.30	0	145	37	161	64.46	4.87	20	
m,p-Xylene	208.915	10	180.2	0	116	30	149	218.9	4.65	20	
Methyl tert-butyl ether	490.225	5.0	578.9	0	84.7	39	121	538.4	9.37	20	
o-Xylene	79.268	5.0	64.80	0	122	31	166	83.58	5.29	20	
Toluene	197.880	5.0	172.6	0	115	44	150	210.5	6.17	20	
Surr: Bromofluorobenzene (PID)	108.314		100.0		108	65	140		0	20	

Sample ID: **E110504MB2** SampType: **MBLK** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132635**
Client ID: **PBS** Batch ID: **E11VS182** TestNo: **EPA 8021B** Analysis Date: **5/4/2011** SeqNo: **2161532**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0									
Ethylbenzene	ND	5.0									
m,p-Xylene	ND	10									
Methyl tert-butyl ether	ND	5.0									
o-Xylene	ND	5.0									
Toluene	ND	5.0									
Surr: Bromofluorobenzene (PID)	105.666		100.0		106	65	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **117622-005AMS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132635**
Client ID: **A-11-009-5** Batch ID: **E11VS182** TestNo: **EPA 8021B** Analysis Date: **5/5/2011** SeqNo: **2161539**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	34.953	5.0	22.15	0	158	69	264				
Ethylbenzene	47.122	5.0	42.30	0	111	37	161				
m,p-Xylene	166.186	10	180.2	0	92.2	30	149				
Methyl tert-butyl ether	433.400	5.0	578.9	0	74.9	39	121				
o-Xylene	64.513	5.0	64.80	0	99.6	31	166				
Toluene	164.605	5.0	172.6	1.626	94.4	44	150				
Xylenes, Total	230.699	15	245.0	0	94.2	30	149				
Surr: Bromofluorobenzene (PID)	125.915		100.0		126	65	140				

Sample ID: **117622-005AMSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **132635**
Client ID: **A-11-009-5** Batch ID: **E11VS182** TestNo: **EPA 8021B** Analysis Date: **5/5/2011** SeqNo: **2161540**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	40.653	5.0	22.15	0	184	69	264	34.95	15.1	20	
Ethylbenzene	55.076	5.0	42.30	0	130	37	161	47.12	15.6	20	
m,p-Xylene	191.044	10	180.2	0	106	30	149	166.2	13.9	20	
Methyl tert-butyl ether	501.353	5.0	578.9	0	86.6	39	121	433.4	14.5	20	
o-Xylene	74.236	5.0	64.80	0	115	31	166	64.51	14.0	20	
Toluene	190.062	5.0	172.6	1.626	109	44	150	164.6	14.4	20	
Xylenes, Total	265.280	15	245.0	0	108	30	149	230.7	13.9	20	
Surr: Bromofluorobenzene (PID)	127.883		100.0		128	65	140		0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_WP_BTEX

Sample ID: **M110502LCS1** SampType: **LCS** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132530**
Client ID: **LCSW** Batch ID: **M11VW085** TestNo: **EPA 8021B** Analysis Date: **5/2/2011** SeqNo: **2159578**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	95.762	0.50	100.0	0	95.8	70	130				
Toluene	94.499	0.50	100.0	0	94.5	70	130				
Ethylbenzene	96.821	0.50	100.0	0	96.8	70	130				
m,p-Xylene	196.914	1.0	200.0	0	98.5	70	130				
o-Xylene	99.345	0.50	100.0	0	99.3	70	130				
Methyl tert-butyl ether	96.503	0.50	100.0	0	96.5	70	130				
Surr: Bromofluorobenzene (PID)	92.279		100.0		92.3	70	130				

Sample ID: **M110502LCS1D** SampType: **LCSD** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132530**
Client ID: **LCSS02** Batch ID: **M11VW085** TestNo: **EPA 8021B** Analysis Date: **5/2/2011** SeqNo: **2159579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	96.525	0.50	100.0	0	96.5	70	130	95.76	0.794	20	
Toluene	95.435	0.50	100.0	0	95.4	70	130	94.50	0.986	20	
Ethylbenzene	96.695	0.50	100.0	0	96.7	70	130	96.82	0.130	20	
m,p-Xylene	196.546	1.0	200.0	0	98.3	70	130	196.9	0.187	20	
o-Xylene	99.511	0.50	100.0	0	99.5	70	130	99.34	0.167	20	
Methyl tert-butyl ether	100.799	0.50	100.0	0	101	70	130	96.50	4.35	20	
Surr: Bromofluorobenzene (PID)	92.642		100.0		92.6	70	130		0	0	

Sample ID: **M110502MB1** SampType: **MBLK** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132530**
Client ID: **PBW** Batch ID: **M11VW085** TestNo: **EPA 8021B** Analysis Date: **5/2/2011** SeqNo: **2159582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
o-Xylene	ND	0.50									
Methyl tert-butyl ether	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_WP_BTEX

Sample ID: **M110502MB1** SampType: **MBLK** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132530**
Client ID: **PBW** Batch ID: **M11VW085** TestNo: **EPA 8021B** Analysis Date: **5/2/2011** SeqNo: **2159582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (PID)	90.955		100.0		91.0	70	130				

Sample ID: **117623-002BDUP** SampType: **DUP** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **132530**
Client ID: **ZZZZZZ** Batch ID: **M11VW085** TestNo: **EPA 8021B** Analysis Date: **5/2/2011** SeqNo: **2159584**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50						0	0	20	
Toluene	0.358	0.50						0.3520	0	20	
Ethylbenzene	ND	0.50						0	0	20	
m,p-Xylene	ND	1.0						0	0	20	
o-Xylene	ND	0.50						0	0	20	
Methyl tert-butyl ether	ND	0.50						0	0	20	
Surr: Bromofluorobenzene (PID)	91.429		100.0		91.4	70	130		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **LCS-72621** SampType: **LCS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **LCSS** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	13.192	1.0	16.67	0	79.1	59	105				
Dieldrin	13.566	2.0	16.67	0	81.4	56	112				
Endrin	15.967	2.0	16.67	0	95.8	53	116				
gamma-BHC	14.469	1.0	16.67	0	86.8	59	110				
Heptachlor	13.462	1.0	16.67	0	80.8	53	118				
Surr: Tetrachloro-m-xylene	13.087		16.67		78.5	35	108				
Surr: Decachlorobiphenyl	12.484		16.67		74.9	31	107				

Sample ID: **MB-72621** SampType: **MBLK** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **PBS** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	2.0									
4,4´-DDE	ND	2.0									
4,4´-DDT	ND	2.0									
Aldrin	ND	1.0									
alpha-BHC	ND	1.0									
alpha-Chlordane	ND	1.0									
beta-BHC	ND	1.0									
Chlordane	ND	8.5									
delta-BHC	ND	1.0									
Dieldrin	ND	2.0									
Endosulfan I	ND	1.0									
Endosulfan II	ND	2.0									
Endosulfan sulfate	ND	2.0									
Endrin	ND	2.0									
Endrin aldehyde	ND	2.0									
Endrin ketone	ND	2.0									
gamma-BHC	ND	1.0									
gamma-Chlordane	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **MB-72621** SampType: **MBLK** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **PBS** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Heptachlor	ND	1.0									
Heptachlor epoxide	ND	1.0									
Methoxychlor	ND	5.0									
Toxaphene	ND	50									
Surr: Tetrachloro-m-xylene	14.432		16.67		86.6	35	108				
Surr: Decachlorobiphenyl	12.075		16.67		72.4	31	107				

Sample ID: **117564-007AMS** SampType: **MS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **ZZZZZZ** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160281**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	12.609	2.0	16.67	0	75.6	38	130				
Aldrin	12.439	1.0	16.67	0	74.6	35	122				
Dieldrin	12.016	2.0	16.67	0	72.1	31	138				
Endrin	14.591	2.0	16.67	0	87.5	39	132				
gamma-BHC	13.137	1.0	16.67	0	78.8	36	126				
Heptachlor	12.967	1.0	16.67	0	77.8	34	131				
Surr: Tetrachloro-m-xylene	12.441		16.67		74.6	35	108				
Surr: Decachlorobiphenyl	12.563		16.67		75.4	31	107				

Sample ID: **117564-007AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **ZZZZZZ** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160282**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	12.779	2.0	16.67	0	76.7	38	130	12.61	1.34	20	
Aldrin	12.304	1.0	16.67	0	73.8	35	122	12.44	1.09	20	
Dieldrin	11.983	2.0	16.67	0	71.9	31	138	12.02	0.279	20	
Endrin	14.896	2.0	16.67	0	89.4	39	132	14.59	2.07	20	
gamma-BHC	12.967	1.0	16.67	0	77.8	36	126	13.14	1.30	20	
Heptachlor	12.956	1.0	16.67	0	77.7	34	131	12.97	0.0913	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **117564-007AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **ZZZZZZ** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160282**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Tetrachloro-m-xylene	11.890		16.67		71.3	35	108		0	0	
Surr: Decachlorobiphenyl	12.305		16.67		73.8	31	107		0	0	

Sample ID: **117622-006ADUP** SampType: **DUP** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **A-11-013-1** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160289**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	2.0						0	0	20	
4,4´-DDE	ND	2.0						0	0	20	
4,4´-DDT	ND	2.0						0	0	20	
Aldrin	ND	1.0						0	0	20	
alpha-BHC	ND	1.0						0	0	20	
alpha-Chlordane	ND	1.0						0	0	20	
beta-BHC	ND	1.0						0	0	20	
Chlordane	ND	8.5						0	0	20	
delta-BHC	ND	1.0						0	0	20	
Dieldrin	ND	2.0						0	0	20	
Endosulfan I	ND	1.0						0	0	20	
Endosulfan II	ND	2.0						0	0	20	
Endosulfan sulfate	ND	2.0						0	0	20	
Endrin	ND	2.0						0	0	20	
Endrin aldehyde	ND	2.0						0	0	20	
Endrin ketone	ND	2.0						0	0	20	
gamma-BHC	ND	1.0						0	0	20	
gamma-Chlordane	ND	1.0						0	0	20	
Heptachlor	ND	1.0						0	0	20	
Heptachlor epoxide	ND	1.0						0	0	20	
Methoxychlor	ND	5.0						0	0	20	
Toxaphene	ND	50						0	0	20	
Surr: Tetrachloro-m-xylene	11.800		16.67		70.8	35	108		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **117622-006ADUP** SampType: **DUP** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **5/3/2011** RunNo: **132586**
Client ID: **A-11-013-1** Batch ID: **72621** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **5/3/2011** SeqNo: **2160289**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	12.005		16.67		72.0	31	107		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **Q110502LC1** SampType: **LCS** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **LCSW** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	20.200	0.50	20.00	0	101	70	130				
Benzene	40.840	0.50	40.00	0	102	70	130				
Chlorobenzene	21.850	0.50	20.00	0	109	70	130				
MTBE	23.100	0.50	20.00	0	116	70	130				
Toluene	41.580	0.50	40.00	0	104	70	130				
Trichloroethene	20.840	0.50	20.00	0	104	70	130				
Surr: 1,2-Dichloroethane-d4	24.480		25.00		97.9	70	130				
Surr: 4-Bromofluorobenzene	24.250		25.00		97.0	70	130				
Surr: Dibromofluoromethane	23.560		25.00		94.2	70	130				
Surr: Toluene-d8	23.560		25.00		94.2	70	130				

Sample ID: **Q110502MB3MS** SampType: **MS** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **ZZZZZZ** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	22.010	0.50	20.00	0	110	70	130				
Benzene	42.020	0.50	40.00	0	105	70	130				
Chlorobenzene	21.930	0.50	20.00	0	110	70	130				
MTBE	23.580	0.50	20.00	0	118	70	130				
Toluene	43.250	0.50	40.00	0	108	70	130				
Trichloroethene	21.590	0.50	20.00	0	108	70	130				
Surr: 1,2-Dichloroethane-d4	24.910		25.00		99.6	70	130				
Surr: 4-Bromofluorobenzene	24.220		25.00		96.9	70	130				
Surr: Dibromofluoromethane	24.090		25.00		96.4	70	130				
Surr: Toluene-d8	23.760		25.00		95.0	70	130				

Sample ID: **Q110502MB3MSD** SampType: **MSD** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **ZZZZZZ** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **Q110502MB3MSD** SampType: **MSD** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **ZZZZZZ** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	21.960	0.50	20.00	0	110	70	130	22.01	0.227	20	
Benzene	42.110	0.50	40.00	0	105	70	130	42.02	0.214	20	
Chlorobenzene	22.500	0.50	20.00	0	112	70	130	21.93	2.57	20	
MTBE	24.190	0.50	20.00	0	121	70	130	23.58	2.55	20	
Toluene	43.310	0.50	40.00	0	108	70	130	43.25	0.139	20	
Trichloroethene	22.490	0.50	20.00	0	112	70	130	21.59	4.08	20	
Surr: 1,2-Dichloroethane-d4	25.120		25.00		100	70	130		0	0	
Surr: 4-Bromofluorobenzene	24.490		25.00		98.0	70	130		0	0	
Surr: Dibromofluoromethane	24.240		25.00		97.0	70	130		0	0	
Surr: Toluene-d8	23.720		25.00		94.9	70	130		0	0	

Sample ID: **Q110502MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **PBW** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50									
1,1,1-Trichloroethane	ND	0.50									
1,1,2,2-Tetrachloroethane	ND	0.50									
1,1,2-Trichloroethane	ND	0.50									
1,1-Dichloroethane	ND	0.50									
1,1-Dichloroethene	ND	0.50									
1,1-Dichloropropene	ND	0.50									
1,2,3-Trichlorobenzene	ND	0.50									
1,2,3-Trichloropropane	ND	0.50									
1,2,4-Trichlorobenzene	ND	0.50									
1,2,4-Trimethylbenzene	ND	0.50									
1,2-Dibromo-3-chloropropane	ND	0.50									
1,2-Dibromoethane	ND	0.50									
1,2-Dichlorobenzene	ND	0.50									
1,2-Dichloroethane	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **Q110502MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **PBW** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloropropane	ND	0.50									
1,3,5-Trimethylbenzene	ND	0.50									
1,3-Dichlorobenzene	ND	0.50									
1,3-Dichloropropane	ND	0.50									
1,4-Dichlorobenzene	ND	0.50									
2,2-Dichloropropane	ND	0.50									
2-Chlorotoluene	ND	0.50									
4-Chlorotoluene	ND	0.50									
4-Isopropyltoluene	ND	0.50									
Benzene	ND	0.50									
Bromobenzene	ND	0.50									
Bromodichloromethane	ND	0.50									
Bromoform	ND	0.50									
Bromomethane	ND	0.50									
Carbon tetrachloride	ND	0.50									
Chlorobenzene	ND	0.50									
Chloroethane	ND	0.50									
Chloroform	ND	0.50									
Chloromethane	0.220	0.50									
cis-1,2-Dichloroethene	ND	0.50									
cis-1,3-Dichloropropene	ND	0.50									
Dibromochloromethane	ND	0.50									
Dibromomethane	ND	0.50									
Dichlorodifluoromethane	ND	0.50									
Ethylbenzene	ND	0.50									
Hexachlorobutadiene	ND	0.50									
Isopropylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
Methylene chloride	ND	1.0									
MTBE	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **Q110502MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **PBW** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Butylbenzene	ND	0.50									
n-Propylbenzene	ND	0.50									
Naphthalene	ND	0.50									
o-Xylene	ND	0.50									
sec-Butylbenzene	ND	0.50									
Styrene	ND	0.50									
tert-Butylbenzene	ND	0.50									
Tetrachloroethene	ND	0.50									
Toluene	ND	0.50									
trans-1,2-Dichloroethene	ND	0.50									
Trichloroethene	ND	0.50									
Trichlorofluoromethane	ND	0.50									
Vinyl chloride	ND	0.50									
Surr: 1,2-Dichloroethane-d4	25.470		25.00		102	70	130				
Surr: 4-Bromofluorobenzene	24.020		25.00		96.1	70	130				
Surr: Dibromofluoromethane	24.630		25.00		98.5	70	130				
Surr: Toluene-d8	22.850		25.00		91.4	70	130				

Sample ID: **117530-004ADUP** SampType: **DUP** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **ZZZZZZ** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159686**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50						0	0	20	
1,1,1-Trichloroethane	ND	0.50						0	0	20	
1,1,2,2-Tetrachloroethane	ND	0.50						0	0	20	
1,1,2-Trichloroethane	ND	0.50						0	0	20	
1,1-Dichloroethane	ND	0.50						0	0	20	
1,1-Dichloroethene	ND	0.50						0	0	20	
1,1-Dichloropropene	ND	0.50						0	0	20	
1,2,3-Trichlorobenzene	ND	0.50						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **117530-004ADUP** SampType: **DUP** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **ZZZZZZ** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159686**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichloropropane	ND	0.50						0	0	20	
1,2,4-Trichlorobenzene	ND	0.50						0	0	20	
1,2,4-Trimethylbenzene	ND	0.50						0	0	20	
1,2-Dibromo-3-chloropropane	ND	0.50						0	0	20	
1,2-Dibromoethane	ND	0.50						0	0	20	
1,2-Dichlorobenzene	ND	0.50						0	0	20	
1,2-Dichloroethane	ND	0.50						0	0	20	
1,2-Dichloropropane	ND	0.50						0	0	20	
1,3,5-Trimethylbenzene	ND	0.50						0	0	20	
1,3-Dichlorobenzene	ND	0.50						0	0	20	
1,3-Dichloropropane	ND	0.50						0	0	20	
1,4-Dichlorobenzene	ND	0.50						0	0	20	
2,2-Dichloropropane	ND	0.50						0	0	20	
2-Chlorotoluene	ND	0.50						0	0	20	
4-Chlorotoluene	ND	0.50						0	0	20	
4-Isopropyltoluene	ND	0.50						0	0	20	
Benzene	ND	0.50						0	0	20	
Bromobenzene	ND	0.50						0	0	20	
Bromodichloromethane	ND	0.50						0	0	20	
Bromoform	ND	0.50						0	0	20	
Bromomethane	ND	0.50						0	0	20	
Carbon tetrachloride	ND	0.50						0	0	20	
Chlorobenzene	ND	0.50						0	0	20	
Chloroethane	ND	0.50						0	0	20	
Chloroform	ND	0.50						0	0	20	
Chloromethane	ND	0.50						0	0	20	
cis-1,2-Dichloroethene	ND	0.50						0	0	20	
cis-1,3-Dichloropropene	ND	0.50						0	0	20	
Dibromochloromethane	ND	0.50						0	0	20	
Dibromomethane	ND	0.50						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 117622
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **117530-004ADUP** SampType: **DUP** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **132537**
Client ID: **ZZZZZZ** Batch ID: **Q11VW060** TestNo: **EPA 8260B** Analysis Date: **5/2/2011** SeqNo: **2159686**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.50						0	0	20	
Ethylbenzene	ND	0.50						0	0	20	
Hexachlorobutadiene	ND	0.50						0	0	20	
Isopropylbenzene	ND	0.50						0	0	20	
m,p-Xylene	ND	1.0						0	0	20	
Methylene chloride	ND	1.0						0	0	20	
MTBE	ND	0.50						0	0	20	
n-Butylbenzene	ND	0.50						0	0	20	
n-Propylbenzene	ND	0.50						0	0	20	
Naphthalene	ND	0.50						0	0	20	
o-Xylene	ND	0.50						0	0	20	
sec-Butylbenzene	ND	0.50						0	0	20	
Styrene	ND	0.50						0	0	20	
tert-Butylbenzene	ND	0.50						0	0	20	
Tetrachloroethene	ND	0.50						0	0	20	
Toluene	ND	0.50						0	0	20	
trans-1,2-Dichloroethene	ND	0.50						0	0	20	
Trichloroethene	1.350	0.50						1.290	4.55	20	
Trichlorofluoromethane	ND	0.50						0	0	20	
Vinyl chloride	ND	0.50						0	0	20	
Surr: 1,2-Dichloroethane-d4	25.270		25.00		101	70	130		0	20	
Surr: 4-Bromofluorobenzene	23.440		25.00		93.8	70	130		0	20	
Surr: Dibromofluoromethane	24.340		25.00		97.4	70	130		0	20	
Surr: Toluene-d8	21.630		25.00		86.5	70	130		0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CHAIN OF CUSTODY RECORD

1/2

Advanced Technology Laboratories

3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #: _____

Logged By: _____ Date: 4/28/11

Method of Transport: Client ☐ ATL ☐ CA OverN ☑ FedEx ☐ Other: _____

Sample Condition Upon Receipt: 2.5C

1. CHILLED	Y ☑	N ☐	4. SEALED	Y ☐	N ☑
2. HEADSPACE (VOA)	Y ☐	N ☑	5. # OF SPLS MATCH COC	Y ☑	N ☐
3. CONTAINER INTACT	Y ☑	N ☐	6. PRESERVED	Y ☑	N ☑

Client: GEOCON Consultants, Inc
Attention: Rick Day
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
Tel: 925.371.5900
Fax: 925.371.5915

Project Name: I-80 ICM Project
Project #: E8583-06-01
Sampler: (Printed Name) Mike O'Brien (Signature)

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
Mike O'Brien	4/28/11	0455	Geocon Cold Storage	4/28/11	0455
Geocon Cold Storage / RS	4/28/11	1430	ontrac	4/28/11	1430
			C. Dgwile	4/29/11	915

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter:
Print Name Date
Signature

Send Report To:
Attn:
Co: SAME AS ABOVE
Addr:
City: State: Zip:

Bill To:
Attn:
Co: SAME AS ABOVE
Addr:
City: State: Zip:

Special Instructions/Comments:
Caltrans Contract 04A3578

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.

Storage Fees (applies when storage is requested):
- Sample :$2.00 / sample /mo (after 45 days)
- Records: $1 /ATL workorder /mo (after 1 year)

Circle or Add Analysis(es) Requested — SPECIFY APPROPRIATE MATRIX

QA/QC: RTNE ☑ CT ☐ SWRCB Logcode ____ OTHER ____

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample Description: Sample ID / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8020 (BTEX)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	TPHd/TPHmo	TPHg/BTEX/MTBE	SOIL	WATER	GROUND WATER	WASTEWATER	CARBON	TAT	Container(s) #	Type	PRESERVATION	REMARKS
	1176227-001	A-11-011-1	4/27/11	0150	X							X		X			X					E	1	SS T	C
	2	A-11-011-5	↓	0155								X			X		X					↓	1	SS T	C
	3	A-11-011	↓	0240								X						X				↓	1	poly	N
		A-11-011	↓	0240										X				X				↓	2	G L	C
		A-11-011	↓	0240			X								X			X				↓	6	G V	H
	4	A-11-009-1	4/27/11	2200	X							X		X			X					E	1	SS T	C
	5	A-11-009-5	↓	2210								X			X		X					↓	1	SS T	C
	6	A-11-013-1	↓	2350	X							X		X			X					↓	1	SS T	C
	7	A-11-013-5	↓	2355								X			X		X					↓	1	SS T	C
	8	A-11-013	4/28/11	047								X						X				↓	1	poly	N

- TAT starts 8AM the following day if samples received after 3 PM

TAT: A = Overnight ≤ 24 hrs; B = Emergency Next Workday; C = Critical 2 Workdays; D = Urgent 3 Workdays; E = Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

CHAIN OF CUSTODY RECORD

2/2

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #: _____
Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FedEx ☐ Other: _____

Sample Condition Upon Receipt:
1. CHILLED Y ☐ N ☐
2. HEADSPACE (VOA) Y ☐ N ☐
3. CONTAINER INTACT Y ☐ N ☐
4. SEALED Y ☐ N ☐
5. # OF SPLS MATCH COC Y ☐ N ☐
6. PRESERVED Y ☐ N ☐

Client: GEOCON Consultants, Inc
Attention: Rick Day
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
Tel: 925.371.5900
Fax: 925.371.5915

Project Name: I-80 ICM Project
Project #: E8583-06-01
Sampler: (Printed Name) Mike O'Brien
(Signature)

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
Mike O'Brien	4/28/11	0455	Geocon Cold Storage	4/28/11	0455
Geocon Cold Storage / R. Silva	4/28/11	1630	ON-TRAC	4/28/11	1630
			C. Aguila	4/29/11	915

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter:
Print Name Date
Signature

Send Report To:
Attn:
Co: SAME AS ABOVE
Addr:
City: State: Zip:

Bill To:
Attn:
Co: SAME AS ABOVE
Addr:
City: State: Zip:

Special Instructions/Comments:
Caltrans Contract 04A3578

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.

Storage Fees (applies when storage is requested):
- Sample :$2.00 / sample /mo (after 45 days)
- Records: $1 /ATL workorder /mo (after 1 year)

Circle or Add Analysis(es) Requested

QA/QC: RTNE ☑ CT ☐ SWRCB ☐ Logcode_____ OTHER _____

ITEM	LAB USE ONLY: Batch #: Lab No.	Sample Description: Sample ID / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8020 (BTEX)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	TPHd/TPHmo	TPHg/BTEX/MTBE	SOIL	WATER	GROUND WATER	WASTEWATER	CARBON	TAT	Container(s) #	Type	PRESERVATION	REMARKS
	117827-8	A-11-013	4/28/11	047									X				X				E	2	G L	C	
		A-11-013		047			X							X			X					6	G V	H	
	9	A-11-012-1		155	X							X	X			X						1	SS T	C	
	10	A-11-012-5		205								X		X		X						1	SS T	C	
	11	A-11-012		245								X					X					1	poly	N	
		A-11-012		245									X				X					2	G L	C	
		A-11-012		245			X							X			X					6	G V	H	

- TAT starts 8AM the following day if samples received after 3 PM

TAT: A = Overnight ≤ 24 hrs; B = Emergency Next Workday; C = Critical 2 Workdays; D = Urgent 3 Workdays; E = Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

June 03, 2011

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Workorder No.: 118062

Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

TEL: (925) 371-5900
FAX: (925) 371-5915

RE: I-80 ICM Project, E8583-06-01

Attention: Rick Day

Enclosed are the results for sample(s) received on May 26, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

Eddie F. Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Project: I-80 ICM Project, E8583-06-01
Lab Order: 118062

CASE NARRATIVE

Analytical Comments for Method 6010

Dilution was necessary for sample 118062-007C, due to sample matrix.

Matrix Spike (MS) and /or Matrix Spike Duplicate (MSD) are/is outside recovery criteria for samples 118062-007CMS and 118062-007CMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

RPD for Duplicate (DUP) is outside criteria for sample 118062-001ADUP; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Analytical Comments for Method 8015 (DRO/ORO)

Dilution was necessary for samples 118062-003A, 118062-005A and 118062-008A, due to sample matrix.

Surrogate recovery was diluted out for samples 118062-003A, 118062-003AMS, 118062-003AMSD, 118062-005A and 118062-008A.

Matrix Spike (MS) and /or Matrix Spike Duplicate (MSD) are/is outside recovery criteria for samples 118062-003AMS and 118062-003AMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Analytical Comments for Method 8081

Dilution was necessary for samples 118062-003A, 118062-005A and 118062-008A, due to matrix interferences.

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *03-Jun-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 118062
Project: I-80 ICM Project, E8583-06-01
Lab ID: 118062-001A

Client Sample ID: A-11-017-1
Collection Date: 5/23/2011 11:50:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110602A	QC Batch: 73243			PrepDate:	6/1/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	6/2/2011 01:01 PM
Arsenic	1.9	1.0		mg/Kg	1	6/2/2011 01:01 PM
Barium	60	1.0		mg/Kg	1	6/2/2011 01:01 PM
Beryllium	ND	1.0		mg/Kg	1	6/2/2011 01:01 PM
Cadmium	ND	1.0		mg/Kg	1	6/2/2011 01:01 PM
Chromium	21	1.0		mg/Kg	1	6/2/2011 01:01 PM
Cobalt	6.5	1.0		mg/Kg	1	6/2/2011 01:01 PM
Copper	5.9	2.0		mg/Kg	1	6/2/2011 01:01 PM
Lead	12	1.0		mg/Kg	1	6/2/2011 01:01 PM
Molybdenum	ND	1.0		mg/Kg	1	6/2/2011 01:01 PM
Nickel	15	1.0		mg/Kg	1	6/2/2011 01:01 PM
Selenium	ND	1.0		mg/Kg	1	6/2/2011 01:01 PM
Silver	ND	1.0		mg/Kg	1	6/2/2011 01:01 PM
Thallium	ND	1.0		mg/Kg	1	6/2/2011 01:01 PM
Vanadium	31	1.0		mg/Kg	1	6/2/2011 01:01 PM
Zinc	43	1.0		mg/Kg	1	6/2/2011 01:01 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110602C	QC Batch: 73160			PrepDate:	5/26/2011	Analyst: **CBR**
DRO	5.9	1.0		mg/Kg	1	5/31/2011 09:52 PM
ORO	24	1.0		mg/Kg	1	5/31/2011 09:52 PM
Surr: p-Terphenyl	72.3	30-128		%REC	1	5/31/2011 09:52 PM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC9_110601B	QC Batch: 73263			PrepDate:	6/1/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	6/1/2011 07:29 PM
4,4´-DDE	ND	2.0		µg/Kg	1	6/1/2011 07:29 PM
4,4´-DDT	ND	2.0		µg/Kg	1	6/1/2011 07:29 PM
Aldrin	ND	1.0		µg/Kg	1	6/1/2011 07:29 PM
alpha-BHC	ND	1.0		µg/Kg	1	6/1/2011 07:29 PM
alpha-Chlordane	1.1	1.0		µg/Kg	1	6/1/2011 07:29 PM
beta-BHC	ND	1.0		µg/Kg	1	6/1/2011 07:29 PM
Chlordane	15	8.5		µg/Kg	1	6/1/2011 07:29 PM
delta-BHC	ND	1.0		µg/Kg	1	6/1/2011 07:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *03-Jun-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-017-1
Lab Order:	118062	**Collection Date:**	5/23/2011 11:50:00 PM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	118062-001A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110601B	QC Batch: 73263			PrepDate:	6/1/2011	Analyst: **HL**
Dieldrin	ND	2.0		µg/Kg	1	6/1/2011 07:29 PM
Endosulfan I	ND	1.0		µg/Kg	1	6/1/2011 07:29 PM
Endosulfan II	ND	2.0		µg/Kg	1	6/1/2011 07:29 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	6/1/2011 07:29 PM
Endrin	ND	2.0		µg/Kg	1	6/1/2011 07:29 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	6/1/2011 07:29 PM
Endrin ketone	ND	2.0		µg/Kg	1	6/1/2011 07:29 PM
gamma-BHC	ND	1.0		µg/Kg	1	6/1/2011 07:29 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	6/1/2011 07:29 PM
Heptachlor	ND	1.0		µg/Kg	1	6/1/2011 07:29 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	6/1/2011 07:29 PM
Methoxychlor	ND	5.0		µg/Kg	1	6/1/2011 07:29 PM
Toxaphene	ND	50		µg/Kg	1	6/1/2011 07:29 PM
Surr: Decachlorobiphenyl	85.3	31-107		%REC	1	6/1/2011 07:29 PM
Surr: Tetrachloro-m-xylene	80.6	35-108		%REC	1	6/1/2011 07:29 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110602C	QC Batch: 73249			PrepDate:	6/2/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	6/2/2011 02:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *03-Jun-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 118062
Project: I-80 ICM Project, E8583-06-01
Lab ID: 118062-002A

Client Sample ID: A-11-017-5
Collection Date: 5/24/2011 12:17:00 AM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110602A	QC Batch: 73243			PrepDate:	6/1/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	6/2/2011 01:13 PM
Arsenic	ND	1.0		mg/Kg	1	6/2/2011 01:13 PM
Barium	58	1.0		mg/Kg	1	6/2/2011 01:13 PM
Beryllium	ND	1.0		mg/Kg	1	6/2/2011 01:13 PM
Cadmium	ND	1.0		mg/Kg	1	6/2/2011 01:13 PM
Chromium	14	1.0		mg/Kg	1	6/2/2011 01:13 PM
Cobalt	6.4	1.0		mg/Kg	1	6/2/2011 01:13 PM
Copper	5.3	2.0		mg/Kg	1	6/2/2011 01:13 PM
Lead	7.2	1.0		mg/Kg	1	6/2/2011 01:13 PM
Molybdenum	ND	1.0		mg/Kg	1	6/2/2011 01:13 PM
Nickel	12	1.0		mg/Kg	1	6/2/2011 01:13 PM
Selenium	ND	1.0		mg/Kg	1	6/2/2011 01:13 PM
Silver	ND	1.0		mg/Kg	1	6/2/2011 01:13 PM
Thallium	ND	1.0		mg/Kg	1	6/2/2011 01:13 PM
Vanadium	33	1.0		mg/Kg	1	6/2/2011 01:13 PM
Zinc	34	1.0		mg/Kg	1	6/2/2011 01:13 PM
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC2_110526A	QC Batch: E11VS204			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	5/26/2011 11:28 AM
Surr: Bromofluorobenzene (FID)	123	62-153		%REC	1	5/26/2011 11:28 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC2_110526A	QC Batch: E11VS204			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	5/26/2011 11:28 AM
Ethylbenzene	ND	5.0		µg/Kg	1	5/26/2011 11:28 AM
m,p-Xylene	ND	10		µg/Kg	1	5/26/2011 11:28 AM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	5/26/2011 11:28 AM
o-Xylene	ND	5.0		µg/Kg	1	5/26/2011 11:28 AM
Toluene	ND	5.0		µg/Kg	1	5/26/2011 11:28 AM
Surr: Bromofluorobenzene (PID)	118	65-140		%REC	1	5/26/2011 11:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *03-Jun-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-017-5
Lab Order:	118062	**Collection Date:**	5/24/2011 12:17:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	118062-002A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA5_110602C	QC Batch: 73249			PrepDate:	6/2/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	6/2/2011 02:56 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *03-Jun-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-009-1
Lab Order:	118062	**Collection Date:**	5/24/2011 3:16:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	118062-003A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110602A	QC Batch: 73243			PrepDate:	6/1/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	6/2/2011 01:16 PM
Arsenic	ND	1.0		mg/Kg	1	6/2/2011 01:16 PM
Barium	100	1.0		mg/Kg	1	6/2/2011 01:16 PM
Beryllium	ND	1.0		mg/Kg	1	6/2/2011 01:16 PM
Cadmium	ND	1.0		mg/Kg	1	6/2/2011 01:16 PM
Chromium	28	1.0		mg/Kg	1	6/2/2011 01:16 PM
Cobalt	7.4	1.0		mg/Kg	1	6/2/2011 01:16 PM
Copper	12	2.0		mg/Kg	1	6/2/2011 01:16 PM
Lead	55	1.0		mg/Kg	1	6/2/2011 01:16 PM
Molybdenum	ND	1.0		mg/Kg	1	6/2/2011 01:16 PM
Nickel	28	1.0		mg/Kg	1	6/2/2011 01:16 PM
Selenium	ND	1.0		mg/Kg	1	6/2/2011 01:16 PM
Silver	ND	1.0		mg/Kg	1	6/2/2011 01:16 PM
Thallium	ND	1.0		mg/Kg	1	6/2/2011 01:16 PM
Vanadium	23	1.0		mg/Kg	1	6/2/2011 01:16 PM
Zinc	58	1.0		mg/Kg	1	6/2/2011 01:16 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110602C	QC Batch: 73160			PrepDate:	5/26/2011	Analyst: **CBR**
DRO	610	100		mg/Kg	10	6/1/2011 09:54 AM
ORO	4200	100		mg/Kg	10	6/1/2011 09:54 AM
Surr: p-Terphenyl	0	30-128	SDO	%REC	10	6/1/2011 09:54 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC9_110601B	QC Batch: 73263			PrepDate:	6/1/2011	Analyst: **HL**
4,4´-DDD	ND	20		µg/Kg	10	6/1/2011 07:56 PM
4,4´-DDE	ND	20		µg/Kg	10	6/1/2011 07:56 PM
4,4´-DDT	ND	20		µg/Kg	10	6/1/2011 07:56 PM
Aldrin	ND	10		µg/Kg	10	6/1/2011 07:56 PM
alpha-BHC	ND	10		µg/Kg	10	6/1/2011 07:56 PM
alpha-Chlordane	ND	10		µg/Kg	10	6/1/2011 07:56 PM
beta-BHC	ND	10		µg/Kg	10	6/1/2011 07:56 PM
Chlordane	ND	85		µg/Kg	10	6/1/2011 07:56 PM
delta-BHC	ND	10		µg/Kg	10	6/1/2011 07:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *03-Jun-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-009-1
Lab Order:	118062	**Collection Date:**	5/24/2011 3:16:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	118062-003A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110601B	QC Batch: 73263			PrepDate:	6/1/2011	Analyst: **HL**
Dieldrin	ND	20		µg/Kg	10	6/1/2011 07:56 PM
Endosulfan I	ND	10		µg/Kg	10	6/1/2011 07:56 PM
Endosulfan II	ND	20		µg/Kg	10	6/1/2011 07:56 PM
Endosulfan sulfate	ND	20		µg/Kg	10	6/1/2011 07:56 PM
Endrin	ND	20		µg/Kg	10	6/1/2011 07:56 PM
Endrin aldehyde	ND	20		µg/Kg	10	6/1/2011 07:56 PM
Endrin ketone	ND	20		µg/Kg	10	6/1/2011 07:56 PM
gamma-BHC	ND	10		µg/Kg	10	6/1/2011 07:56 PM
gamma-Chlordane	ND	10		µg/Kg	10	6/1/2011 07:56 PM
Heptachlor	ND	10		µg/Kg	10	6/1/2011 07:56 PM
Heptachlor epoxide	ND	10		µg/Kg	10	6/1/2011 07:56 PM
Methoxychlor	ND	50		µg/Kg	10	6/1/2011 07:56 PM
Toxaphene	ND	500		µg/Kg	10	6/1/2011 07:56 PM
Surr: Decachlorobiphenyl	62.4	31-107		%REC	10	6/1/2011 07:56 PM
Surr: Tetrachloro-m-xylene	57.5	35-108		%REC	10	6/1/2011 07:56 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110602C	QC Batch: 73249			PrepDate:	6/2/2011	Analyst: **VV**
Mercury	0.87	0.10		mg/Kg	1	6/2/2011 02:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *03-Jun-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-009-5
Lab Order:	118062	**Collection Date:**	5/24/2011 3:20:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	118062-004A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110602A	QC Batch: 73243			PrepDate:	6/1/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	6/2/2011 01:20 PM
Arsenic	ND	1.0		mg/Kg	1	6/2/2011 01:20 PM
Barium	110	1.0		mg/Kg	1	6/2/2011 01:20 PM
Beryllium	ND	1.0		mg/Kg	1	6/2/2011 01:20 PM
Cadmium	ND	1.0		mg/Kg	1	6/2/2011 01:20 PM
Chromium	21	1.0		mg/Kg	1	6/2/2011 01:20 PM
Cobalt	6.8	1.0		mg/Kg	1	6/2/2011 01:20 PM
Copper	11	2.0		mg/Kg	1	6/2/2011 01:20 PM
Lead	22	1.0		mg/Kg	1	6/2/2011 01:20 PM
Molybdenum	ND	1.0		mg/Kg	1	6/2/2011 01:20 PM
Nickel	24	1.0		mg/Kg	1	6/2/2011 01:20 PM
Selenium	ND	1.0		mg/Kg	1	6/2/2011 01:20 PM
Silver	ND	1.0		mg/Kg	1	6/2/2011 01:20 PM
Thallium	ND	1.0		mg/Kg	1	6/2/2011 01:20 PM
Vanadium	24	1.0		mg/Kg	1	6/2/2011 01:20 PM
Zinc	37	1.0		mg/Kg	1	6/2/2011 01:20 PM
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC2_110526A	QC Batch: E11VS204			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	5/26/2011 12:00 PM
Surr: Bromofluorobenzene (FID)	122	62-153		%REC	1	5/26/2011 12:00 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC2_110526A	QC Batch: E11VS204			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	5/26/2011 12:00 PM
Ethylbenzene	ND	5.0		µg/Kg	1	5/26/2011 12:00 PM
m,p-Xylene	ND	10		µg/Kg	1	5/26/2011 12:00 PM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	5/26/2011 12:00 PM
o-Xylene	ND	5.0		µg/Kg	1	5/26/2011 12:00 PM
Toluene	ND	5.0		µg/Kg	1	5/26/2011 12:00 PM
Surr: Bromofluorobenzene (PID)	118	65-140		%REC	1	5/26/2011 12:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *03-Jun-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-009-5
Lab Order:	118062	**Collection Date:**	5/24/2011 3:20:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	118062-004A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA5_110602C	QC Batch: 73249			PrepDate:	6/2/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	6/2/2011 02:59 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *03-Jun-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-016-1
Lab Order:	118062	**Collection Date:**	5/25/2011 2:09:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	118062-005A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110602A	QC Batch: 73243			PrepDate:	6/1/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	6/2/2011 01:29 PM
Arsenic	ND	1.0		mg/Kg	1	6/2/2011 01:29 PM
Barium	15	1.0		mg/Kg	1	6/2/2011 01:29 PM
Beryllium	ND	1.0		mg/Kg	1	6/2/2011 01:29 PM
Cadmium	1.1	1.0		mg/Kg	1	6/2/2011 01:29 PM
Chromium	10	1.0		mg/Kg	1	6/2/2011 01:29 PM
Cobalt	27	1.0		mg/Kg	1	6/2/2011 01:29 PM
Copper	31	2.0		mg/Kg	1	6/2/2011 01:29 PM
Lead	3.1	1.0		mg/Kg	1	6/2/2011 01:29 PM
Molybdenum	ND	1.0		mg/Kg	1	6/2/2011 01:29 PM
Nickel	27	1.0		mg/Kg	1	6/2/2011 01:29 PM
Selenium	ND	1.0		mg/Kg	1	6/2/2011 01:29 PM
Silver	ND	1.0		mg/Kg	1	6/2/2011 01:29 PM
Thallium	ND	1.0		mg/Kg	1	6/2/2011 01:29 PM
Vanadium	120	1.0		mg/Kg	1	6/2/2011 01:29 PM
Zinc	54	1.0		mg/Kg	1	6/2/2011 01:29 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110602C	QC Batch: 73160			PrepDate:	5/26/2011	Analyst: **CBR**
DRO	560	100		mg/Kg	10	6/1/2011 10:04 AM
ORO	3600	100		mg/Kg	10	6/1/2011 10:04 AM
Surr: p-Terphenyl	0	30-128	SDO	%REC	10	6/1/2011 10:04 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC9_110601B	QC Batch: 73263			PrepDate:	6/1/2011	Analyst: **HL**
4,4´-DDD	ND	20		µg/Kg	10	6/1/2011 08:23 PM
4,4´-DDE	ND	20		µg/Kg	10	6/1/2011 08:23 PM
4,4´-DDT	ND	20		µg/Kg	10	6/1/2011 08:23 PM
Aldrin	ND	10		µg/Kg	10	6/1/2011 08:23 PM
alpha-BHC	ND	10		µg/Kg	10	6/1/2011 08:23 PM
alpha-Chlordane	ND	10		µg/Kg	10	6/1/2011 08:23 PM
beta-BHC	ND	10		µg/Kg	10	6/1/2011 08:23 PM
Chlordane	ND	85		µg/Kg	10	6/1/2011 08:23 PM
delta-BHC	ND	10		µg/Kg	10	6/1/2011 08:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *03-Jun-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-016-1
Lab Order:	118062	**Collection Date:**	5/25/2011 2:09:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	118062-005A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110601B	QC Batch: 73263			PrepDate:	6/1/2011	Analyst: **HL**
Dieldrin	ND	20		µg/Kg	10	6/1/2011 08:23 PM
Endosulfan I	ND	10		µg/Kg	10	6/1/2011 08:23 PM
Endosulfan II	ND	20		µg/Kg	10	6/1/2011 08:23 PM
Endosulfan sulfate	ND	20		µg/Kg	10	6/1/2011 08:23 PM
Endrin	ND	20		µg/Kg	10	6/1/2011 08:23 PM
Endrin aldehyde	ND	20		µg/Kg	10	6/1/2011 08:23 PM
Endrin ketone	ND	20		µg/Kg	10	6/1/2011 08:23 PM
gamma-BHC	ND	10		µg/Kg	10	6/1/2011 08:23 PM
gamma-Chlordane	ND	10		µg/Kg	10	6/1/2011 08:23 PM
Heptachlor	ND	10		µg/Kg	10	6/1/2011 08:23 PM
Heptachlor epoxide	ND	10		µg/Kg	10	6/1/2011 08:23 PM
Methoxychlor	ND	50		µg/Kg	10	6/1/2011 08:23 PM
Toxaphene	ND	500		µg/Kg	10	6/1/2011 08:23 PM
Surr: Decachlorobiphenyl	55.6	31-107		%REC	10	6/1/2011 08:23 PM
Surr: Tetrachloro-m-xylene	55.3	35-108		%REC	10	6/1/2011 08:23 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110602C	QC Batch: 73249			PrepDate:	6/2/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	6/2/2011 03:01 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *03-Jun-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-016-5
Lab Order:	118062	**Collection Date:**	5/25/2011 2:15:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	118062-006A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110602A	QC Batch: 73243			PrepDate:	6/1/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	6/2/2011 01:34 PM
Arsenic	ND	1.0		mg/Kg	1	6/2/2011 01:34 PM
Barium	36	1.0		mg/Kg	1	6/2/2011 01:34 PM
Beryllium	ND	1.0		mg/Kg	1	6/2/2011 01:34 PM
Cadmium	ND	1.0		mg/Kg	1	6/2/2011 01:34 PM
Chromium	20	1.0		mg/Kg	1	6/2/2011 01:34 PM
Cobalt	18	1.0		mg/Kg	1	6/2/2011 01:34 PM
Copper	27	2.0		mg/Kg	1	6/2/2011 01:34 PM
Lead	13	1.0		mg/Kg	1	6/2/2011 01:34 PM
Molybdenum	ND	1.0		mg/Kg	1	6/2/2011 01:34 PM
Nickel	27	1.0		mg/Kg	1	6/2/2011 01:34 PM
Selenium	ND	1.0		mg/Kg	1	6/2/2011 01:34 PM
Silver	ND	1.0		mg/Kg	1	6/2/2011 01:34 PM
Thallium	ND	1.0		mg/Kg	1	6/2/2011 01:34 PM
Vanadium	89	1.0		mg/Kg	1	6/2/2011 01:34 PM
Zinc	53	1.0		mg/Kg	1	6/2/2011 01:34 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110526A	QC Batch: E11VS204			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	5/26/2011 12:16 PM
Surr: Bromofluorobenzene (FID)	115	62-153		%REC	1	5/26/2011 12:16 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110526A	QC Batch: E11VS204			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	5/26/2011 12:16 PM
Ethylbenzene	ND	5.0		µg/Kg	1	5/26/2011 12:16 PM
m,p-Xylene	ND	10		µg/Kg	1	5/26/2011 12:16 PM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	5/26/2011 12:16 PM
o-Xylene	ND	5.0		µg/Kg	1	5/26/2011 12:16 PM
Toluene	ND	5.0		µg/Kg	1	5/26/2011 12:16 PM
Surr: Bromofluorobenzene (PID)	110	65-140		%REC	1	5/26/2011 12:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *03-Jun-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-016-5
Lab Order:	118062	**Collection Date:**	5/25/2011 2:15:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	118062-006A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA5_110602C	QC Batch: 73249			PrepDate:	6/2/2011	Analyst: **VV**
Mercury	0.18	0.10		mg/Kg	1	6/2/2011 03:03 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *03-Jun-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 118062
Project: I-80 ICM Project, E8583-06-01
Lab ID: 118062-007A

Client Sample ID: A-11-016
Collection Date: 5/25/2011 2:57:00 AM
Matrix: WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
			EPA 8260B			
RunID: MS11_110601A	QC Batch: A11VW094			PrepDate:		Analyst: **BD**
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,1,1-Trichloroethane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,1,2-Trichloroethane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,1-Dichloroethane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,1-Dichloroethene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,1-Dichloropropene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,2,3-Trichloropropane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,2-Dibromoethane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,2-Dichlorobenzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,2-Dichloroethane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,2-Dichloropropane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,3-Dichlorobenzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,3-Dichloropropane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
1,4-Dichlorobenzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
2,2-Dichloropropane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
2-Chlorotoluene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
4-Chlorotoluene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
4-Isopropyltoluene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Benzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Bromobenzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Bromodichloromethane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Bromoform	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Bromomethane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Carbon tetrachloride	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Chlorobenzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Chloroethane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Chloroform	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Chloromethane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
cis-1,2-Dichloroethene	ND	0.50		µg/L	1	6/1/2011 08:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *03-Jun-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 118062
Project: I-80 ICM Project, E8583-06-01
Lab ID: 118062-007A

Client Sample ID: A-11-016
Collection Date: 5/25/2011 2:57:00 AM
Matrix: WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
			EPA 8260B			
RunID: MS11_110601A	QC Batch: A11VW094			PrepDate:		Analyst: **BD**
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Dibromochloromethane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Dibromomethane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Dichlorodifluoromethane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Ethylbenzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Hexachlorobutadiene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Isopropylbenzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
m,p-Xylene	ND	1.0		µg/L	1	6/1/2011 08:52 PM
Methylene chloride	ND	1.0		µg/L	1	6/1/2011 08:52 PM
n-Butylbenzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
n-Propylbenzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Naphthalene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
o-Xylene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
sec-Butylbenzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Styrene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
tert-Butylbenzene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Tetrachloroethene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Toluene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
trans-1,2-Dichloroethene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Trichloroethene	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Trichlorofluoromethane	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Vinyl chloride	ND	0.50		µg/L	1	6/1/2011 08:52 PM
Surr: 1,2-Dichloroethane-d4	102	70-130		%REC	1	6/1/2011 08:52 PM
Surr: 4-Bromofluorobenzene	104	70-130		%REC	1	6/1/2011 08:52 PM
Surr: Dibromofluoromethane	115	70-130		%REC	1	6/1/2011 08:52 PM
Surr: Toluene-d8	104	70-130		%REC	1	6/1/2011 08:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *03-Jun-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-016
Lab Order:	118062	**Collection Date:**	5/25/2011 2:57:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	WATER
Lab ID:	118062-007B		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC19_110531A	QC Batch:	M11VW107		PrepDate:		Analyst: **DDL**
GRO	0.18	0.050		mg/L	1	5/31/2011 02:39 PM
Surr: Bromofluorobenzene (FID)	95.5	70-130		%REC	1	5/31/2011 02:39 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC19_110531A	QC Batch:	M11VW107		PrepDate:		Analyst: **DDL**
Benzene	ND	0.50		µg/L	1	5/31/2011 02:39 PM
Ethylbenzene	ND	0.50		µg/L	1	5/31/2011 02:39 PM
m,p-Xylene	ND	1.0		µg/L	1	5/31/2011 02:39 PM
Methyl tert-butyl ether	ND	0.50		µg/L	1	5/31/2011 02:39 PM
o-Xylene	ND	0.50		µg/L	1	5/31/2011 02:39 PM
Toluene	ND	0.50		µg/L	1	5/31/2011 02:39 PM
Surr: Bromofluorobenzene (PID)	85.8	70-130		%REC	1	5/31/2011 02:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *03-Jun-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 118062
Project: I-80 ICM Project, E8583-06-01
Lab ID: 118062-007C

Client Sample ID: A-11-016
Collection Date: 5/25/2011 2:57:00 AM
Matrix: WATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3010A			**EPA 6010B**		
RunID: ICP8_110526I	QC Batch: 73157			PrepDate:	5/26/2011	Analyst: **SRB**
Antimony	ND	0.025		mg/L	5	5/26/2011 05:36 PM
Arsenic	0.093	0.050		mg/L	5	5/26/2011 05:36 PM
Barium	12	0.015		mg/L	5	5/26/2011 05:36 PM
Beryllium	ND	0.015		mg/L	5	5/26/2011 05:36 PM
Cadmium	0.21	0.015		mg/L	5	5/26/2011 05:36 PM
Chromium	0.57	0.015		mg/L	5	5/26/2011 05:36 PM
Cobalt	0.22	0.015		mg/L	5	5/26/2011 05:36 PM
Copper	0.28	0.025		mg/L	5	5/26/2011 05:36 PM
Lead	0.12	0.025		mg/L	5	5/26/2011 05:36 PM
Molybdenum	0.078	0.025		mg/L	5	5/26/2011 05:36 PM
Nickel	0.83	0.025		mg/L	5	5/26/2011 05:36 PM
Selenium	ND	0.050		mg/L	5	5/26/2011 05:36 PM
Silver	ND	0.015		mg/L	5	5/26/2011 05:36 PM
Thallium	ND	0.075		mg/L	5	5/26/2011 05:36 PM
Vanadium	0.44	0.015		mg/L	5	5/26/2011 05:36 PM
Zinc	1.6	0.050		mg/L	5	5/26/2011 05:36 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7470A		
RunID: AA1_110526A	QC Batch: 73156			PrepDate:	5/26/2011	Analyst: **VV**
Mercury	1.3	0.20		µg/L	1	5/26/2011 04:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *03-Jun-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-016
Lab Order:	118062	**Collection Date:**	5/25/2011 2:57:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	WATER
Lab ID:	118062-007D		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3510C			**EPA 8015B(M)**			
RunID: GC16_110531B	QC Batch: 73150			PrepDate:	5/26/2011	Analyst: **CBR**
DRO	ND	0.053		mg/L	1	5/31/2011 03:28 PM
ORO	ND	0.053		mg/L	1	5/31/2011 03:28 PM
Surr: p-Terphenyl	59.4	36-126		%REC	1	5/31/2011 03:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *03-Jun-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 118062
Project: I-80 ICM Project, E8583-06-01
Lab ID: 118062-008A

Client Sample ID: A-11-015-1
Collection Date: 5/25/2011 4:23:00 AM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110602A	QC Batch: 73243			PrepDate:	6/1/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	6/2/2011 01:38 PM
Arsenic	ND	1.0		mg/Kg	1	6/2/2011 01:38 PM
Barium	36	1.0		mg/Kg	1	6/2/2011 01:38 PM
Beryllium	ND	1.0		mg/Kg	1	6/2/2011 01:38 PM
Cadmium	1.1	1.0		mg/Kg	1	6/2/2011 01:38 PM
Chromium	14	1.0		mg/Kg	1	6/2/2011 01:38 PM
Cobalt	17	1.0		mg/Kg	1	6/2/2011 01:38 PM
Copper	34	2.0		mg/Kg	1	6/2/2011 01:38 PM
Lead	2.2	1.0		mg/Kg	1	6/2/2011 01:38 PM
Molybdenum	ND	1.0		mg/Kg	1	6/2/2011 01:38 PM
Nickel	26	1.0		mg/Kg	1	6/2/2011 01:38 PM
Selenium	ND	1.0		mg/Kg	1	6/2/2011 01:38 PM
Silver	ND	1.0		mg/Kg	1	6/2/2011 01:38 PM
Thallium	ND	1.0		mg/Kg	1	6/2/2011 01:38 PM
Vanadium	110	1.0		mg/Kg	1	6/2/2011 01:38 PM
Zinc	48	1.0		mg/Kg	1	6/2/2011 01:38 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110602C	QC Batch: 73160			PrepDate:	5/26/2011	Analyst: **CBR**
DRO	1300	100		mg/Kg	10	6/1/2011 10:13 AM
ORO	8200	100		mg/Kg	10	6/1/2011 10:13 AM
Surr: p-Terphenyl	0	30-128	SDO	%REC	10	6/1/2011 10:13 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC9_110601B	QC Batch: 73263			PrepDate:	6/1/2011	Analyst: **HL**
4,4´-DDD	ND	40		µg/Kg	10	6/1/2011 08:50 PM
4,4´-DDE	ND	40		µg/Kg	10	6/1/2011 08:50 PM
4,4´-DDT	ND	40		µg/Kg	10	6/1/2011 08:50 PM
Aldrin	ND	20		µg/Kg	10	6/1/2011 08:50 PM
alpha-BHC	ND	20		µg/Kg	10	6/1/2011 08:50 PM
alpha-Chlordane	ND	20		µg/Kg	10	6/1/2011 08:50 PM
beta-BHC	ND	20		µg/Kg	10	6/1/2011 08:50 PM
Chlordane	ND	170		µg/Kg	10	6/1/2011 08:50 PM
delta-BHC	ND	20		µg/Kg	10	6/1/2011 08:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *03-Jun-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-015-1
Lab Order:	118062	**Collection Date:**	5/25/2011 4:23:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	118062-008A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC9_110601B	QC Batch: 73263			PrepDate:	6/1/2011	Analyst: **HL**
Dieldrin	ND	40		µg/Kg	10	6/1/2011 08:50 PM
Endosulfan I	ND	20		µg/Kg	10	6/1/2011 08:50 PM
Endosulfan II	ND	40		µg/Kg	10	6/1/2011 08:50 PM
Endosulfan sulfate	ND	40		µg/Kg	10	6/1/2011 08:50 PM
Endrin	ND	40		µg/Kg	10	6/1/2011 08:50 PM
Endrin aldehyde	ND	40		µg/Kg	10	6/1/2011 08:50 PM
Endrin ketone	ND	40		µg/Kg	10	6/1/2011 08:50 PM
gamma-BHC	ND	20		µg/Kg	10	6/1/2011 08:50 PM
gamma-Chlordane	ND	20		µg/Kg	10	6/1/2011 08:50 PM
Heptachlor	ND	20		µg/Kg	10	6/1/2011 08:50 PM
Heptachlor epoxide	ND	20		µg/Kg	10	6/1/2011 08:50 PM
Methoxychlor	ND	100		µg/Kg	10	6/1/2011 08:50 PM
Toxaphene	ND	1000		µg/Kg	10	6/1/2011 08:50 PM
Surr: Decachlorobiphenyl	69.5	31-107		%REC	10	6/1/2011 08:50 PM
Surr: Tetrachloro-m-xylene	50.4	35-108		%REC	10	6/1/2011 08:50 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA5_110602C	QC Batch: 73249			PrepDate:	6/2/2011	Analyst: **VV**
Mercury	0.10	0.10		mg/Kg	1	6/2/2011 03:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *03-Jun-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-015-5
Lab Order:	118062	**Collection Date:**	5/25/2011 4:30:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	118062-009A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110602A	QC Batch: 73243			PrepDate:	6/1/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	6/2/2011 01:42 PM
Arsenic	1.2	1.0		mg/Kg	1	6/2/2011 01:42 PM
Barium	100	1.0		mg/Kg	1	6/2/2011 01:42 PM
Beryllium	ND	1.0		mg/Kg	1	6/2/2011 01:42 PM
Cadmium	ND	1.0		mg/Kg	1	6/2/2011 01:42 PM
Chromium	27	1.0		mg/Kg	1	6/2/2011 01:42 PM
Cobalt	7.8	1.0		mg/Kg	1	6/2/2011 01:42 PM
Copper	14	2.0		mg/Kg	1	6/2/2011 01:42 PM
Lead	4.8	1.0		mg/Kg	1	6/2/2011 01:42 PM
Molybdenum	ND	1.0		mg/Kg	1	6/2/2011 01:42 PM
Nickel	37	1.0		mg/Kg	1	6/2/2011 01:42 PM
Selenium	ND	1.0		mg/Kg	1	6/2/2011 01:42 PM
Silver	ND	1.0		mg/Kg	1	6/2/2011 01:42 PM
Thallium	ND	1.0		mg/Kg	1	6/2/2011 01:42 PM
Vanadium	20	1.0		mg/Kg	1	6/2/2011 01:42 PM
Zinc	36	1.0		mg/Kg	1	6/2/2011 01:42 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110526A	QC Batch: E11VS204			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	5/26/2011 12:32 PM
Surr: Bromofluorobenzene (FID)	120	62-153		%REC	1	5/26/2011 12:32 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110526A	QC Batch: E11VS204			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	5/26/2011 12:32 PM
Ethylbenzene	ND	5.0		µg/Kg	1	5/26/2011 12:32 PM
m,p-Xylene	ND	10		µg/Kg	1	5/26/2011 12:32 PM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	5/26/2011 12:32 PM
o-Xylene	ND	5.0		µg/Kg	1	5/26/2011 12:32 PM
Toluene	ND	5.0		µg/Kg	1	5/26/2011 12:32 PM
Surr: Bromofluorobenzene (PID)	115	65-140		%REC	1	5/26/2011 12:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *03-Jun-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-015-5
Lab Order:	118062	**Collection Date:**	5/25/2011 4:30:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	118062-009A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA5_110602C	QC Batch: 73249			PrepDate:	6/2/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	6/2/2011 03:07 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **MB-73243** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **6/1/2011** RunNo: **133539**
Client ID: **PBS** Batch ID: **73243** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **6/2/2011** SeqNo: **2179629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.229	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	1.0									
Vanadium	ND	1.0									
Zinc	0.372	1.0									

Sample ID: **LCS-73243** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **6/1/2011** RunNo: **133539**
Client ID: **LCSS** Batch ID: **73243** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **6/2/2011** SeqNo: **2179630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	45.083	2.0	50.00	0.2291	89.7	80	120				
Arsenic	44.431	1.0	50.00	0	88.9	80	120				
Barium	47.043	1.0	50.00	0	94.1	80	120				
Beryllium	45.981	1.0	50.00	0	92.0	80	120				
Cadmium	45.474	1.0	50.00	0	90.9	80	120				
Chromium	41.630	1.0	50.00	0	83.3	80	120				
Cobalt	45.684	1.0	50.00	0	91.4	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **LCS-73243** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **6/1/2011** RunNo: **133539**
Client ID: **LCSS** Batch ID: **73243** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **6/2/2011** SeqNo: **2179630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	45.565	2.0	50.00	0	91.1	80	120				
Lead	44.684	1.0	50.00	0	89.4	80	120				
Molybdenum	46.058	1.0	50.00	0	92.1	80	120				
Nickel	44.576	1.0	50.00	0	89.2	80	120				
Selenium	42.505	1.0	50.00	0	85.0	80	120				
Silver	43.097	1.0	50.00	0	86.2	80	120				
Thallium	43.180	1.0	50.00	0	86.4	80	120				
Vanadium	45.530	1.0	50.00	0	91.1	80	120				
Zinc	45.625	1.0	50.00	0.3717	90.5	80	120				

Sample ID: **118062-001A-DUP** SampType: **DUP** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **6/1/2011** RunNo: **133539**
Client ID: **A-11-017-1** Batch ID: **73243** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **6/2/2011** SeqNo: **2179632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.497	2.0						0.5717	0	20	
Arsenic	1.990	1.0						1.881	5.66	20	
Barium	59.798	1.0						59.73	0.113	20	
Beryllium	ND	1.0						0	0	20	
Cadmium	0.411	1.0						0.4375	0	20	
Chromium	13.418	1.0						21.28	45.3	20	R
Cobalt	6.347	1.0						6.486	2.18	20	
Copper	4.916	2.0						5.851	17.4	20	
Lead	10.056	1.0						11.85	16.4	20	
Molybdenum	ND	1.0						0	0	20	
Nickel	10.772	1.0						14.85	31.8	20	R
Selenium	ND	1.0						0	0	20	
Silver	ND	1.0						0	0	20	
Thallium	ND	1.0						0	0	20	
Vanadium	29.086	1.0						30.72	5.47	20	
Zinc	38.709	1.0						42.54	9.42	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **118062-001A-MS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **6/1/2011** RunNo: **133539**
Client ID: **A-11-017-1** Batch ID: **73243** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **6/2/2011** SeqNo: **2179633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	90.984	2.0	125.0	0.5717	72.3	32	105				
Arsenic	106.304	1.0	125.0	1.881	83.5	49	106				
Barium	171.889	1.0	125.0	59.73	89.7	31	133				
Beryllium	109.477	1.0	125.0	0	87.6	56	106				
Cadmium	103.453	1.0	125.0	0.4375	82.4	51	103				
Chromium	112.727	1.0	125.0	21.28	73.2	45	114				
Cobalt	110.005	1.0	125.0	6.486	82.8	52	106				
Copper	119.732	2.0	125.0	5.851	91.1	54	125				
Lead	110.811	1.0	125.0	11.85	79.2	34	126				
Molybdenum	101.914	1.0	125.0	0	81.5	54	106				
Nickel	112.533	1.0	125.0	14.85	78.1	45	111				
Selenium	99.833	1.0	125.0	0	79.9	47	104				
Silver	108.576	1.0	125.0	0	86.9	56	112				
Thallium	95.257	1.0	125.0	0	76.2	46	101				
Vanadium	140.052	1.0	125.0	30.72	87.5	54	114				
Zinc	142.888	1.0	125.0	42.54	80.3	28	125				

Sample ID: **118062-001A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **6/1/2011** RunNo: **133539**
Client ID: **A-11-017-1** Batch ID: **73243** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **6/2/2011** SeqNo: **2179634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	85.738	2.0	125.0	0.5717	68.1	32	105	90.98	5.94	20	
Arsenic	100.537	1.0	125.0	1.881	78.9	49	106	106.3	5.58	20	
Barium	168.985	1.0	125.0	59.73	87.4	31	133	171.9	1.70	20	
Beryllium	99.678	1.0	125.0	0	79.7	56	106	109.5	9.37	20	
Cadmium	97.369	1.0	125.0	0.4375	77.5	51	103	103.5	6.06	20	
Chromium	107.732	1.0	125.0	21.28	69.2	45	114	112.7	4.53	20	
Cobalt	103.682	1.0	125.0	6.486	77.8	52	106	110.0	5.92	20	
Copper	112.637	2.0	125.0	5.851	85.4	54	125	119.7	6.11	20	
Lead	102.787	1.0	125.0	11.85	72.8	34	126	110.8	7.51	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **118062-001A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **6/1/2011** RunNo: **133539**
Client ID: **A-11-017-1** Batch ID: **73243** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **6/2/2011** SeqNo: **2179634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	95.370	1.0	125.0	0	76.3	54	106	101.9	6.63	20	
Nickel	106.478	1.0	125.0	14.85	73.3	45	111	112.5	5.53	20	
Selenium	93.469	1.0	125.0	0	74.8	47	104	99.83	6.59	20	
Silver	101.867	1.0	125.0	0	81.5	56	112	108.6	6.38	20	
Thallium	90.177	1.0	125.0	0	72.1	46	101	95.26	5.48	20	
Vanadium	131.036	1.0	125.0	30.72	80.3	54	114	140.1	6.65	20	
Zinc	134.137	1.0	125.0	42.54	73.3	28	125	142.9	6.32	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **MB-73157** SampType: **MBLK** TestCode: **6010_W** Units: **mg/L** Prep Date: **5/26/2011** RunNo: **133404**
Client ID: **PBW** Batch ID: **73157** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **5/26/2011** SeqNo: **2176287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.0050									
Arsenic	ND	0.010									
Barium	ND	0.0030									
Beryllium	ND	0.0030									
Cadmium	ND	0.0030									
Chromium	ND	0.0030									
Cobalt	ND	0.0030									
Copper	ND	0.0050									
Lead	ND	0.0050									
Molybdenum	ND	0.0050									
Nickel	ND	0.0050									
Selenium	ND	0.010									
Silver	ND	0.0030									
Thallium	ND	0.015									
Vanadium	ND	0.0030									
Zinc	ND	0.010									

Sample ID: **LCS-73157** SampType: **LCS** TestCode: **6010_W** Units: **mg/L** Prep Date: **5/26/2011** RunNo: **133404**
Client ID: **LCSW** Batch ID: **73157** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **5/26/2011** SeqNo: **2176288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	1.065	0.0050	1.000	0	107	85	115				
Arsenic	1.059	0.010	1.000	0	106	85	115				
Barium	1.075	0.0030	1.000	0	108	85	115				
Beryllium	1.067	0.0030	1.000	0	107	85	115				
Cadmium	1.067	0.0030	1.000	0	107	85	115				
Chromium	0.954	0.0030	1.000	0	95.4	85	115				
Cobalt	1.050	0.0030	1.000	0	105	85	115				
Copper	1.037	0.0050	1.000	0	104	85	115				
Lead	1.070	0.0050	1.000	0	107	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **LCS-73157** SampType: **LCS** TestCode: **6010_W** Units: **mg/L** Prep Date: **5/26/2011** RunNo: **133404**
Client ID: **LCSW** Batch ID: **73157** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **5/26/2011** SeqNo: **2176288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	1.061	0.0050	1.000	0	106	85	115				
Nickel	1.058	0.0050	1.000	0	106	85	115				
Selenium	1.035	0.010	1.000	0	104	85	115				
Silver	1.022	0.0030	1.000	0	102	85	115				
Thallium	1.017	0.015	1.000	0	102	85	115				
Vanadium	1.037	0.0030	1.000	0	104	85	115				
Zinc	1.070	0.010	1.000	0	107	85	115				

Sample ID: **118062-007C-DUP** SampType: **DUP** TestCode: **6010_W** Units: **mg/L** Prep Date: **5/26/2011** RunNo: **133404**
Client ID: **A-11-016** Batch ID: **73157** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **5/26/2011** SeqNo: **2176298**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.025						0.01753	0	20	
Arsenic	0.084	0.050						0.09259	9.94	20	
Barium	11.558	0.015						12.11	4.69	20	
Beryllium	0.007	0.015						0.008033	0	20	
Cadmium	0.197	0.015						0.2099	6.26	20	
Chromium	0.567	0.015						0.5701	0.626	20	
Cobalt	0.210	0.015						0.2220	5.37	20	
Copper	0.264	0.025						0.2772	4.74	20	
Lead	0.110	0.025						0.1166	6.06	20	
Molybdenum	0.083	0.025						0.07784	5.95	20	
Nickel	0.790	0.025						0.8286	4.82	20	
Selenium	ND	0.050						0	0	20	
Silver	ND	0.015						0	0	20	
Thallium	ND	0.075						0	0	20	
Vanadium	0.444	0.015						0.4375	1.45	20	
Zinc	1.522	0.050						1.601	5.05	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **118062-007C-MS** SampType: **MS** TestCode: **6010_W** Units: **mg/L** Prep Date: **5/26/2011** RunNo: **133404**
Client ID: **A-11-016** Batch ID: **73157** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **5/26/2011** SeqNo: **2176299**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.785	0.025	2.500	0.01753	30.7	73	128				S
Arsenic	2.591	0.050	2.500	0.09259	99.9	79	121				
Barium	14.452	0.015	2.500	12.11	93.5	82	118				
Beryllium	2.515	0.015	2.500	0.008033	100	84	119				
Cadmium	2.674	0.015	2.500	0.2099	98.6	79	117				
Chromium	2.926	0.015	2.500	0.5701	94.2	78	115				
Cobalt	2.679	0.015	2.500	0.2220	98.3	80	118				
Copper	2.751	0.025	2.500	0.2772	99.0	81	127				
Lead	2.561	0.025	2.500	0.1166	97.8	80	118				
Molybdenum	2.194	0.025	2.500	0.07784	84.6	81	118				
Nickel	3.264	0.025	2.500	0.8286	97.4	78	120				
Selenium	2.536	0.050	2.500	0	101	78	120				
Silver	2.447	0.015	2.500	0	97.9	79	125				
Thallium	2.381	0.075	2.500	0	95.2	74	115				
Vanadium	2.910	0.015	2.500	0.4375	98.9	84	119				
Zinc	4.063	0.050	2.500	1.601	98.5	75	122				

Sample ID: **118062-007C-MSD** SampType: **MSD** TestCode: **6010_W** Units: **mg/L** Prep Date: **5/26/2011** RunNo: **133404**
Client ID: **A-11-016** Batch ID: **73157** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **5/26/2011** SeqNo: **2176300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.719	0.025	2.500	0.01753	28.1	73	128	0.7852	8.78	20	S
Arsenic	2.583	0.050	2.500	0.09259	99.6	79	121	2.591	0.275	20	
Barium	15.031	0.015	2.500	12.11	117	82	118	14.45	3.93	20	
Beryllium	2.506	0.015	2.500	0.008033	99.9	84	119	2.515	0.371	20	
Cadmium	2.670	0.015	2.500	0.2099	98.4	79	117	2.674	0.161	20	
Chromium	2.916	0.015	2.500	0.5701	93.9	78	115	2.926	0.331	20	
Cobalt	2.678	0.015	2.500	0.2220	98.2	80	118	2.679	0.0438	20	
Copper	2.760	0.025	2.500	0.2772	99.3	81	127	2.751	0.316	20	
Lead	2.575	0.025	2.500	0.1166	98.3	80	118	2.561	0.551	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **118062-007C-MSD** SampType: **MSD** TestCode: **6010_W** Units: **mg/L** Prep Date: **5/26/2011** RunNo: **133404**
Client ID: **A-11-016** Batch ID: **73157** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **5/26/2011** SeqNo: **2176300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	2.164	0.025	2.500	0.07784	83.4	81	118	2.194	1.39	20	
Nickel	3.290	0.025	2.500	0.8286	98.5	78	120	3.264	0.803	20	
Selenium	2.505	0.050	2.500	0	100	78	120	2.536	1.24	20	
Silver	2.431	0.015	2.500	0	97.2	79	125	2.447	0.661	20	
Thallium	2.388	0.075	2.500	0	95.5	74	115	2.381	0.305	20	
Vanadium	2.880	0.015	2.500	0.4375	97.7	84	119	2.910	1.05	20	
Zinc	4.106	0.050	2.500	1.601	100	75	122	4.063	1.05	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W

Sample ID: **MB-73156** SampType: **MBLK** TestCode: **7470_W** Units: **µg/L** Prep Date: **5/26/2011** RunNo: **133392**
Client ID: **PBW** Batch ID: **73156** TestNo: **EPA 7470A** Analysis Date: **5/26/2011** SeqNo: **2176186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.091	0.20									

Sample ID: **LCS-73156** SampType: **LCS** TestCode: **7470_W** Units: **µg/L** Prep Date: **5/26/2011** RunNo: **133392**
Client ID: **LCSW** Batch ID: **73156** TestNo: **EPA 7470A** Analysis Date: **5/26/2011** SeqNo: **2176187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	9.184	0.20	10.00	0.09074	90.9	85	115				

Sample ID: **118062-007C-MS** SampType: **MS** TestCode: **7470_W** Units: **µg/L** Prep Date: **5/26/2011** RunNo: **133392**
Client ID: **A-11-016** Batch ID: **73156** TestNo: **EPA 7470A** Analysis Date: **5/26/2011** SeqNo: **2176188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	10.884	0.20	10.00	1.331	95.5	70	130				

Sample ID: **118062-007C-MSD** SampType: **MSD** TestCode: **7470_W** Units: **µg/L** Prep Date: **5/26/2011** RunNo: **133392**
Client ID: **A-11-016** Batch ID: **73156** TestNo: **EPA 7470A** Analysis Date: **5/26/2011** SeqNo: **2176189**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	10.799	0.20	10.00	1.331	94.7	70	130	10.88	0.785	20	

Sample ID: **118062-007C-DUP** SampType: **DUP** TestCode: **7470_W** Units: **µg/L** Prep Date: **5/26/2011** RunNo: **133392**
Client ID: **A-11-016** Batch ID: **73156** TestNo: **EPA 7470A** Analysis Date: **5/26/2011** SeqNo: **2176191**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.302	0.20						1.331	2.23	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S

Sample ID: **MB-73249** SampType: **MBLK** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **6/2/2011** RunNo: **133546**
Client ID: **PBS** Batch ID: **73249** TestNo: **EPA 7471A** Analysis Date: **6/2/2011** SeqNo: **2179792**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.032	0.10									

Sample ID: **118062-001A-MS** SampType: **MS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **6/2/2011** RunNo: **133546**
Client ID: **A-11-017-1** Batch ID: **73249** TestNo: **EPA 7471A** Analysis Date: **6/2/2011** SeqNo: **2179794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.768	0.10	0.8300	0.01930	90.2	70	130				

Sample ID: **118062-001A-MSD** SampType: **MSD** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **6/2/2011** RunNo: **133546**
Client ID: **A-11-017-1** Batch ID: **73249** TestNo: **EPA 7471A** Analysis Date: **6/2/2011** SeqNo: **2179795**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.763	0.10	0.8300	0.01930	89.6	70	130	0.7683	0.698	20	

Sample ID: **118062-001A-DUP** SampType: **DUP** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **6/2/2011** RunNo: **133546**
Client ID: **A-11-017-1** Batch ID: **73249** TestNo: **EPA 7471A** Analysis Date: **6/2/2011** SeqNo: **2179797**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.017	0.10						0.01930	0	20	

Sample ID: **LCS-73249** SampType: **LCS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **6/2/2011** RunNo: **133546**
Client ID: **LCSS** Batch ID: **73249** TestNo: **EPA 7471A** Analysis Date: **6/2/2011** SeqNo: **2179807**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.724	0.10	0.8300	0.03152	83.5	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **MB-73160** SampType: **MBLK** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **5/26/2011** RunNo: **133516**
Client ID: **PBS** Batch ID: **73160** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **5/31/2011** SeqNo: **2179090**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	1.0									
ORO	ND	1.0									
Surr: p-Terphenyl	1.912		2.670		71.6	30	128				

Sample ID: **LCS-73160** SampType: **LCS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **5/26/2011** RunNo: **133516**
Client ID: **LCSS** Batch ID: **73160** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **5/31/2011** SeqNo: **2179091**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	19.677	1.0	33.00	0	59.6	35	118				
Surr: p-Terphenyl	1.957		2.670		73.3	30	128				

Sample ID: **118062-001ADUP** SampType: **DUP** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **5/26/2011** RunNo: **133516**
Client ID: **A-11-017-1** Batch ID: **73160** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **5/31/2011** SeqNo: **2179093**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	5.386	1.0						5.906	9.22	20	
ORO	22.178	1.0						23.76	6.89	20	
Surr: p-Terphenyl	1.523		2.670		57.0	30	128		0	0	

Sample ID: **118062-003AMS** SampType: **MS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **5/26/2011** RunNo: **133516**
Client ID: **A-11-009-1** Batch ID: **73160** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **6/1/2011** SeqNo: **2179102**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	802.033	100	33.00	606.7	592	25	129				S
Surr: p-Terphenyl	0		2.670		0	30	128				SDO

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **118062-003AMSD** SampType: **MSD** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **5/26/2011** RunNo: **133516**
Client ID: **A-11-009-1** Batch ID: **73160** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **6/1/2011** SeqNo: **2179103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	770.400	100	33.00	606.7	496	25	129	802.0	4.02	20	S
Surr: p-Terphenyl	0		2.670		0	30	128		0	0	SDO

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **E110526LC1** SampType: **LCS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **133519**
Client ID: **LCSS** Batch ID: **E11VS204** TestNo: **EPA 8015B(M** Analysis Date: **5/26/2011** SeqNo: **2179136**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.349	1.0	5.000	0	107	70	130				
Surr: Bromofluorobenzene (FID)	114.596		100.0		115	62	153				

Sample ID: **E110526MB1MS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **133519**
Client ID: **ZZZZZZ** Batch ID: **E11VS204** TestNo: **EPA 8015B(M** Analysis Date: **5/26/2011** SeqNo: **2179137**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.271	1.0	5.000	0	105	49	131				
Surr: Bromofluorobenzene (FID)	115.473		100.0		115	62	153				

Sample ID: **E110526MB1MSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **133519**
Client ID: **ZZZZZZ** Batch ID: **E11VS204** TestNo: **EPA 8015B(M** Analysis Date: **5/26/2011** SeqNo: **2179138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.211	1.0	5.000	0	104	49	131	5.271	1.14	20	
Surr: Bromofluorobenzene (FID)	115.368		100.0		115	62	153		0	0	

Sample ID: **E110526MB1** SampType: **MBLK** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **133519**
Client ID: **PBS** Batch ID: **E11VS204** TestNo: **EPA 8015B(M** Analysis Date: **5/26/2011** SeqNo: **2179139**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0									
Surr: Bromofluorobenzene (FID)	96.359		100.0		96.4	62	153				

Sample ID: **118062-002ADUP** SampType: **DUP** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **133519**
Client ID: **A-11-017-5** Batch ID: **E11VS204** TestNo: **EPA 8015B(M** Analysis Date: **5/26/2011** SeqNo: **2179141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **118062-002ADUP** SampType: **DUP** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **133519**
Client ID: **A-11-017-5** Batch ID: **E11VS204** TestNo: **EPA 8015B(M** Analysis Date: **5/26/2011** SeqNo: **2179141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	128.293		100.0		128	62	153		0	0	

Sample ID: **118062-002AMS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **133519**
Client ID: **A-11-017-5** Batch ID: **E11VS204** TestNo: **EPA 8015B(M** Analysis Date: **5/26/2011** SeqNo: **2179145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.742	1.0	5.000	0	94.8	49	131				
Surr: Bromofluorobenzene (FID)	148.382		100.0		148	62	153				

Sample ID: **118062-002AMSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **133519**
Client ID: **A-11-017-5** Batch ID: **E11VS204** TestNo: **EPA 8015B(M** Analysis Date: **5/26/2011** SeqNo: **2179146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.447	1.0	5.000	0	88.9	49	131	4.742	6.42	20	
Surr: Bromofluorobenzene (FID)	150.643		100.0		151	62	153		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_DM_LL

Sample ID: **MB-73150** SampType: **MBLK** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **5/26/2011** RunNo: **133474**
Client ID: **PBW** Batch ID: **73150** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **5/31/2011** SeqNo: **2178577**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	0.050									
ORO	ND	0.050									
Surr: p-Terphenyl	0.048		0.08000		59.7	36	126				

Sample ID: **MB-73150MS** SampType: **MS** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **5/26/2011** RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **73150** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **5/31/2011** SeqNo: **2178578**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.775	0.050	1.000	0	77.5	52	128				
Surr: p-Terphenyl	0.072		0.08000		89.8	36	126				

Sample ID: **LCS-73150** SampType: **LCS** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **5/26/2011** RunNo: **133474**
Client ID: **LCSW** Batch ID: **73150** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **5/31/2011** SeqNo: **2178579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.563	0.050	1.000	0	56.3	52	128				
Surr: p-Terphenyl	0.055		0.08000		69.2	36	126				

Sample ID: **MB-73150MSD** SampType: **MSD** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **5/26/2011** RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **73150** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **6/1/2011** SeqNo: **2178590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.866	0.050	1.000	0	86.6	52	128	0.7747	11.2	20	
Surr: p-Terphenyl	0.075		0.08000		93.9	36	126		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_GP LL

Sample ID: **M110531LCS2** SampType: **LCS** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **133479**
Client ID: **LCSW** Batch ID: **M11VW107** TestNo: **EPA 8015B(M** Analysis Date: **5/31/2011** SeqNo: **2178331**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.976	0.050	1.000	0	97.6	70	130				
Surr: Bromofluorobenzene (FID)	99.007		100.0		99.0	70	130				

Sample ID: **M110531MB1MS** SampType: **MS** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **133479**
Client ID: **ZZZZZZ** Batch ID: **M11VW107** TestNo: **EPA 8015B(M** Analysis Date: **5/31/2011** SeqNo: **2178332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.967	0.050	1.000	0	96.7	70	130				
Surr: Bromofluorobenzene (FID)	99.433		100.0		99.4	70	130				

Sample ID: **M110531MB1MSD** SampType: **MSD** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **133479**
Client ID: **ZZZZZZ** Batch ID: **M11VW107** TestNo: **EPA 8015B(M** Analysis Date: **5/31/2011** SeqNo: **2178333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.947	0.050	1.000	0	94.7	70	130	0.9670	2.09	20	
Surr: Bromofluorobenzene (FID)	100.667		100.0		101	70	130		0	0	

Sample ID: **M110531MB1** SampType: **MBLK** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **133479**
Client ID: **PBW** Batch ID: **M11VW107** TestNo: **EPA 8015B(M** Analysis Date: **5/31/2011** SeqNo: **2178334**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050									
Surr: Bromofluorobenzene (FID)	96.878		100.0		96.9	70	130				

Sample ID: **118124-060BDUP** SampType: **DUP** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **133479**
Client ID: **ZZZZZZ** Batch ID: **M11VW107** TestNo: **EPA 8015B(M** Analysis Date: **5/31/2011** SeqNo: **2178336**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_GP LL

Sample ID: **118124-060BDUP** SampType: **DUP** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **133479**
Client ID: **ZZZZZZ** Batch ID: **M11VW107** TestNo: **EPA 8015B(M** Analysis Date: **5/31/2011** SeqNo: **2178336**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	96.839		100.0		96.8	70	130		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110526LC2** SampType: **LCS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **133519**
Client ID: **LCSS** Batch ID: **E11VS204** TestNo: **EPA 8021B** Analysis Date: **5/26/2011** SeqNo: **2179164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	97.682	5.0	100.0	0	97.7	70	130				
Ethylbenzene	99.829	5.0	100.0	0	99.8	70	130				
m,p-Xylene	202.544	10	200.0	0	101	70	130				
Methyl tert-butyl ether	97.856	5.0	100.0	0	97.9	70	130				
o-Xylene	103.264	5.0	100.0	0	103	70	130				
Toluene	99.961	5.0	100.0	0	100	70	130				
Surr: Bromofluorobenzene (PID)	104.313		100.0		104	65	140				

Sample ID: **E110526LC2** SampType: **LCSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **133519**
Client ID: **LCSS02** Batch ID: **E11VS204** TestNo: **EPA 8021B** Analysis Date: **5/26/2011** SeqNo: **2179165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	101.108	5.0	100.0	0	101	70	130	97.68	3.45	20	
Ethylbenzene	102.867	5.0	100.0	0	103	70	130	99.83	3.00	20	
m,p-Xylene	208.536	10	200.0	0	104	70	130	202.5	2.92	20	
Methyl tert-butyl ether	101.935	5.0	100.0	0	102	70	130	97.86	4.08	20	
o-Xylene	106.971	5.0	100.0	0	107	70	130	103.3	3.53	20	
Toluene	103.217	5.0	100.0	0	103	70	130	99.96	3.21	20	
Surr: Bromofluorobenzene (PID)	108.627		100.0		109	65	140		0	0	

Sample ID: **E110526MB1MS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **133519**
Client ID: **ZZZZZZ** Batch ID: **E11VS204** TestNo: **EPA 8021B** Analysis Date: **5/26/2011** SeqNo: **2179166**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	38.347	5.0	22.15	0	173	69	264				
Ethylbenzene	60.906	5.0	42.30	0	144	37	161				
m,p-Xylene	206.981	10	180.2	0	115	30	149				
Methyl tert-butyl ether	461.465	5.0	578.9	0	79.7	39	121				
o-Xylene	78.342	5.0	64.80	0	121	31	166				
Toluene	190.664	5.0	172.6	0	110	44	150				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110526MB1MS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **133519**
Client ID: **ZZZZZZ** Batch ID: **E11VS204** TestNo: **EPA 8021B** Analysis Date: **5/26/2011** SeqNo: **2179166**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (PID)	109.333		100.0		109	65	140				

Sample ID: **E110526MB1MSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **133519**
Client ID: **ZZZZZZ** Batch ID: **E11VS204** TestNo: **EPA 8021B** Analysis Date: **5/26/2011** SeqNo: **2179167**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	38.001	5.0	22.15	0	172	69	264	38.35	0.906	20	
Ethylbenzene	60.398	5.0	42.30	0	143	37	161	60.91	0.838	20	
m,p-Xylene	205.853	10	180.2	0	114	30	149	207.0	0.546	20	
Methyl tert-butyl ether	469.469	5.0	578.9	0	81.1	39	121	461.5	1.72	20	
o-Xylene	78.781	5.0	64.80	0	122	31	166	78.34	0.559	20	
Toluene	190.274	5.0	172.6	0	110	44	150	190.7	0.205	20	
Surr: Bromofluorobenzene (PID)	112.975		100.0		113	65	140		0	20	

Sample ID: **E110526MB1** SampType: **MBLK** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **133519**
Client ID: **PBS** Batch ID: **E11VS204** TestNo: **EPA 8021B** Analysis Date: **5/26/2011** SeqNo: **2179168**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0									
Ethylbenzene	ND	5.0									
m,p-Xylene	ND	10									
Methyl tert-butyl ether	ND	5.0									
o-Xylene	ND	5.0									
Toluene	ND	5.0									
Surr: Bromofluorobenzene (PID)	92.066		100.0		92.1	65	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **118062-002ADUP** SampType: **DUP** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **133519**
Client ID: **A-11-017-5** Batch ID: **E11VS204** TestNo: **EPA 8021B** Analysis Date: **5/26/2011** SeqNo: **2179170**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0						0	0	20	
Ethylbenzene	ND	5.0						0	0	20	
m,p-Xylene	ND	10						0	0	20	
Methyl tert-butyl ether	ND	5.0						0	0	20	
o-Xylene	ND	5.0						0	0	20	
Toluene	ND	5.0						0	0	20	
Surr: Bromofluorobenzene (PID)	122.599		100.0		123	65	140		0	0	

Sample ID: **118062-002AMS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **133519**
Client ID: **A-11-017-5** Batch ID: **E11VS204** TestNo: **EPA 8021B** Analysis Date: **5/26/2011** SeqNo: **2179174**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	37.759	5.0	22.15	0	170	69	264				
Ethylbenzene	57.144	5.0	42.30	0	135	37	161				
m,p-Xylene	196.808	10	180.2	0	109	30	149				
Methyl tert-butyl ether	468.876	5.0	578.9	0	81.0	39	121				
o-Xylene	76.267	5.0	64.80	0	118	31	166				
Toluene	186.881	5.0	172.6	0	108	44	150				
Xylenes, Total	273.075	15	245.0	0	111	30	149				
Surr: Bromofluorobenzene (PID)	132.536		100.0		133	65	140				

Sample ID: **118062-002AMSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **133519**
Client ID: **A-11-017-5** Batch ID: **E11VS204** TestNo: **EPA 8021B** Analysis Date: **5/26/2011** SeqNo: **2179175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	35.057	5.0	22.15	0	158	69	264	37.76	7.42	20	
Ethylbenzene	53.556	5.0	42.30	0	127	37	161	57.14	6.48	20	
m,p-Xylene	184.820	10	180.2	0	103	30	149	196.8	6.28	20	
Methyl tert-butyl ether	441.592	5.0	578.9	0	76.3	39	121	468.9	5.99	20	
o-Xylene	72.138	5.0	64.80	0	111	31	166	76.27	5.56	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **118062-002AMSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **133519**
Client ID: **A-11-017-5** Batch ID: **E11VS204** TestNo: **EPA 8021B** Analysis Date: **5/26/2011** SeqNo: **2179175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	174.462	5.0	172.6	0	101	44	150	186.9	6.87	20	
Xylenes, Total	256.958	15	245.0	0	105	30	149	273.1	6.08	20	
Surr: Bromofluorobenzene (PID)	134.559		100.0		135	65	140		0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_WP_BTEX

Sample ID: **M110531LCS1** SampType: **LCS** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **133479**
Client ID: **LCSW** Batch ID: **M11VW107** TestNo: **EPA 8021B** Analysis Date: **5/31/2011** SeqNo: **2178379**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	85.784	0.50	100.0	0	85.8	70	130				
Toluene	84.865	0.50	100.0	0	84.9	70	130				
Ethylbenzene	87.363	0.50	100.0	0	87.4	70	130				
m,p-Xylene	178.181	1.0	200.0	0	89.1	70	130				
o-Xylene	90.272	0.50	100.0	0	90.3	70	130				
Methyl tert-butyl ether	93.118	0.50	100.0	0	93.1	70	130				
Surr: Bromofluorobenzene (PID)	88.177		100.0		88.2	70	130				

Sample ID: **M110531LCS1D** SampType: **LCSD** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **133479**
Client ID: **LCSS02** Batch ID: **M11VW107** TestNo: **EPA 8021B** Analysis Date: **5/31/2011** SeqNo: **2178380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	87.506	0.50	100.0	0	87.5	70	130	85.78	1.99	20	
Toluene	86.743	0.50	100.0	0	86.7	70	130	84.86	2.19	20	
Ethylbenzene	88.936	0.50	100.0	0	88.9	70	130	87.36	1.78	20	
m,p-Xylene	181.481	1.0	200.0	0	90.7	70	130	178.2	1.84	20	
o-Xylene	92.350	0.50	100.0	0	92.4	70	130	90.27	2.28	20	
Methyl tert-butyl ether	99.805	0.50	100.0	0	99.8	70	130	93.12	6.93	20	
Surr: Bromofluorobenzene (PID)	88.408		100.0		88.4	70	130		0	0	

Sample ID: **M110531MB1** SampType: **MBLK** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **133479**
Client ID: **PBW** Batch ID: **M11VW107** TestNo: **EPA 8021B** Analysis Date: **5/31/2011** SeqNo: **2178383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
o-Xylene	ND	0.50									
Methyl tert-butyl ether	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_WP_BTEX

Sample ID: **M110531MB1** SampType: **MBLK** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **133479**
Client ID: **PBW** Batch ID: **M11VW107** TestNo: **EPA 8021B** Analysis Date: **5/31/2011** SeqNo: **2178383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (PID)	86.566		100.0		86.6	70	130				

Sample ID: **118124-060BDUP** SampType: **DUP** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **133479**
Client ID: **ZZZZZZ** Batch ID: **M11VW107** TestNo: **EPA 8021B** Analysis Date: **5/31/2011** SeqNo: **2178385**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50						0	0	20	
Toluene	ND	0.50						0	0	20	
Ethylbenzene	ND	0.50						0	0	20	
m,p-Xylene	ND	1.0						0	0	20	
o-Xylene	ND	0.50						0	0	20	
Methyl tert-butyl ether	ND	0.50						0	0	20	
Surr: Bromofluorobenzene (PID)	86.867		100.0		86.9	70	130		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **MB-73263** SampType: **MBLK** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **6/1/2011** RunNo: **133525**
Client ID: **PBS** Batch ID: **73263** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **6/1/2011** SeqNo: **2179243**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	2.0									
4,4´-DDE	ND	2.0									
4,4´-DDT	ND	2.0									
Aldrin	ND	1.0									
alpha-BHC	ND	1.0									
alpha-Chlordane	ND	1.0									
beta-BHC	ND	1.0									
Chlordane	ND	8.5									
delta-BHC	ND	1.0									
Dieldrin	ND	2.0									
Endosulfan I	ND	1.0									
Endosulfan II	ND	2.0									
Endosulfan sulfate	ND	2.0									
Endrin	ND	2.0									
Endrin aldehyde	ND	2.0									
Endrin ketone	ND	2.0									
gamma-BHC	ND	1.0									
gamma-Chlordane	ND	1.0									
Heptachlor	ND	1.0									
Heptachlor epoxide	ND	1.0									
Methoxychlor	ND	5.0									
Toxaphene	ND	50									
Surr: Tetrachloro-m-xylene	14.076		16.67		84.4	35	108				
Surr: Decachlorobiphenyl	13.973		16.67		83.8	31	107				

Sample ID: **LCS-73263** SampType: **LCS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **6/1/2011** RunNo: **133525**
Client ID: **LCSS** Batch ID: **73263** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **6/1/2011** SeqNo: **2179244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	15.417	1.0	16.67	0	92.5	59	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 *Tel: 562. 989.4045* *Fax: 562.989.4040*

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **LCS-73263** SampType: **LCS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **6/1/2011** RunNo: **133525**
Client ID: **LCSS** Batch ID: **73263** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **6/1/2011** SeqNo: **2179244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dieldrin	15.007	2.0	16.67	0	90.0	56	112				
Endrin	16.445	2.0	16.67	0	98.6	53	116				
gamma-BHC	15.790	1.0	16.67	0	94.7	59	110				
Heptachlor	15.992	1.0	16.67	0	95.9	53	118				
Surr: Tetrachloro-m-xylene	15.028		16.67		90.1	35	108				
Surr: Decachlorobiphenyl	14.454		16.67		86.7	31	107				

Sample ID: **118062-001AMS** SampType: **MS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **6/1/2011** RunNo: **133525**
Client ID: **A-11-017-1** Batch ID: **73263** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **6/1/2011** SeqNo: **2179245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	14.634	2.0	16.67	0	87.8	38	130				
Aldrin	14.449	1.0	16.67	0	86.7	35	122				
Dieldrin	14.209	2.0	16.67	0	85.2	31	138				
Endrin	17.082	2.0	16.67	0	102	39	132				
gamma-BHC	14.691	1.0	16.67	0	88.1	36	126				
Heptachlor	14.992	1.0	16.67	0	89.9	34	131				
Surr: Tetrachloro-m-xylene	14.090		16.67		84.5	35	108				
Surr: Decachlorobiphenyl	14.669		16.67		88.0	31	107				

Sample ID: **118062-001AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **6/1/2011** RunNo: **133525**
Client ID: **A-11-017-1** Batch ID: **73263** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **6/1/2011** SeqNo: **2179246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	13.655	2.0	16.67	0	81.9	38	130	14.63	6.92	20	
Aldrin	13.273	1.0	16.67	0	79.6	35	122	14.45	8.49	20	
Dieldrin	12.951	2.0	16.67	0	77.7	31	138	14.21	9.27	20	
Endrin	15.988	2.0	16.67	0	95.9	39	132	17.08	6.62	20	
gamma-BHC	13.409	1.0	16.67	0	80.4	36	126	14.69	9.13	20	
Heptachlor	14.051	1.0	16.67	0	84.3	34	131	14.99	6.48	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **118062-001AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **6/1/2011** RunNo: **133525**
Client ID: **A-11-017-1** Batch ID: **73263** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **6/1/2011** SeqNo: **2179246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Tetrachloro-m-xylene	12.893		16.67		77.3	35	108		0	0	
Surr: Decachlorobiphenyl	13.165		16.67		79.0	31	107		0	0	

Sample ID: **118062-001ADUP** SampType: **DUP** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **6/1/2011** RunNo: **133525**
Client ID: **A-11-017-1** Batch ID: **73263** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **6/1/2011** SeqNo: **2179247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	2.0						0	0	20	
4,4´-DDE	ND	2.0						0	0	20	
4,4´-DDT	ND	2.0						0	0	20	
Aldrin	ND	1.0						0	0	20	
alpha-BHC	ND	1.0						0	0	20	
alpha-Chlordane	1.132	1.0						1.149	1.52	20	
beta-BHC	ND	1.0						0	0	20	
Chlordane	14.997	8.5						15.08	0.575	20	
delta-BHC	ND	1.0						0	0	20	
Dieldrin	ND	2.0						0	0	20	
Endosulfan I	ND	1.0						0	0	20	
Endosulfan II	ND	2.0						0	0	20	
Endosulfan sulfate	ND	2.0						0	0	20	
Endrin	ND	2.0						0	0	20	
Endrin aldehyde	ND	2.0						0	0	20	
Endrin ketone	ND	2.0						0	0	20	
gamma-BHC	ND	1.0						0	0	20	
gamma-Chlordane	0.710	1.0						0.7368	0	20	
Heptachlor	ND	1.0						0	0	20	
Heptachlor epoxide	ND	1.0						0	0	20	
Methoxychlor	ND	5.0						0	0	20	
Toxaphene	ND	50						0	0	20	
Surr: Tetrachloro-m-xylene	12.944		16.67		77.6	35	108		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **118062-001ADUP** SampType: **DUP** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **6/1/2011** RunNo: **133525**
Client ID: **A-11-017-1** Batch ID: **73263** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **6/1/2011** SeqNo: **2179247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	13.966		16.67		83.8	31	107		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **A110601LCS1** SampType: **LCS** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **133528**
Client ID: **LCSW** Batch ID: **A11VW094** TestNo: **EPA 8260B** Analysis Date: **6/1/2011** SeqNo: **2179361**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	17.940	0.50	20.00	0	89.7	70	130				
Benzene	38.470	0.50	40.00	0	96.2	70	130				
Chlorobenzene	20.040	0.50	20.00	0	100	70	130				
MTBE	18.980	0.50	20.00	0	94.9	70	130				
Toluene	41.760	0.50	40.00	0	104	70	130				
Trichloroethene	19.410	0.50	20.00	0	97.0	70	130				
Surr: 1,2-Dichloroethane-d4	24.060		25.00		96.2	70	130				
Surr: 4-Bromofluorobenzene	26.890		25.00		108	70	130				
Surr: Dibromofluoromethane	26.440		25.00		106	70	130				
Surr: Toluene-d8	26.500		25.00		106	70	130				

Sample ID: **A110601MB4MS** SampType: **MS** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **133528**
Client ID: **ZZZZZZ** Batch ID: **A11VW094** TestNo: **EPA 8260B** Analysis Date: **6/1/2011** SeqNo: **2179362**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	16.400	0.50	20.00	0	82.0	70	130				
Benzene	37.480	0.50	40.00	0	93.7	70	130				
Chlorobenzene	19.480	0.50	20.00	0	97.4	70	130				
MTBE	20.460	0.50	20.00	0	102	70	130				
Toluene	40.890	0.50	40.00	0	102	70	130				
Trichloroethene	18.870	0.50	20.00	0	94.4	70	130				
Surr: 1,2-Dichloroethane-d4	24.670		25.00		98.7	70	130				
Surr: 4-Bromofluorobenzene	26.760		25.00		107	70	130				
Surr: Dibromofluoromethane	26.640		25.00		107	70	130				
Surr: Toluene-d8	26.790		25.00		107	70	130				

Sample ID: **A110601MB4MSD** SampType: **MSD** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **133528**
Client ID: **ZZZZZZ** Batch ID: **A11VW094** TestNo: **EPA 8260B** Analysis Date: **6/1/2011** SeqNo: **2179363**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **A110601MB4MSD** SampType: **MSD** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **133528**
Client ID: **ZZZZZZ** Batch ID: **A11VW094** TestNo: **EPA 8260B** Analysis Date: **6/1/2011** SeqNo: **2179363**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	16.930	0.50	20.00	0	84.6	70	130	16.40	3.18	20	
Benzene	38.820	0.50	40.00	0	97.0	70	130	37.48	3.51	20	
Chlorobenzene	20.230	0.50	20.00	0	101	70	130	19.48	3.78	20	
MTBE	19.960	0.50	20.00	0	99.8	70	130	20.46	2.47	20	
Toluene	42.260	0.50	40.00	0	106	70	130	40.89	3.30	20	
Trichloroethene	20.020	0.50	20.00	0	100	70	130	18.87	5.91	20	
Surr: 1,2-Dichloroethane-d4	24.190		25.00		96.8	70	130		0	0	
Surr: 4-Bromofluorobenzene	26.910		25.00		108	70	130		0	0	
Surr: Dibromofluoromethane	26.200		25.00		105	70	130		0	0	
Surr: Toluene-d8	26.340		25.00		105	70	130		0	0	

Sample ID: **A110601MB2** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **133528**
Client ID: **PBW** Batch ID: **A11VW094** TestNo: **EPA 8260B** Analysis Date: **6/1/2011** SeqNo: **2179364**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50									
1,1,1-Trichloroethane	ND	0.50									
1,1,2,2-Tetrachloroethane	ND	0.50									
1,1,2-Trichloroethane	ND	0.50									
1,1-Dichloroethane	ND	0.50									
1,1-Dichloroethene	ND	0.50									
1,1-Dichloropropene	ND	0.50									
1,2,3-Trichlorobenzene	ND	0.50									
1,2,3-Trichloropropane	ND	0.50									
1,2,4-Trichlorobenzene	ND	0.50									
1,2,4-Trimethylbenzene	ND	0.50									
1,2-Dibromo-3-chloropropane	ND	0.50									
1,2-Dibromoethane	ND	0.50									
1,2-Dichlorobenzene	ND	0.50									
1,2-Dichloroethane	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **A110601MB2** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **133528**
Client ID: **PBW** Batch ID: **A11VW094** TestNo: **EPA 8260B** Analysis Date: **6/1/2011** SeqNo: **2179364**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloropropane	ND	0.50									
1,3,5-Trimethylbenzene	ND	0.50									
1,3-Dichlorobenzene	ND	0.50									
1,3-Dichloropropane	ND	0.50									
1,4-Dichlorobenzene	ND	0.50									
2,2-Dichloropropane	ND	0.50									
2-Chlorotoluene	ND	0.50									
4-Chlorotoluene	ND	0.50									
4-Isopropyltoluene	ND	0.50									
Benzene	ND	0.50									
Bromobenzene	ND	0.50									
Bromodichloromethane	ND	0.50									
Bromoform	ND	0.50									
Bromomethane	ND	0.50									
Carbon tetrachloride	ND	0.50									
Chlorobenzene	ND	0.50									
Chloroethane	ND	0.50									
Chloroform	ND	0.50									
Chloromethane	ND	0.50									
cis-1,2-Dichloroethene	ND	0.50									
cis-1,3-Dichloropropene	ND	0.50									
Dibromochloromethane	ND	0.50									
Dibromomethane	ND	0.50									
Dichlorodifluoromethane	ND	0.50									
Ethylbenzene	ND	0.50									
Hexachlorobutadiene	ND	0.50									
Isopropylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
Methylene chloride	ND	1.0									
MTBE	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **A110601MB2** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **133528**
Client ID: **PBW** Batch ID: **A11VW094** TestNo: **EPA 8260B** Analysis Date: **6/1/2011** SeqNo: **2179364**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Butylbenzene	ND	0.50									
n-Propylbenzene	ND	0.50									
Naphthalene	ND	0.50									
o-Xylene	ND	0.50									
sec-Butylbenzene	ND	0.50									
Styrene	ND	0.50									
tert-Butylbenzene	ND	0.50									
Tetrachloroethene	ND	0.50									
Toluene	ND	0.50									
trans-1,2-Dichloroethene	ND	0.50									
Trichloroethene	ND	0.50									
Trichlorofluoromethane	ND	0.50									
Vinyl chloride	ND	0.50									
Surr: 1,2-Dichloroethane-d4	24.630		25.00		98.5	70	130				
Surr: 4-Bromofluorobenzene	25.390		25.00		102	70	130				
Surr: Dibromofluoromethane	27.710		25.00		111	70	130				
Surr: Toluene-d8	25.730		25.00		103	70	130				

Sample ID: **118062-007ADUP** SampType: **DUP** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **133528**
Client ID: **A-11-016** Batch ID: **A11VW094** TestNo: **EPA 8260B** Analysis Date: **6/1/2011** SeqNo: **2179383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50						0	0	20	
1,1,1-Trichloroethane	ND	0.50						0	0	20	
1,1,2,2-Tetrachloroethane	ND	0.50						0	0	20	
1,1,2-Trichloroethane	ND	0.50						0	0	20	
1,1-Dichloroethane	ND	0.50						0	0	20	
1,1-Dichloroethene	ND	0.50						0	0	20	
1,1-Dichloropropene	ND	0.50						0	0	20	
1,2,3-Trichlorobenzene	ND	0.50						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **118062-007ADUP** SampType: **DUP** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **133528**
Client ID: **A-11-016** Batch ID: **A11VW094** TestNo: **EPA 8260B** Analysis Date: **6/1/2011** SeqNo: **2179383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichloropropane	ND	0.50						0	0	20	
1,2,4-Trichlorobenzene	ND	0.50						0	0	20	
1,2,4-Trimethylbenzene	ND	0.50						0	0	20	
1,2-Dibromo-3-chloropropane	ND	0.50						0	0	20	
1,2-Dibromoethane	ND	0.50						0	0	20	
1,2-Dichlorobenzene	ND	0.50						0	0	20	
1,2-Dichloroethane	ND	0.50						0	0	20	
1,2-Dichloropropane	ND	0.50						0	0	20	
1,3,5-Trimethylbenzene	ND	0.50						0	0	20	
1,3-Dichlorobenzene	ND	0.50						0	0	20	
1,3-Dichloropropane	ND	0.50						0	0	20	
1,4-Dichlorobenzene	ND	0.50						0	0	20	
2,2-Dichloropropane	ND	0.50						0	0	20	
2-Chlorotoluene	ND	0.50						0	0	20	
4-Chlorotoluene	ND	0.50						0	0	20	
4-Isopropyltoluene	ND	0.50						0	0	20	
Benzene	ND	0.50						0	0	20	
Bromobenzene	ND	0.50						0	0	20	
Bromodichloromethane	ND	0.50						0	0	20	
Bromoform	ND	0.50						0	0	20	
Bromomethane	ND	0.50						0	0	20	
Carbon tetrachloride	ND	0.50						0	0	20	
Chlorobenzene	ND	0.50						0	0	20	
Chloroethane	ND	0.50						0	0	20	
Chloroform	ND	0.50						0	0	20	
Chloromethane	ND	0.50						0	0	20	
cis-1,2-Dichloroethene	ND	0.50						0	0	20	
cis-1,3-Dichloropropene	ND	0.50						0	0	20	
Dibromochloromethane	ND	0.50						0	0	20	
Dibromomethane	ND	0.50						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **118062-007ADUP** SampType: **DUP** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **133528**
Client ID: **A-11-016** Batch ID: **A11VW094** TestNo: **EPA 8260B** Analysis Date: **6/1/2011** SeqNo: **2179383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	0.50						0	0	20	
Ethylbenzene	ND	0.50						0	0	20	
Hexachlorobutadiene	ND	0.50						0	0	20	
Isopropylbenzene	ND	0.50						0	0	20	
m,p-Xylene	ND	1.0						0	0	20	
Methylene chloride	ND	1.0						0	0	20	
MTBE	ND	0.50						0	0	20	
n-Butylbenzene	ND	0.50						0	0	20	
n-Propylbenzene	ND	0.50						0	0	20	
Naphthalene	ND	0.50						0	0	20	
o-Xylene	ND	0.50						0	0	20	
sec-Butylbenzene	ND	0.50						0	0	20	
Styrene	ND	0.50						0	0	20	
tert-Butylbenzene	ND	0.50						0	0	20	
Tetrachloroethene	ND	0.50						0	0	20	
Toluene	ND	0.50						0	0	20	
trans-1,2-Dichloroethene	ND	0.50						0	0	20	
Trichloroethene	ND	0.50						0	0	20	
Trichlorofluoromethane	ND	0.50						0	0	20	
Vinyl chloride	ND	0.50						0	0	20	
Surr: 1,2-Dichloroethane-d4	25.590		25.00		102	70	130		0	20	
Surr: 4-Bromofluorobenzene	24.540		25.00		98.2	70	130		0	20	
Surr: Dibromofluoromethane	28.650		25.00		115	70	130		0	20	
Surr: Toluene-d8	26.090		25.00		104	70	130		0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CHAIN OF CUSTODY RECORD

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #:
Logged By: Date: 5/26/11

Method of Transport: Client ☐ ATL ☐ CA OverN ☑ FedEx ☐ Other:

Sample Condition Upon Receipt:
1. CHILLED 4.4 Y ☑ N ☐
2. HEADSPACE (VOA) Y ☐ N ☑
3. CONTAINER INTACT Y ☑ N ☐
4. SEALED Y ☐ N ☑
5. # OF SPLS MATCH COC Y ☑ N ☐
6. PRESERVED Y ☑ N ☑

Client: GEOCON Consultants, Inc
Attention: Rick Day
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
Tel: 925.371.5900
Fax: 925.371.5915

Project Name: I-80 ICM Project
Project #: E8583-06-01
Sampler: (Printed Name) Josh Ewert
(Signature)

Relinquished by: (Signature and Printed Name)	Date	Time	Received by: (Signature and Printed Name)	Date	Time
Josh Ewert	5/25/2011	1630	OnTrac	5/25/2011	1630
				5/26/11	8:36

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter: JOSH EWERT 5/25/11
Print Name Date
Signature

Send Report To:
Attn:
Co: SAME AS ABOVE
Addr:
City: State: Zip:

Bill To:
Attn:
Co: SAME AS ABOVE
Addr:
City: State: Zip:

Special Instructions/Comments:

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.

Storage Fees (applies when storage is requested):
- Sample :$2.00 / sample /mo (after 45 days)
- Records: $1 /ATL workorder /mo (after 1 year)

Circle or Add Analysis(es) Requested

QA/QC: RTNE ☐ CT ☑ SWRCB Logcode ☐ OTHER

ITEM	LAB USE ONLY: Lab No.	Sample Description: Sample ID / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8020 (BTEX)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)		TPHd/TPHmo	TPHg/BTEX/MTBE	SOIL	WATER	GROUND WATER	WASTEWATER	CARBON			TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
	1180642-001	A-11-017-1	5/23/2011	2350	X								X			X			X							E	1	SS T	C	
	2	A-11-017-5	5/24/2011	0017									X				X		X							E	1	SS T	C	
	3	A-11-009-1	5/24/2011	0316	X								X			X			X							E	1	SS T	C	
	4	A-11-009-5	5/24/2011	0320									X				X		X							E	1	SS T	C	
	5	A-11-016-1	5/25/2011	0209	X								X			X			X							E	1	SS T	C	
	6	A-11-016-5	5/25/2011	0215									X				X		X							E	1	SS T	C	
	7	A-11-016	5/25/2011	0257									X							X						E	1	PO LY	N	
		A-11-016	5/25/2011	0257												X				X						E	2	G L	C	
		A-11-016	5/25/2011	0257			X										X			X						E	6	G V	H	
	8	A-11-015-1	5/25/2011	0423	X								X			X										E	1	SS T	C	

- TAT starts 8AM the following day if samples received after 3 PM

TAT: A = Overnight ≤ 24 hrs; B = Emergency Next Workday; C = Critical 2 Workdays; D = Urgent 3 Workdays; E = Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

CHAIN OF CUSTODY RECORD

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #: _____
Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FedEx ☐ Other: _____

Sample Condition Upon Receipt:
1. CHILLED Y ☐ N ☐ 4. SEALED Y ☐ N ☐
2. HEADSPACE (VOA) Y ☐ N ☐ 5. # OF SPLS MATCH COC Y ☐ N ☐
3. CONTAINER INTACT Y ☐ N ☐ 6. PRESERVED Y ☐ N ☐

Client: GEOCON Consultants, Inc
Attention: Rick Day
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
Tel: 925.371.5900
Fax: 925.371.5915

Project Name: I-80 ICM Project
Project #: E8583-06-01
Sampler: (Printed Name) Josh Ewert (Signature)

Relinquished by: (Signature and Printed Name)	Date	Time	Received by: (Signature and Printed Name)	Date	Time
Josh Ewert	5/25/2011	1630	OnTrac	5/25/2011	1630
			Mary	5/26/11	8:36

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter: JOSH EWERT 5/25/11
Print Name Date
Signature

Send Report To:
Attn:
Co: SAME AS ABOVE
Addr:
City: State: Zip:

Bill To:
Attn:
Co: SAME AS ABOVE
Addr:
City: State: Zip:

Special Instructions/Comments:

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.

Storage Fees (applies when storage is requested):
- Sample :$2.00 / sample /mo (after 45 days)
- Records: $1 /ATL workorder /mo (after 1 year)

Circle or Add Analysis(es) Requested

ITEM	LAB USE ONLY: Lab No.	Sample Description: Sample ID / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8020 (BTEX)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	TPHd/TPHmo	TPHg/BTEX/MTBE	SOIL	WATER	GROUND WATER	WASTEWATER	CARBON	TAT	Container(s) #	Type	PRESERVATION	REMARKS
	118862 ✓ 9	A-11-015-5 RS	5/25/2011 RS	~~0423~~ 0430									X			X		X				E	1	SS T	C

QA/QC: RTNE ☐ CT ☑ SWRCB ☐ Logcode_____ OTHER _____

- TAT starts 8AM the following day if samples received after 3 PM

TAT: A = Overnight ≤ 24 hrs; B = Emergency Next Workday; C = Critical 2 Workdays; D = Urgent 3 Workdays; E = Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

July 07, 2011

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Workorder No.: 118062

Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

TEL: (925) 371-5900
FAX: (925) 371-5915

RE: I-80 ICM Project, E8583-06-01

Attention: Rick Day

Enclosed are the results for sample(s) received on May 26, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

Eddie F. Rodriguez
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Project: I-80 ICM Project, E8583-06-01
Lab Order: 118062

CASE NARRATIVE

Analytical Comments for Method WET/6010

Dilution was necessary for sample 118062-003A due to sample matrix.

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *07-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-009-1
Lab Order:	118062	**Collection Date:**	5/24/2011 3:16:00 AM
Project:	I-80 ICM Project, E8583-06-01	**Matrix:**	SOIL
Lab ID:	118062-003A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP8_110706D	QC Batch: R134730			PrepDate:		Analyst: **CBB**
Lead	1.6	1.0		mg/L	20	7/6/2011 12:14 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **MB-74040A** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **PBS** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.050									

Sample ID: **MB-74040A STLC** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **PBS** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.0									

Sample ID: **LCS-74040** SampType: **LCS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **LCSS** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203740**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.028	0.050	1.000	0	103	85	115				

Sample ID: **117519-014A-DUP** SampType: **DUP** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **ZZZZZZ** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203743**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.110	2.5						2.299	0	20	

Sample ID: **117519-014A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **ZZZZZZ** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203744**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	4.527	2.5	2.500	2.299	89.1	80	118				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118062
Project: I-80 ICM Project, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **117519-014A-MSD** SampType: **MSD** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **134730**
Client ID: **ZZZZZZ** Batch ID: **R134730** TestNo: **WET/ EPA 60** Analysis Date: **7/6/2011** SeqNo: **2203745**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	4.437	2.5	2.500	2.299	85.5	80	118	4.527	2.01	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Diane Galvan

From: Luann Beadle [beadle@geoconinc.com]
Sent: Friday, July 01, 2011 1:42 PM
To: Diane Galvan
Subject: RE: E8583-06-01 Kim/Horn Lab

Thank you. We also don't have WET Lead data for 117564-004A or 118062-003A. Could you please run these if they haven't been done please?

Thanks again,
Luann

Luann Beadle | *Senior Staff Scientist*
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, California 94550
Tel 925.371.5900 Fax 925.371.5915
www.geoconinc.com

August 18, 2011

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003

Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

TEL: (925) 371-5900
FAX: (925) 371-5915

Workorder No.: 119310

RE: I-80 ICM PROJECT, E8583-06-01

Attention: Rick Day

Enclosed are the results for sample(s) received on August 09, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

Eddie F. Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CASE NARRATIVE

Analytical Comments for Method 6010

Dilution was necessary for sample 119310-003C, due to sample matrix.

Analytical Comments for Method 7470/7471

Dilution was necessary for sample 119310-003C, due to sample matrix.

Matrix Spike (MS) and /or Matrix Spike Duplicate (MSD) are/is outside recovery criteria for samples 119310-001AMS and 119310-001AMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Analytical Comments for Method 8015 (DRO/ORO)

Dilution was necessary for sample 119310-001A, due to sample matrix.

Surrogate recovery was diluted out for sample 119310-001A.

Analytical Comments for Method 8081

Dilution was necessary for sample 119310-001A, due to sample matrix.

Surrogate recovery biased high for sample 119310-001A, possibly due to matrix interferences.

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *18-Aug-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01
Lab ID: 119310-001A

Client Sample ID: A-11-018-1
Collection Date: 8/7/2011 10:35:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110815A	QC Batch: 74893			PrepDate:	8/15/2011	Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	8/15/2011 11:53 AM
Arsenic	ND	1.0		mg/Kg	1	8/15/2011 11:53 AM
Barium	37	1.0		mg/Kg	1	8/15/2011 11:53 AM
Beryllium	ND	1.0		mg/Kg	1	8/15/2011 11:53 AM
Cadmium	ND	1.0		mg/Kg	1	8/15/2011 11:53 AM
Chromium	6.5	1.0		mg/Kg	1	8/15/2011 11:53 AM
Cobalt	6.9	1.0		mg/Kg	1	8/15/2011 11:53 AM
Copper	8.1	2.0		mg/Kg	1	8/15/2011 11:53 AM
Lead	3.9	1.0		mg/Kg	1	8/15/2011 11:53 AM
Molybdenum	ND	1.0		mg/Kg	1	8/15/2011 11:53 AM
Nickel	20	1.0		mg/Kg	1	8/15/2011 11:53 AM
Selenium	ND	1.0		mg/Kg	1	8/15/2011 11:53 AM
Silver	ND	1.0		mg/Kg	1	8/15/2011 11:53 AM
Thallium	ND	1.0		mg/Kg	1	8/15/2011 11:53 AM
Vanadium	25	1.0		mg/Kg	1	8/15/2011 11:53 AM
Zinc	23	1.0		mg/Kg	1	8/15/2011 11:53 AM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110810E	QC Batch: 74851			PrepDate:	8/10/2011	Analyst: **CBR**
DRO	880	150		mg/Kg	25	8/11/2011 06:12 AM
ORO	5700	150		mg/Kg	25	8/11/2011 06:12 AM
Surr: p-Terphenyl	0	30-128	SDO	%REC	25	8/11/2011 06:12 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC10_110816A	QC Batch: 74925			PrepDate:	8/15/2011	Analyst: **HL**
4,4´-DDD	ND	20		µg/Kg	10	8/16/2011 06:46 PM
4,4´-DDE	ND	20		µg/Kg	10	8/16/2011 06:46 PM
4,4´-DDT	ND	20		µg/Kg	10	8/16/2011 06:46 PM
Aldrin	ND	10		µg/Kg	10	8/16/2011 06:46 PM
alpha-BHC	ND	10		µg/Kg	10	8/16/2011 06:46 PM
alpha-Chlordane	ND	10		µg/Kg	10	8/16/2011 06:46 PM
beta-BHC	ND	10		µg/Kg	10	8/16/2011 06:46 PM
Chlordane	ND	85		µg/Kg	10	8/16/2011 06:46 PM
delta-BHC	ND	10		µg/Kg	10	8/16/2011 06:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *18-Aug-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-018-1
Lab Order:	119310	**Collection Date:**	8/7/2011 10:35:00 PM
Project:	I-80 ICM PROJECT, E8583-06-01	**Matrix:**	SOIL
Lab ID:	119310-001A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC10_110816A	QC Batch: 74925			PrepDate:	8/15/2011	Analyst: **HL**
Dieldrin	ND	20		µg/Kg	10	8/16/2011 06:46 PM
Endosulfan I	ND	10		µg/Kg	10	8/16/2011 06:46 PM
Endosulfan II	ND	20		µg/Kg	10	8/16/2011 06:46 PM
Endosulfan sulfate	ND	20		µg/Kg	10	8/16/2011 06:46 PM
Endrin	ND	20		µg/Kg	10	8/16/2011 06:46 PM
Endrin aldehyde	ND	20		µg/Kg	10	8/16/2011 06:46 PM
Endrin ketone	ND	20		µg/Kg	10	8/16/2011 06:46 PM
gamma-BHC	ND	10		µg/Kg	10	8/16/2011 06:46 PM
gamma-Chlordane	ND	10		µg/Kg	10	8/16/2011 06:46 PM
Heptachlor	ND	10		µg/Kg	10	8/16/2011 06:46 PM
Heptachlor epoxide	ND	10		µg/Kg	10	8/16/2011 06:46 PM
Methoxychlor	ND	50		µg/Kg	10	8/16/2011 06:46 PM
Toxaphene	ND	500		µg/Kg	10	8/16/2011 06:46 PM
Surr: Decachlorobiphenyl	146	31-107	S	%REC	10	8/16/2011 06:46 PM
Surr: Tetrachloro-m-xylene	72.1	35-108		%REC	10	8/16/2011 06:46 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110815A	QC Batch: 74892			PrepDate:	8/15/2011	Analyst: **VV**
Mercury	1.0	0.10		mg/Kg	1	8/15/2011 01:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *18-Aug-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-018-5
Lab Order:	119310	**Collection Date:**	8/7/2011 11:00:00 PM
Project:	I-80 ICM PROJECT, E8583-06-01	**Matrix:**	SOIL
Lab ID:	119310-002A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110815A	QC Batch: 74893			PrepDate: 8/15/2011		Analyst: **IL**
Antimony	ND	2.0		mg/Kg	1	8/15/2011 12:03 PM
Arsenic	7.2	1.0		mg/Kg	1	8/15/2011 12:03 PM
Barium	76	1.0		mg/Kg	1	8/15/2011 12:03 PM
Beryllium	ND	1.0		mg/Kg	1	8/15/2011 12:03 PM
Cadmium	ND	1.0		mg/Kg	1	8/15/2011 12:03 PM
Chromium	17	1.0		mg/Kg	1	8/15/2011 12:03 PM
Cobalt	6.2	1.0		mg/Kg	1	8/15/2011 12:03 PM
Copper	15	2.0		mg/Kg	1	8/15/2011 12:03 PM
Lead	5.6	1.0		mg/Kg	1	8/15/2011 12:03 PM
Molybdenum	ND	1.0		mg/Kg	1	8/15/2011 12:03 PM
Nickel	28	1.0		mg/Kg	1	8/15/2011 12:03 PM
Selenium	ND	1.0		mg/Kg	1	8/15/2011 12:03 PM
Silver	ND	1.0		mg/Kg	1	8/15/2011 12:03 PM
Thallium	ND	1.0		mg/Kg	1	8/15/2011 12:03 PM
Vanadium	12	1.0		mg/Kg	1	8/15/2011 12:03 PM
Zinc	36	1.0		mg/Kg	1	8/15/2011 12:03 PM
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC2_110810A	QC Batch: E11VS292			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	8/10/2011 03:46 PM
Surr: Bromofluorobenzene (FID)	105	62-153		%REC	1	8/10/2011 03:46 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC2_110810A	QC Batch: E11VS292			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	8/10/2011 03:46 PM
Ethylbenzene	ND	5.0		µg/Kg	1	8/10/2011 03:46 PM
m,p-Xylene	ND	10		µg/Kg	1	8/10/2011 03:46 PM
Methyl tert-butyl ether	ND	5.0		µg/Kg	1	8/10/2011 03:46 PM
o-Xylene	ND	5.0		µg/Kg	1	8/10/2011 03:46 PM
Toluene	ND	5.0		µg/Kg	1	8/10/2011 03:46 PM
Surr: Bromofluorobenzene (PID)	108	65-140		%REC	1	8/10/2011 03:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *18-Aug-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-018-5
Lab Order:	119310	**Collection Date:**	8/7/2011 11:00:00 PM
Project:	I-80 ICM PROJECT, E8583-06-01	**Matrix:**	SOIL
Lab ID:	119310-002A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA1_110815A	QC Batch: 74892			PrepDate:	8/15/2011	Analyst: **VV**
Mercury	ND	0.10		mg/Kg	1	8/15/2011 01:10 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *18-Aug-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-018
Lab Order:	119310	**Collection Date:**	8/8/2011 12:15:00 AM
Project:	I-80 ICM PROJECT, E8583-06-01	**Matrix:**	GROUNDWATER
Lab ID:	119310-003A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
			EPA 8260B			
RunID: MS2_110817A	QC Batch:	Q11VW151		PrepDate:		Analyst: **BD**
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,1,1-Trichloroethane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,1,2-Trichloroethane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,1-Dichloroethane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,1-Dichloroethene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,1-Dichloropropene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,2,3-Trichloropropane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,2-Dibromoethane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,2-Dichlorobenzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,2-Dichloroethane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,2-Dichloropropane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,3-Dichlorobenzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,3-Dichloropropane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
1,4-Dichlorobenzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
2,2-Dichloropropane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
2-Chlorotoluene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
4-Chlorotoluene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
4-Isopropyltoluene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Benzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Bromobenzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Bromodichloromethane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Bromoform	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Bromomethane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Carbon tetrachloride	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Chlorobenzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Chloroethane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Chloroform	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Chloromethane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
cis-1,2-Dichloroethene	ND	0.50		µg/L	1	8/17/2011 05:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *18-Aug-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-018
Lab Order:	119310	**Collection Date:**	8/8/2011 12:15:00 AM
Project:	I-80 ICM PROJECT, E8583-06-01	**Matrix:**	GROUNDWATER
Lab ID:	119310-003A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
			EPA 8260B			
RunID: MS2_110817A	QC Batch:	Q11VW151		PrepDate:		Analyst: **BD**
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Dibromochloromethane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Dibromomethane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Dichlorodifluoromethane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Ethylbenzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Hexachlorobutadiene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Isopropylbenzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
m,p-Xylene	ND	1.0		µg/L	1	8/17/2011 05:38 PM
Methylene chloride	ND	1.0		µg/L	1	8/17/2011 05:38 PM
n-Butylbenzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
n-Propylbenzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Naphthalene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
o-Xylene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
sec-Butylbenzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Styrene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
tert-Butylbenzene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Tetrachloroethene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Toluene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
trans-1,2-Dichloroethene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Trichloroethene	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Trichlorofluoromethane	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Vinyl chloride	ND	0.50		µg/L	1	8/17/2011 05:38 PM
Surr: 1,2-Dichloroethane-d4	115	70-130		%REC	1	8/17/2011 05:38 PM
Surr: 4-Bromofluorobenzene	98.9	70-130		%REC	1	8/17/2011 05:38 PM
Surr: Dibromofluoromethane	102	70-130		%REC	1	8/17/2011 05:38 PM
Surr: Toluene-d8	94.0	70-130		%REC	1	8/17/2011 05:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *18-Aug-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-018
Lab Order:	119310	**Collection Date:**	8/8/2011 12:15:00 AM
Project:	I-80 ICM PROJECT, E8583-06-01	**Matrix:**	GROUNDWATER
Lab ID:	119310-003B		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC19_110810A	QC Batch: M11VW156			PrepDate:		Analyst: **BB**
GRO	0.071	0.050		mg/L	1	8/10/2011 11:55 AM
Surr: Bromofluorobenzene (FID)	95.7	70-130		%REC	1	8/10/2011 11:55 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC19_110810A	QC Batch: M11VW156			PrepDate:		Analyst: **BB**
Benzene	ND	0.50		µg/L	1	8/10/2011 11:55 AM
Toluene	ND	0.50		µg/L	1	8/10/2011 11:55 AM
Ethylbenzene	ND	0.50		µg/L	1	8/10/2011 11:55 AM
m,p-Xylene	ND	1.0		µg/L	1	8/10/2011 11:55 AM
o-Xylene	ND	0.50		µg/L	1	8/10/2011 11:55 AM
Methyl tert-butyl ether	16	0.50		µg/L	1	8/10/2011 11:55 AM
Surr: Bromofluorobenzene (PID)	94.0	70-130		%REC	1	8/10/2011 11:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *18-Aug-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01
Lab ID: 119310-003C

Client Sample ID: A-11-018
Collection Date: 8/8/2011 12:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3010A			**EPA 6010B**		
RunID: ICP8_110815B	QC Batch: 74902			PrepDate:	8/15/2011	Analyst: **IL**
Antimony	0.12	0.050		mg/L	10	8/15/2011 12:56 PM
Arsenic	0.35	0.10		mg/L	10	8/15/2011 12:56 PM
Barium	18	0.030		mg/L	10	8/15/2011 12:56 PM
Beryllium	0.046	0.030		mg/L	10	8/15/2011 12:56 PM
Cadmium	0.075	0.030		mg/L	10	8/15/2011 12:56 PM
Chromium	8.0	0.030		mg/L	10	8/15/2011 12:56 PM
Cobalt	2.0	0.030		mg/L	10	8/15/2011 12:56 PM
Copper	2.0	0.050		mg/L	10	8/15/2011 12:56 PM
Lead	0.54	0.050		mg/L	10	8/15/2011 12:56 PM
Molybdenum	ND	0.050		mg/L	10	8/15/2011 12:56 PM
Nickel	14	0.050		mg/L	10	8/15/2011 12:56 PM
Selenium	ND	0.10		mg/L	10	8/15/2011 12:56 PM
Silver	ND	0.030		mg/L	10	8/15/2011 12:56 PM
Thallium	ND	0.15		mg/L	10	8/15/2011 12:56 PM
Vanadium	3.8	0.030		mg/L	10	8/15/2011 12:56 PM
Zinc	4.0	0.10		mg/L	10	8/15/2011 12:56 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7470A		
RunID: AA5_110815A	QC Batch: 74901			PrepDate:	8/15/2011	Analyst: **VV**
Mercury	68	2.0		µg/L	10	8/15/2011 12:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *18-Aug-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A-11-018
Lab Order:	119310	**Collection Date:**	8/8/2011 12:15:00 AM
Project:	I-80 ICM PROJECT, E8583-06-01	**Matrix:**	GROUNDWATER
Lab ID:	119310-003D		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3510C			**EPA 8015B(M)**			
RunID: GC16_110811B	QC Batch: 74865			PrepDate:	8/11/2011	Analyst: **CBR**
DRO	0.28	0.050		mg/L	1	8/11/2011 03:23 PM
ORO	0.19	0.050		mg/L	1	8/11/2011 03:23 PM
Surr: p-Terphenyl	58.4	36-126		%REC	1	8/11/2011 03:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **MB-74893** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/15/2011** RunNo: **135803**
Client ID: **PBS** Batch ID: **74893** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/15/2011** SeqNo: **2224613**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.167	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	1.0									
Vanadium	ND	1.0									
Zinc	0.163	1.0									

Sample ID: **LCS-74893** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/15/2011** RunNo: **135803**
Client ID: **LCSS** Batch ID: **74893** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/15/2011** SeqNo: **2224614**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	46.633	2.0	50.00	0.1665	92.9	80	120				
Arsenic	46.487	1.0	50.00	0	93.0	80	120				
Barium	49.146	1.0	50.00	0	98.3	80	120				
Beryllium	48.610	1.0	50.00	0	97.2	80	120				
Cadmium	47.672	1.0	50.00	0	95.3	80	120				
Chromium	45.539	1.0	50.00	0	91.1	80	120				
Cobalt	48.931	1.0	50.00	0	97.9	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **LCS-74893** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/15/2011** RunNo: **135803**
Client ID: **LCSS** Batch ID: **74893** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/15/2011** SeqNo: **2224614**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	49.409	2.0	50.00	0	98.8	80	120				
Lead	48.954	1.0	50.00	0	97.9	80	120				
Molybdenum	51.180	1.0	50.00	0	102	80	120				
Nickel	47.880	1.0	50.00	0	95.8	80	120				
Selenium	44.213	1.0	50.00	0	88.4	80	120				
Silver	47.418	1.0	50.00	0	94.8	80	120				
Thallium	46.832	1.0	50.00	0	93.7	80	120				
Vanadium	48.569	1.0	50.00	0	97.1	80	120				
Zinc	48.438	1.0	50.00	0.1630	96.6	80	120				

Sample ID: **119310-001A-MS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/15/2011** RunNo: **135803**
Client ID: **A-11-018-1** Batch ID: **74893** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/15/2011** SeqNo: **2224616**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	90.455	2.0	125.0	0	72.4	32	105				
Arsenic	103.613	1.0	125.0	0	82.9	49	106				
Barium	148.522	1.0	125.0	37.36	88.9	31	133				
Beryllium	107.810	1.0	125.0	0	86.2	56	106				
Cadmium	99.747	1.0	125.0	0.3429	79.5	51	103				
Chromium	107.423	1.0	125.0	6.496	80.7	45	114				
Cobalt	113.007	1.0	125.0	6.949	84.8	52	106				
Copper	123.604	2.0	125.0	8.066	92.4	54	125				
Lead	107.736	1.0	125.0	3.886	83.1	34	126				
Molybdenum	107.583	1.0	125.0	0	86.1	54	106				
Nickel	119.272	1.0	125.0	19.62	79.7	45	111				
Selenium	100.660	1.0	125.0	0	80.5	47	104				
Silver	108.904	1.0	125.0	0	87.1	56	112				
Thallium	94.763	1.0	125.0	0	75.8	46	101				
Vanadium	134.704	1.0	125.0	25.39	87.4	54	114				
Zinc	128.445	1.0	125.0	22.99	84.4	28	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **119310-001A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/15/2011** RunNo: **135803**
Client ID: **A-11-018-1** Batch ID: **74893** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/15/2011** SeqNo: **2224617**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	85.723	2.0	125.0	0	68.6	32	105	90.45	5.37	20	
Arsenic	99.269	1.0	125.0	0	79.4	49	106	103.6	4.28	20	
Barium	148.395	1.0	125.0	37.36	88.8	31	133	148.5	0.0855	20	
Beryllium	102.498	1.0	125.0	0	82.0	56	106	107.8	5.05	20	
Cadmium	95.478	1.0	125.0	0.3429	76.1	51	103	99.75	4.37	20	
Chromium	104.303	1.0	125.0	6.496	78.2	45	114	107.4	2.95	20	
Cobalt	110.359	1.0	125.0	6.949	82.7	52	106	113.0	2.37	20	
Copper	121.402	2.0	125.0	8.066	90.7	54	125	123.6	1.80	20	
Lead	102.523	1.0	125.0	3.886	78.9	34	126	107.7	4.96	20	
Molybdenum	104.298	1.0	125.0	0	83.4	54	106	107.6	3.10	20	
Nickel	117.674	1.0	125.0	19.62	78.4	45	111	119.3	1.35	20	
Selenium	96.694	1.0	125.0	0	77.4	47	104	100.7	4.02	20	
Silver	105.256	1.0	125.0	0	84.2	56	112	108.9	3.41	20	
Thallium	90.143	1.0	125.0	0	72.1	46	101	94.76	5.00	20	
Vanadium	132.792	1.0	125.0	25.39	85.9	54	114	134.7	1.43	20	
Zinc	124.762	1.0	125.0	22.99	81.4	28	125	128.4	2.91	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **MB-74902** SampType: **MBLK** TestCode: **6010_W** Units: **mg/L** Prep Date: **8/15/2011** RunNo: **135808**
Client ID: **PBW** Batch ID: **74902** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **8/15/2011** SeqNo: **2224689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.0050									
Arsenic	ND	0.010									
Barium	ND	0.0030									
Beryllium	ND	0.0030									
Cadmium	ND	0.0030									
Chromium	ND	0.0030									
Cobalt	ND	0.0030									
Copper	ND	0.0050									
Lead	ND	0.0050									
Molybdenum	ND	0.0050									
Nickel	ND	0.0050									
Selenium	ND	0.010									
Silver	ND	0.0030									
Thallium	ND	0.015									
Vanadium	ND	0.0030									
Zinc	0.003	0.010									

Sample ID: **LCS-74902** SampType: **LCS** TestCode: **6010_W** Units: **mg/L** Prep Date: **8/15/2011** RunNo: **135808**
Client ID: **LCSW** Batch ID: **74902** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **8/15/2011** SeqNo: **2224690**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.988	0.0050	1.000	0	98.8	85	115				
Arsenic	0.972	0.010	1.000	0	97.2	85	115				
Barium	0.982	0.0030	1.000	0	98.2	85	115				
Beryllium	0.990	0.0030	1.000	0	99.0	85	115				
Cadmium	0.970	0.0030	1.000	0	97.0	85	115				
Chromium	0.900	0.0030	1.000	0	90.0	85	115				
Cobalt	0.988	0.0030	1.000	0	98.8	85	115				
Copper	0.970	0.0050	1.000	0	97.0	85	115				
Lead	0.984	0.0050	1.000	0	98.4	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **LCS-74902** SampType: **LCS** TestCode: **6010_W** Units: **mg/L** Prep Date: **8/15/2011** RunNo: **135808**
Client ID: **LCSW** Batch ID: **74902** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **8/15/2011** SeqNo: **2224690**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	1.002	0.0050	1.000	0	100	85	115				
Nickel	0.967	0.0050	1.000	0	96.7	85	115				
Selenium	0.941	0.010	1.000	0	94.1	85	115				
Silver	0.979	0.0030	1.000	0	97.9	85	115				
Thallium	0.952	0.015	1.000	0	95.2	85	115				
Vanadium	0.959	0.0030	1.000	0	95.9	85	115				
Zinc	0.987	0.010	1.000	0.002675	98.4	85	115				

Sample ID: **119316-006C-MS** SampType: **MS** TestCode: **6010_W** Units: **mg/L** Prep Date: **8/15/2011** RunNo: **135808**
Client ID: **ZZZZZZ** Batch ID: **74902** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **8/15/2011** SeqNo: **2224697**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	2.358	0.0050	2.500	0	94.3	73	128				
Arsenic	2.349	0.010	2.500	0	94.0	79	121				
Barium	2.407	0.0030	2.500	0.0005385	96.2	82	118				
Beryllium	2.361	0.0030	2.500	0	94.5	84	119				
Cadmium	2.290	0.0030	2.500	0	91.6	79	117				
Chromium	2.251	0.0030	2.500	0	90.0	78	115				
Cobalt	2.441	0.0030	2.500	0	97.7	80	118				
Copper	2.394	0.0050	2.500	0	95.8	81	127				
Lead	2.367	0.0050	2.500	0	94.7	80	118				
Molybdenum	2.409	0.0050	2.500	0	96.4	81	118				
Nickel	2.386	0.0050	2.500	0	95.5	78	120				
Selenium	2.313	0.010	2.500	0	92.5	78	120				
Silver	2.400	0.0030	2.500	0	96.0	79	125				
Thallium	2.376	0.015	2.500	0	95.0	74	115				
Vanadium	2.411	0.0030	2.500	0	96.4	84	119				
Zinc	2.405	0.010	2.500	0.004761	96.0	75	122				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **119316-006C-MSD** SampType: **MSD** TestCode: **6010_W** Units: **mg/L** Prep Date: **8/15/2011** RunNo: **135808**
Client ID: **ZZZZZZ** Batch ID: **74902** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **8/15/2011** SeqNo: **2224698**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	2.476	0.0050	2.500	0	99.0	73	128	2.358	4.86	20	
Arsenic	2.457	0.010	2.500	0	98.3	79	121	2.349	4.48	20	
Barium	2.538	0.0030	2.500	0.0005385	101	82	118	2.407	5.31	20	
Beryllium	2.507	0.0030	2.500	0	100	84	119	2.361	5.98	20	
Cadmium	2.411	0.0030	2.500	0	96.4	79	117	2.290	5.13	20	
Chromium	2.373	0.0030	2.500	0	94.9	78	115	2.251	5.29	20	
Cobalt	2.575	0.0030	2.500	0	103	80	118	2.441	5.32	20	
Copper	2.532	0.0050	2.500	0	101	81	127	2.394	5.61	20	
Lead	2.450	0.0050	2.500	0	98.0	80	118	2.367	3.44	20	
Molybdenum	2.535	0.0050	2.500	0	101	81	118	2.409	5.08	20	
Nickel	2.506	0.0050	2.500	0	100	78	120	2.386	4.90	20	
Selenium	2.418	0.010	2.500	0	96.7	78	120	2.313	4.46	20	
Silver	2.528	0.0030	2.500	0	101	79	125	2.400	5.19	20	
Thallium	2.499	0.015	2.500	0	100	74	115	2.376	5.08	20	
Vanadium	2.541	0.0030	2.500	0	102	84	119	2.411	5.25	20	
Zinc	2.598	0.010	2.500	0.004761	104	75	122	2.405	7.72	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W

Sample ID: **MB-74901** SampType: **MBLK** TestCode: **7470_W** Units: **µg/L** Prep Date: **8/15/2011** RunNo: **135805**
Client ID: **PBW** Batch ID: **74901** TestNo: **EPA 7470A** Analysis Date: **8/15/2011** SeqNo: **2224637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID: **LCS-74901** SampType: **LCS** TestCode: **7470_W** Units: **µg/L** Prep Date: **8/15/2011** RunNo: **135805**
Client ID: **LCSW** Batch ID: **74901** TestNo: **EPA 7470A** Analysis Date: **8/15/2011** SeqNo: **2224638**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	10.413	0.20	10.00	0	104	85	115				

Sample ID: **119316-006C-MS** SampType: **MS** TestCode: **7470_W** Units: **µg/L** Prep Date: **8/15/2011** RunNo: **135805**
Client ID: **ZZZZZZ** Batch ID: **74901** TestNo: **EPA 7470A** Analysis Date: **8/15/2011** SeqNo: **2224639**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	12.446	0.20	10.00	0	124	70	130				

Sample ID: **119316-006C-MSD** SampType: **MSD** TestCode: **7470_W** Units: **µg/L** Prep Date: **8/15/2011** RunNo: **135805**
Client ID: **ZZZZZZ** Batch ID: **74901** TestNo: **EPA 7470A** Analysis Date: **8/15/2011** SeqNo: **2224640**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	12.791	0.20	10.00	0	128	70	130	12.45	2.74	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S

Sample ID: **MB-74892** SampType: **MBLK** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **8/15/2011** RunNo: **135807**
Client ID: **PBS** Batch ID: **74892** TestNo: **EPA 7471A** Analysis Date: **8/15/2011** SeqNo: **2224679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID: **LCS-74892** SampType: **LCS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **8/15/2011** RunNo: **135807**
Client ID: **LCSS** Batch ID: **74892** TestNo: **EPA 7471A** Analysis Date: **8/15/2011** SeqNo: **2224680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.799	0.10	0.8300	0	96.2	80	120				

Sample ID: **119310-001A-MS** SampType: **MS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **8/15/2011** RunNo: **135807**
Client ID: **A-11-018-1** Batch ID: **74892** TestNo: **EPA 7471A** Analysis Date: **8/15/2011** SeqNo: **2224681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.284	0.10	0.8300	1.000	34.1	70	130				S

Sample ID: **119310-001A-MSD** SampType: **MSD** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **8/15/2011** RunNo: **135807**
Client ID: **A-11-018-1** Batch ID: **74892** TestNo: **EPA 7471A** Analysis Date: **8/15/2011** SeqNo: **2224682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.273	0.10	0.8300	1.000	32.9	70	130	1.284	0.825	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **MB-74851** SampType: **MBLK** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/10/2011** RunNo: **135742**
Client ID: **PBS** Batch ID: **74851** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **8/11/2011** SeqNo: **2223313**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	1.0									
ORO	ND	1.0									
Surr: p-Terphenyl	2.078		2.670		77.8	30	128				

Sample ID: **LCS-74851** SampType: **LCS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/10/2011** RunNo: **135742**
Client ID: **LCSS** Batch ID: **74851** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **8/11/2011** SeqNo: **2223314**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	18.483	1.0	33.00	0	56.0	35	118				
Surr: p-Terphenyl	2.430		2.670		91.0	30	128				

Sample ID: **119278-015AMS** SampType: **MS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/10/2011** RunNo: **135742**
Client ID: **ZZZZZZ** Batch ID: **74851** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **8/11/2011** SeqNo: **2223322**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	65.476	1.0	33.00	49.09	49.6	25	129				
Surr: p-Terphenyl	1.700		2.670		63.7	30	128				

Sample ID: **119278-015AMSD** SampType: **MSD** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/10/2011** RunNo: **135742**
Client ID: **ZZZZZZ** Batch ID: **74851** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **8/11/2011** SeqNo: **2223323**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	73.922	1.0	33.00	49.09	75.2	25	129	65.48	12.1	20	
Surr: p-Terphenyl	1.948		2.670		72.9	30	128		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **E110810LC1** SampType: **LCS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **135736**
Client ID: **LCSS** Batch ID: **E11VS292** TestNo: **EPA 8015B(M** Analysis Date: **8/10/2011** SeqNo: **2223306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.193	1.0	5.000	0	104	70	130				
Surr: Bromofluorobenzene (FID)	113.563		100.0		114	62	153				

Sample ID: **E110810MB1MS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **135736**
Client ID: **ZZZZZZ** Batch ID: **E11VS292** TestNo: **EPA 8015B(M** Analysis Date: **8/10/2011** SeqNo: **2223307**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.190	1.0	5.000	0	104	49	131				
Surr: Bromofluorobenzene (FID)	124.366		100.0		124	62	153				

Sample ID: **E110810MB1MSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **135736**
Client ID: **ZZZZZZ** Batch ID: **E11VS292** TestNo: **EPA 8015B(M** Analysis Date: **8/10/2011** SeqNo: **2223308**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.166	1.0	5.000	0	103	49	131	5.190	0.463	20	
Surr: Bromofluorobenzene (FID)	124.702		100.0		125	62	153		0	0	

Sample ID: **E110810MB1** SampType: **MBLK** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **135736**
Client ID: **PBS** Batch ID: **E11VS292** TestNo: **EPA 8015B(M** Analysis Date: **8/10/2011** SeqNo: **2223309**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0									
Surr: Bromofluorobenzene (FID)	90.591		100.0		90.6	62	153				

Sample ID: **119310-002AMS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **135736**
Client ID: **A-11-018-5** Batch ID: **E11VS292** TestNo: **EPA 8015B(M** Analysis Date: **8/10/2011** SeqNo: **2223311**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.133	1.0	5.000	0	103	49	131				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **119310-002AMS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **135736**
Client ID: **A-11-018-5** Batch ID: **E11VS292** TestNo: **EPA 8015B(M** Analysis Date: **8/10/2011** SeqNo: **2223311**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	114.427		100.0		114	62	153				

Sample ID: **119310-002AMSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **135736**
Client ID: **A-11-018-5** Batch ID: **E11VS292** TestNo: **EPA 8015B(M** Analysis Date: **8/10/2011** SeqNo: **2223312**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.862	1.0	5.000	0	97.2	49	131	5.133	5.42	20	
Surr: Bromofluorobenzene (FID)	113.974		100.0		114	62	153		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_DM_LL

Sample ID: **MB-74865** SampType: **MBLK** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **8/11/2011** RunNo: **135772**
Client ID: **PBW** Batch ID: **74865** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **8/11/2011** SeqNo: **2223869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	0.050									
ORO	ND	0.050									
Surr: p-Terphenyl	0.044		0.08000		54.5	36	126				

Sample ID: **LCS-74865** SampType: **LCS** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **8/11/2011** RunNo: **135772**
Client ID: **LCSW** Batch ID: **74865** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **8/11/2011** SeqNo: **2223870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.597	0.050	1.000	0	59.7	52	128				
Surr: p-Terphenyl	0.051		0.08000		64.4	36	126				

Sample ID: **MB-74865MS** SampType: **MS** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **8/11/2011** RunNo: **135772**
Client ID: **ZZZZZZ** Batch ID: **74865** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **8/11/2011** SeqNo: **2223871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.599	0.050	1.000	0	59.9	52	128				
Surr: p-Terphenyl	0.044		0.08000		55.3	36	126				

Sample ID: **MB-74865MSD** SampType: **MSD** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **8/11/2011** RunNo: **135772**
Client ID: **ZZZZZZ** Batch ID: **74865** TestNo: **EPA 8015B(M EPA 3510C** Analysis Date: **8/11/2011** SeqNo: **2223872**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.571	0.050	1.000	0	57.1	52	128	0.5990	4.72	20	
Surr: p-Terphenyl	0.050		0.08000		62.2	36	126		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_GP LL

Sample ID: **M110810LCS2** SampType: **LCS** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **135735**
Client ID: **LCSW** Batch ID: **M11VW156** TestNo: **EPA 8015B(M** Analysis Date: **8/10/2011** SeqNo: **2223192**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	1.099	0.050	1.000	0	110	70	130				
Surr: Bromofluorobenzene (FID)	89.753		100.0		89.8	70	130				

Sample ID: **M110810MB1MS** SampType: **MS** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **135735**
Client ID: **ZZZZZZ** Batch ID: **M11VW156** TestNo: **EPA 8015B(M** Analysis Date: **8/10/2011** SeqNo: **2223194**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	1.042	0.050	1.000	0	104	70	130				
Surr: Bromofluorobenzene (FID)	89.977		100.0		90.0	70	130				

Sample ID: **M110810MB1MSD** SampType: **MSD** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **135735**
Client ID: **ZZZZZZ** Batch ID: **M11VW156** TestNo: **EPA 8015B(M** Analysis Date: **8/10/2011** SeqNo: **2223195**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	1.131	0.050	1.000	0	113	70	130	1.042	8.19	20	
Surr: Bromofluorobenzene (FID)	91.935		100.0		91.9	70	130		0	0	

Sample ID: **M110810MB1** SampType: **MBLK** TestCode: **8015_W_GP** Units: **mg/L** Prep Date: RunNo: **135735**
Client ID: **PBW** Batch ID: **M11VW156** TestNo: **EPA 8015B(M** Analysis Date: **8/10/2011** SeqNo: **2223196**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050									
Surr: Bromofluorobenzene (FID)	88.859		100.0		88.9	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110810LC2** SampType: **LCS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **135736**
Client ID: **LCSS** Batch ID: **E11VS292** TestNo: **EPA 8021B** Analysis Date: **8/10/2011** SeqNo: **2223296**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	98.067	5.0	100.0	0	98.1	70	130				
Ethylbenzene	110.005	5.0	100.0	0	110	70	130				
m,p-Xylene	224.212	10	200.0	0	112	70	130				
Methyl tert-butyl ether	90.351	5.0	100.0	0	90.4	70	130				
o-Xylene	114.722	5.0	100.0	0	115	70	130				
Toluene	105.147	5.0	100.0	0	105	70	130				
Surr: Bromofluorobenzene (PID)	101.866		100.0		102	65	140				

Sample ID: **E110810LC2** SampType: **LCSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **135736**
Client ID: **LCSS02** Batch ID: **E11VS292** TestNo: **EPA 8021B** Analysis Date: **8/10/2011** SeqNo: **2223297**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	102.879	5.0	100.0	0	103	70	130	98.07	4.79	20	
Ethylbenzene	115.523	5.0	100.0	0	116	70	130	110.0	4.89	20	
m,p-Xylene	236.210	10	200.0	0	118	70	130	224.2	5.21	20	
Methyl tert-butyl ether	96.531	5.0	100.0	0	96.5	70	130	90.35	6.61	20	
o-Xylene	122.066	5.0	100.0	0	122	70	130	114.7	6.20	20	
Toluene	110.170	5.0	100.0	0	110	70	130	105.1	4.67	20	
Surr: Bromofluorobenzene (PID)	111.505		100.0		112	65	140		0	0	

Sample ID: **E110810MB1MS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **135736**
Client ID: **ZZZZZZ** Batch ID: **E11VS292** TestNo: **EPA 8021B** Analysis Date: **8/10/2011** SeqNo: **2223298**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	40.440	5.0	22.15	0	183	69	264				
Ethylbenzene	67.371	5.0	42.30	0	159	37	161				
m,p-Xylene	231.400	10	180.2	0	128	30	149				
Methyl tert-butyl ether	432.886	5.0	578.9	0	74.8	39	121				
o-Xylene	85.663	5.0	64.80	0	132	31	166				
Toluene	208.907	5.0	172.6	0	121	44	150				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110810MB1MS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **135736**
Client ID: **ZZZZZZ** Batch ID: **E11VS292** TestNo: **EPA 8021B** Analysis Date: **8/10/2011** SeqNo: **2223298**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (PID)	99.511		100.0		99.5	65	140				

Sample ID: **E110810MB1MSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **135736**
Client ID: **ZZZZZZ** Batch ID: **E11VS292** TestNo: **EPA 8021B** Analysis Date: **8/10/2011** SeqNo: **2223299**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	40.526	5.0	22.15	0	183	69	264	40.44	0.212	20	
Ethylbenzene	66.825	5.0	42.30	0	158	37	161	67.37	0.814	20	
m,p-Xylene	229.924	10	180.2	0	128	30	149	231.4	0.640	20	
Methyl tert-butyl ether	400.447	5.0	578.9	0	69.2	39	121	432.9	7.79	20	
o-Xylene	85.900	5.0	64.80	0	133	31	166	85.66	0.276	20	
Toluene	207.909	5.0	172.6	0	120	44	150	208.9	0.479	20	
Surr: Bromofluorobenzene (PID)	101.060		100.0		101	65	140		0	20	

Sample ID: **E110810MB1** SampType: **MBLK** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **135736**
Client ID: **PBS** Batch ID: **E11VS292** TestNo: **EPA 8021B** Analysis Date: **8/10/2011** SeqNo: **2223300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0									
Ethylbenzene	ND	5.0									
m,p-Xylene	ND	10									
Methyl tert-butyl ether	ND	5.0									
o-Xylene	ND	5.0									
Toluene	ND	5.0									
Surr: Bromofluorobenzene (PID)	94.485		100.0		94.5	65	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **119310-002AMS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **135736**
Client ID: **A-11-018-5** Batch ID: **E11VS292** TestNo: **EPA 8021B** Analysis Date: **8/10/2011** SeqNo: **2223304**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	40.286	5.0	22.15	0	182	69	264				
Ethylbenzene	66.271	5.0	42.30	0	157	37	161				
m,p-Xylene	229.413	10	180.2	0	127	30	149				
Methyl tert-butyl ether	427.027	5.0	578.9	0	73.8	39	121				
o-Xylene	86.495	5.0	64.80	0	133	31	166				
Toluene	207.346	5.0	172.6	0	120	44	150				
Xylenes, Total	315.908	15	245.0	0	129	30	149				
Surr: Bromofluorobenzene (PID)	114.963		100.0		115	65	140				

Sample ID: **119310-002AMSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **135736**
Client ID: **A-11-018-5** Batch ID: **E11VS292** TestNo: **EPA 8021B** Analysis Date: **8/10/2011** SeqNo: **2223305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	38.390	5.0	22.15	0	173	69	264	40.29	4.82	20	
Ethylbenzene	63.315	5.0	42.30	0	150	37	161	66.27	4.56	20	
m,p-Xylene	218.768	10	180.2	0	121	30	149	229.4	4.75	20	
Methyl tert-butyl ether	392.500	5.0	578.9	0	67.8	39	121	427.0	8.43	20	
o-Xylene	82.043	5.0	64.80	0	127	31	166	86.50	5.28	20	
Toluene	198.145	5.0	172.6	0	115	44	150	207.3	4.54	20	
Xylenes, Total	300.811	15	245.0	0	123	30	149	315.9	4.90	20	
Surr: Bromofluorobenzene (PID)	116.229		100.0		116	65	140		0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_WP_BTEX

Sample ID: **M110810LCS1** SampType: **LCS** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **135735**
Client ID: **LCSW** Batch ID: **M11VW156** TestNo: **EPA 8021B** Analysis Date: **8/10/2011** SeqNo: **2223107**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	96.765	0.50	100.0	0	96.8	70	130				
Toluene	99.763	0.50	100.0	0	99.8	70	130				
Ethylbenzene	98.411	0.50	100.0	0	98.4	70	130				
m,p-Xylene	198.285	1.0	200.0	0	99.1	70	130				
o-Xylene	98.248	0.50	100.0	0	98.2	70	130				
Methyl tert-butyl ether	93.045	0.50	100.0	0	93.0	70	130				
Surr: Bromofluorobenzene (PID)	86.882		100.0		86.9	70	130				

Sample ID: **M110810LCS1D** SampType: **LCSD** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **135735**
Client ID: **LCSS02** Batch ID: **M11VW156** TestNo: **EPA 8021B** Analysis Date: **8/10/2011** SeqNo: **2223109**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	98.451	0.50	100.0	0	98.5	70	130	96.76	1.73	20	
Toluene	100.631	0.50	100.0	0	101	70	130	99.76	0.866	20	
Ethylbenzene	99.900	0.50	100.0	0	99.9	70	130	98.41	1.50	20	
m,p-Xylene	201.094	1.0	200.0	0	101	70	130	198.3	1.41	20	
o-Xylene	99.782	0.50	100.0	0	99.8	70	130	98.25	1.55	20	
Methyl tert-butyl ether	95.280	0.50	100.0	0	95.3	70	130	93.04	2.37	20	
Surr: Bromofluorobenzene (PID)	87.611		100.0		87.6	70	130		0	0	

Sample ID: **M110810MB1** SampType: **MBLK** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **135735**
Client ID: **PBW** Batch ID: **M11VW156** TestNo: **EPA 8021B** Analysis Date: **8/10/2011** SeqNo: **2223112**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
o-Xylene	ND	0.50									
Methyl tert-butyl ether	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_WP_BTEX

Sample ID: **M110810MB1** SampType: **MBLK** TestCode: **8021_WP_BT** Units: **µg/L** Prep Date: RunNo: **135735**
Client ID: **PBW** Batch ID: **M11VW156** TestNo: **EPA 8021B** Analysis Date: **8/10/2011** SeqNo: **2223112**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (PID)	86.149		100.0		86.1	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **MB-74925** SampType: **MBLK** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **8/15/2011** RunNo: **135873**
Client ID: **PBS** Batch ID: **74925** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **8/16/2011** SeqNo: **2225933**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	2.0									
4,4´-DDE	ND	2.0									
4,4´-DDT	ND	2.0									
Aldrin	ND	1.0									
alpha-BHC	ND	1.0									
alpha-Chlordane	ND	1.0									
beta-BHC	ND	1.0									
Chlordane	ND	8.5									
delta-BHC	ND	1.0									
Dieldrin	ND	2.0									
Endosulfan I	ND	1.0									
Endosulfan II	ND	2.0									
Endosulfan sulfate	ND	2.0									
Endrin	ND	2.0									
Endrin aldehyde	ND	2.0									
Endrin ketone	ND	2.0									
gamma-BHC	ND	1.0									
gamma-Chlordane	ND	1.0									
Heptachlor	ND	1.0									
Heptachlor epoxide	ND	1.0									
Methoxychlor	ND	5.0									
Toxaphene	ND	50									
Surr: Tetrachloro-m-xylene	12.221		16.67		73.3	35	108				
Surr: Decachlorobiphenyl	13.031		16.67		78.2	31	107				

Sample ID: **LCS-74925** SampType: **LCS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **8/15/2011** RunNo: **135873**
Client ID: **LCSS** Batch ID: **74925** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **8/16/2011** SeqNo: **2225934**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	12.779	1.0	16.67	0	76.7	59	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 *Tel: 562. 989.4045* *Fax: 562.989.4040*

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **LCS-74925** SampType: **LCS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **8/15/2011** RunNo: **135873**
Client ID: **LCSS** Batch ID: **74925** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **8/16/2011** SeqNo: **2225934**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dieldrin	13.150	2.0	16.67	0	78.9	56	112				
Endrin	14.081	2.0	16.67	0	84.5	53	116				
gamma-BHC	12.764	1.0	16.67	0	76.6	59	110				
Heptachlor	14.486	1.0	16.67	0	86.9	53	118				
Surr: Tetrachloro-m-xylene	11.819		16.67		70.9	35	108				
Surr: Decachlorobiphenyl	12.585		16.67		75.5	31	107				

Sample ID: **119372-038AMS** SampType: **MS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **8/15/2011** RunNo: **135873**
Client ID: **ZZZZZZ** Batch ID: **74925** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **8/16/2011** SeqNo: **2225935**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	17.195	2.0	16.67	0	103	38	130				
Aldrin	16.454	1.0	16.67	0	98.7	35	122				
Dieldrin	17.165	2.0	16.67	0	103	31	138				
Endrin	18.570	2.0	16.67	0	111	39	132				
gamma-BHC	16.550	1.0	16.67	0	99.3	36	126				
Heptachlor	18.587	1.0	16.67	0	111	34	131				
Surr: Tetrachloro-m-xylene	14.845		16.67		89.0	35	108				
Surr: Decachlorobiphenyl	16.671		16.67		100	31	107				

Sample ID: **119372-038AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **8/15/2011** RunNo: **135873**
Client ID: **ZZZZZZ** Batch ID: **74925** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **8/16/2011** SeqNo: **2225936**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	17.079	2.0	16.67	0	102	38	130	17.20	0.677	20	
Aldrin	16.238	1.0	16.67	0	97.4	35	122	16.45	1.32	20	
Dieldrin	16.958	2.0	16.67	0	102	31	138	17.17	1.22	20	
Endrin	18.392	2.0	16.67	0	110	39	132	18.57	0.960	20	
gamma-BHC	16.363	1.0	16.67	0	98.2	36	126	16.55	1.14	20	
Heptachlor	18.925	1.0	16.67	0	114	34	131	18.59	1.80	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **119372-038AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **8/15/2011** RunNo: **135873**
Client ID: **ZZZZZZ** Batch ID: **74925** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **8/16/2011** SeqNo: **2225936**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Tetrachloro-m-xylene	14.573		16.67		87.4	35	108		0	0	
Surr: Decachlorobiphenyl	16.383		16.67		98.3	31	107		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **Q110817LCS1** SampType: **LCS** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **135885**
Client ID: **LCSW** Batch ID: **Q11VW151** TestNo: **EPA 8260B** Analysis Date: **8/17/2011** SeqNo: **2226947**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	16.710	0.50	20.00	0	83.6	70	130				
Benzene	39.230	0.50	40.00	0	98.1	70	130				
Chlorobenzene	20.360	0.50	20.00	0	102	70	130				
MTBE	21.830	0.50	20.00	0	109	70	130				
Toluene	41.350	0.50	40.00	0	103	70	130				
Trichloroethene	20.290	0.50	20.00	0	101	70	130				
Surr: 1,2-Dichloroethane-d4	22.080		25.00		88.3	70	130				
Surr: 4-Bromofluorobenzene	24.160		25.00		96.6	70	130				
Surr: Dibromofluoromethane	22.210		25.00		88.8	70	130				
Surr: Toluene-d8	23.950		25.00		95.8	70	130				

Sample ID: **Q110817MB3MS** SampType: **MS** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **135885**
Client ID: **ZZZZZZ** Batch ID: **Q11VW151** TestNo: **EPA 8260B** Analysis Date: **8/17/2011** SeqNo: **2226948**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	17.010	0.50	20.00	0	85.0	70	130				
Benzene	39.840	0.50	40.00	0	99.6	70	130				
Chlorobenzene	20.970	0.50	20.00	0	105	70	130				
Toluene	41.590	0.50	40.00	0	104	70	130				
Trichloroethene	20.250	0.50	20.00	0	101	70	130				
Surr: 1,2-Dichloroethane-d4	22.160		25.00		88.6	70	130				
Surr: 4-Bromofluorobenzene	23.910		25.00		95.6	70	130				
Surr: Dibromofluoromethane	22.100		25.00		88.4	70	130				
Surr: Toluene-d8	23.750		25.00		95.0	70	130				

Sample ID: **Q110817MB3MSD** SampType: **MSD** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **135885**
Client ID: **ZZZZZZ** Batch ID: **Q11VW151** TestNo: **EPA 8260B** Analysis Date: **8/17/2011** SeqNo: **2226949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	17.560	0.50	20.00	0	87.8	70	130	17.01	3.18	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **Q110817MB3MSD** SampType: **MSD** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **135885**
Client ID: **ZZZZZZ** Batch ID: **Q11VW151** TestNo: **EPA 8260B** Analysis Date: **8/17/2011** SeqNo: **2226949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	40.390	0.50	40.00	0	101	70	130	39.84	1.37	20	
Chlorobenzene	20.840	0.50	20.00	0	104	70	130	20.97	0.622	20	
Toluene	41.900	0.50	40.00	0	105	70	130	41.59	0.743	20	
Trichloroethene	20.670	0.50	20.00	0	103	70	130	20.25	2.05	20	
Surr: 1,2-Dichloroethane-d4	21.750		25.00		87.0	70	130		0	0	
Surr: 4-Bromofluorobenzene	23.730		25.00		94.9	70	130		0	0	
Surr: Dibromofluoromethane	21.990		25.00		88.0	70	130		0	0	
Surr: Toluene-d8	23.780		25.00		95.1	70	130		0	0	

Sample ID: **Q110817MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **135885**
Client ID: **PBW** Batch ID: **Q11VW151** TestNo: **EPA 8260B** Analysis Date: **8/17/2011** SeqNo: **2226950**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50									
1,1,1-Trichloroethane	ND	0.50									
1,1,2,2-Tetrachloroethane	ND	0.50									
1,1,2-Trichloroethane	ND	0.50									
1,1-Dichloroethane	ND	0.50									
1,1-Dichloroethene	ND	0.50									
1,1-Dichloropropene	ND	0.50									
1,2,3-Trichlorobenzene	ND	0.50									
1,2,3-Trichloropropane	ND	0.50									
1,2,4-Trichlorobenzene	ND	0.50									
1,2,4-Trimethylbenzene	ND	0.50									
1,2-Dibromo-3-chloropropane	ND	0.50									
1,2-Dibromoethane	ND	0.50									
1,2-Dichlorobenzene	ND	0.50									
1,2-Dichloroethane	ND	0.50									
1,2-Dichloropropane	ND	0.50									
1,3,5-Trimethylbenzene	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **Q110817MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **135885**
Client ID: **PBW** Batch ID: **Q11VW151** TestNo: **EPA 8260B** Analysis Date: **8/17/2011** SeqNo: **2226950**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	ND	0.50									
1,3-Dichloropropane	ND	0.50									
1,4-Dichlorobenzene	ND	0.50									
2,2-Dichloropropane	ND	0.50									
2-Chlorotoluene	ND	0.50									
4-Chlorotoluene	ND	0.50									
4-Isopropyltoluene	ND	0.50									
Benzene	ND	0.50									
Bromobenzene	ND	0.50									
Bromodichloromethane	ND	0.50									
Bromoform	ND	0.50									
Bromomethane	ND	0.50									
Carbon tetrachloride	ND	0.50									
Chlorobenzene	ND	0.50									
Chloroethane	ND	0.50									
Chloroform	ND	0.50									
Chloromethane	0.210	0.50									
cis-1,2-Dichloroethene	ND	0.50									
cis-1,3-Dichloropropene	ND	0.50									
Dibromochloromethane	ND	0.50									
Dibromomethane	ND	0.50									
Dichlorodifluoromethane	ND	0.50									
Ethylbenzene	ND	0.50									
Hexachlorobutadiene	ND	0.50									
Isopropylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
Methylene chloride	ND	1.0									
n-Butylbenzene	ND	0.50									
n-Propylbenzene	ND	0.50									
Naphthalene	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 119310
Project: I-80 ICM PROJECT, E8583-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: **Q110817MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **µg/L** Prep Date: RunNo: **135885**
Client ID: **PBW** Batch ID: **Q11VW151** TestNo: **EPA 8260B** Analysis Date: **8/17/2011** SeqNo: **2226950**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	0.50									
sec-Butylbenzene	ND	0.50									
Styrene	ND	0.50									
tert-Butylbenzene	ND	0.50									
Tetrachloroethene	ND	0.50									
Toluene	ND	0.50									
trans-1,2-Dichloroethene	ND	0.50									
Trichloroethene	ND	0.50									
Trichlorofluoromethane	ND	0.50									
Vinyl chloride	ND	0.50									
Surr: 1,2-Dichloroethane-d4	24.600		25.00		98.4	70	130				
Surr: 4-Bromofluorobenzene	24.680		25.00		98.7	70	130				
Surr: Dibromofluoromethane	24.280		25.00		97.1	70	130				
Surr: Toluene-d8	24.330		25.00		97.3	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CHAIN OF CUSTODY RECORD

ADVANCED TECHNOLOGY LABORATORIES
3275 Walnut Ave., Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

P.O. #: _____ Quote #: _____
Logged By: _____ Date: 8/9/11

NOTE: Please include your Quote No. to ensure proper pricing of your project.

FOR LABORATORY USE ONLY

Method of Transport: ☐ Client ☐ ATL ☑ OnTrac ☐ FedEx ☐ GSO ☐ Other: _____

4.2

Sample Condition Upon Receipt

1. CHILLED	Y ☑ N ☐	4. SEALED	Y ☐ N ☑
2. HEADSPACE (VOA)	Y ☑ N ☐	5. # OF SPLS MATCH COC	Y ☑ N ☐
3. CONTAINER INTACT	Y ☑ N ☐	6. PRESERVED	Y ☑ N ☑

Client: Geocon Consultants, Inc.
Address: 6671 Brisa Street
Tel: 925-371-5900
Attention: Rick Day
City: Livermore State: CA Zip Code: 94550
Fax: 925-371-5915

Project Name: 1-80 ICM PROJECT
Project #: E8583-06-01
Sampler: RICH BROWN (Signature) Rich Brown

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
RICH BROWN Rich Br	8-8-11	1400	OnTrac	8-8-11	1400
			C. Dynk	8/9/11	8AM

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter: _____
Print Name Date
Signature

Send Report To: Attn: Co: Addr: City: State: Zip:

Bill To: Attn: Co: Addr: City: State: Zip:

Special Instructions/Comments:

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.

Storage Fees (applies when storage is requested):
- Sample :$2.00 / sample /mo (after 45 days)
- Records: $1 /ATL workorder /mo (after 1 year)

Circle or Add Analysis(es) Requested — SPECIFY APPROPRIATE MATRIX

QA/QC: RTNE ☑ CT ☐ Legal ☐ SWRCB ☐ Logcode_____ OTHER _____

ITEM	LAB USE ONLY: Batch #: Lab No.	Sample Description: Sample ID / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8021 (BTEX)	8015B (DRO)	TITLE 22 / CAM 17 (6010 / 7000)	TPHd/TPHmo	TPHg/BTEX/MTBE	SEDIMENT	SOLID	SOIL	DRINKING WATER	GROUND WATER	WASTEWATER	STORMWATER	AQUEOUS	TAT	Container(s) #	Type	PRESERVATION	REMARKS
	1193102-007	A-11-018-1	8-7-11	2235	X						X		X				X						E	1	SS	T	C
	2	A-11-018-5	8-7-11	2300							X			X			X							1	SS	T	C
	3	A-11-018	8-8-11	0015							X								X					2	POLY		N
		A-11-018	↓	0015									X						X					2	G	L	C
		A-11-018	↓	0015			X							X					X					6	G	V	H

RS 8/8/11

- TAT starts 8AM the following day if samples received after 5 PM

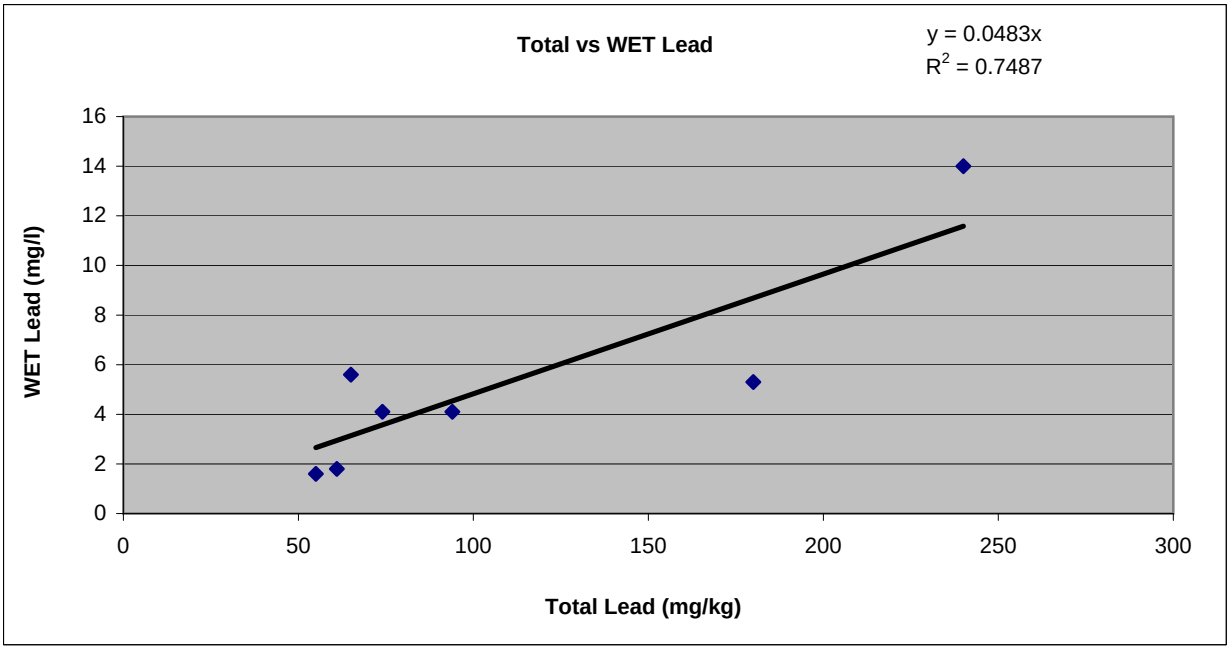
TAT: ☐ A = Overnight ≤ 24 hrs ☐ B = Emergency Next Workday ☐ C = Critical 2 Workdays ☐ D = Urgent 3 Workdays ☐ E = Routine 7 Workdays

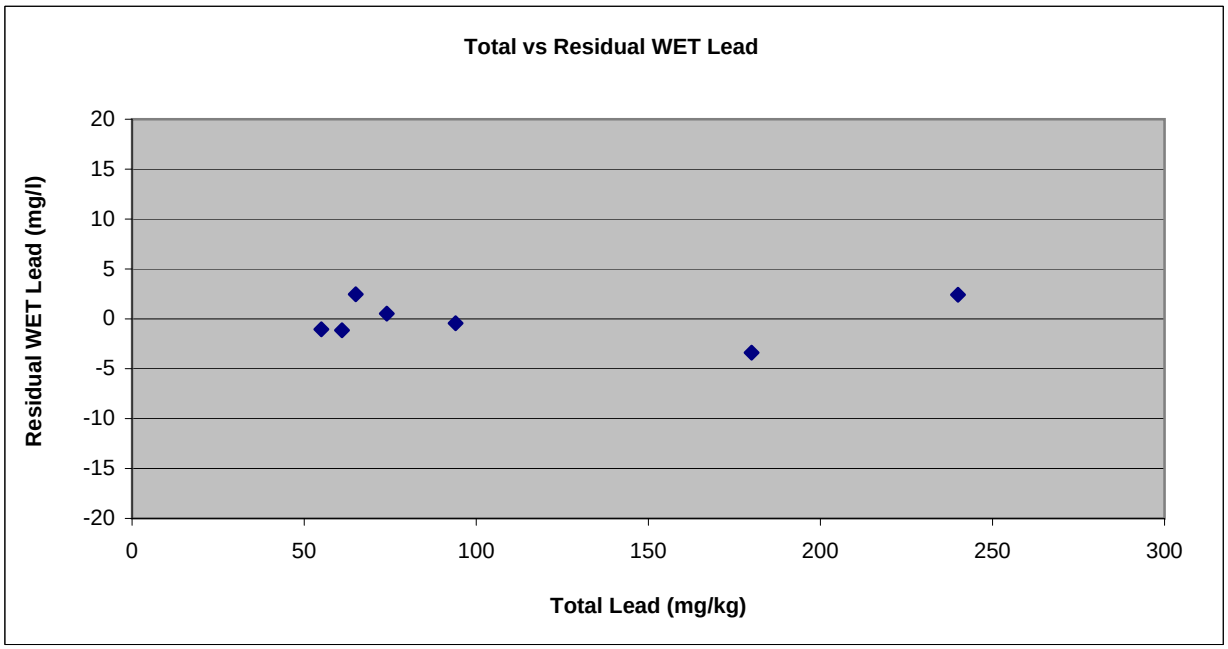
Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

APPENDIX B

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	Residual WET Lead (mg/l)	Squared Residual WET Lead (mg/l)
A-11-003-1	1.0-1.5	94	4.1	-0.44	0.19
A-11-005-1	1.0-1.5	180	5.3	-3.39	11.48
A-11-006-1	1.0-1.5	74	4.1	0.53	0.28
A-11-006-5	5.0-5.5	65	5.6	2.46	6.06
A-11-007-1	1.0-1.5	240	14	2.42	5.83
A-11-009-1	1.0-1.5	55	1.6	-1.05	1.11
A-11-010-1	1.0-1.5	61	1.8	-1.14	1.31





Total Lead Statistics

ATM-1

Number of Valid Observations	17
Number of Distinct Observations	17
Minimum	2.2
Maximum	240
Mean	50.05
Median	22
SD	67.07
Variance	4498
Coefficient of Variation	1.34
Skewness	1.986
Mean of log data	3.051
SD of log data	1.441
90% Standard Bootstrap UCL	69.87
95% Standard Bootstrap UCL	76.66

ATM-5

Number of Valid Observations	17
Number of Distinct Observations	17
Minimum	1.2
Maximum	82
Mean	25.02
Median	21
SD	23.9
Variance	571.2
Coefficient of Variation	0.955
Skewness	1.087
Mean of log data	2.621
SD of log data	1.293
90% Standard Bootstrap UCL	32.1
95% Standard Bootstrap UCL	34.48

ATM - 1 and 5

Number of Valid Observations	34
Number of Distinct Observations	33
Minimum	1.2
Maximum	240
Mean	37.53
Median	21.5
SD	51.18
Variance	2619
Coefficient of Variation	1.364
Skewness	2.649
Mean of log data	2.836
SD of log data	1.365
90% Standard Bootstrap UCL	48.5
95% Standard Bootstrap UCL	51.75

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

DEPARTMENT OF INDUSTRIAL RELATIONS
DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
MINING AND TUNNELING UNIT
2211 Park Towne Circle, Suite 2
Sacramento, California 95825

Telephone (916) 574-2540
FAX (916) 574-2542

November 17, 2011

Department of Transportation
PO Box 23660
Oakland, CA 94623

Attention: Albert Zepeda (via e-mail: albert_zepeda@dot.ca.gov)

Subject: Underground Classification #'s: C065-001-12T thru C066-001-12T

I-80 Integrated Corridor Mobility Active Traffic Management Project

Mr. Zepeda:

The information provided to this office relative to the above project has been reviewed. On the basis of this analysis, Underground Classification of "Potentially Gassy with Special Conditions" has been assigned to the shaft(s) identified on your submittal. Please retain the original Classification for your records and deliver a true and correct copy of the Classification to the shaft contractor(s) for posting at the job site.

When the contractor who will be performing the work is selected, please advise them to notify this office to determine if a mandated Prejob Conference with the Division is required prior to commencing any activity associated with drilling of the shaft(s).

Should you have another bore under construction that is not required to have an Underground Classification (i.e.: less than 30 inches in diameter), please contact the Mining and Tunneling Unit prior to any employee entry of such a space.

If you have any questions on this subject, please contact this office at your earliest convenience.

Sincerely,

Douglas Patterson
Senior Engineer

cc: R. Brockman
File

State of California

Department of Industrial Relations

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
MINING AND TUNNELING UNIT

Underground Classification

C065-001-12T

DEPARTMENT OF TRANSPORTATION
NAME OF TUNNEL OR MINE AND COMPANY NAME

of PO Box 23660, Oakland, CA 94623
MAILING ADDRESS

at I-80 INTEGRATED CORRIDOR MOBILITY ACTIVE TRAFFIC MANAGEMENT PROJECT
LOCATION

has been classified as ***POTENTIALLY GASSY with Special Conditions***
CLASSIFICATION

as required by the California Labor Code § 7955.

The Division shall be notified if sufficient quantities of flammable gas or vapors have been encountered underground. Classifications are based on the California Labor Code Part 9, Tunnel Safety Orders and Mine Safety Orders.

SPECIAL CONDITIONS

1. A Certified Gas Tester shall perform pre-entry and continuous monitoring of the underground environment to measure Oxygen and detect explosive, flammable, and toxic gasses whenever an employee is working in the underground environment.
2. Mechanical ventilation shall provide for continuous exhaust of fumes and air at any time an employee is working in the underground environment. The primary ventilation fans must be located outside of the underground environment and shall be reversible by a single switch near the fan location.
3. The Division shall be notified immediately if any **Flammable Gas** or **Petroleum Vapor** exceeds 5% of the Lower Explosive Limit.
4. All utilities that may be in conflict with the project shall be identified and physically located (potholed) prior to the start of project operations.

SMALL AMOUNTS OF DIESEL FUEL & MOTOR OIL IN SURFACE SOILS

The two 60-inch diameter by 43 feet deep drilled shafts located on the shoulder of the Ashby Avenue west-bound on-ramp to I-80, Berkeley, Alameda County.

This classification shall be conspicuously posted at the place of employment.

Date November 17, 2011

Douglas Patterson, Senior Engineer

State of California

Department of Industrial Relations

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
MINING AND TUNNELING UNIT

Underground Classification

C066-001-12T

DEPARTMENT OF TRANSPORTATION
NAME OF TUNNEL OR MINE AND COMPANY NAME

of PO Box 23660, Oakland, CA 94623
MAILING ADDRESS

at I-80 INTEGRATED CORRIDOR MOBILITY ACTIVE TRAFFIC MANAGEMENT PROJECT
LOCATION

has been classified as ***POTENTIALLY GASSY with Special Conditions***
CLASSIFICATION

as required by the California Labor Code § 7955.

The Division shall be notified if sufficient quantities of flammable gas or vapors have been encountered underground. Classifications are based on the California Labor Code Part 9, Tunnel Safety Orders and Mine Safety Orders.

SPECIAL CONDITIONS

1. A Certified Gas Tester shall perform pre-entry and continuous monitoring of the underground environment to measure Oxygen and detect explosive, flammable, and toxic gasses whenever an employee is working in the underground environment.
2. Mechanical ventilation shall provide for continuous exhaust of fumes and air at any time an employee is working in the underground environment. The primary ventilation fans must be located outside of the underground environment and shall be reversible by a single switch near the fan location.
3. The Division shall be notified immediately if any **Flammable Gas** or **Petroleum Vapor** exceeds 5% of the Lower Explosive Limit.
4. All utilities that may be in conflict with the project shall be identified and physically located (potholed) prior to the start of project operations.

SMALL AMOUNTS OF DIESEL FUEL & MOTOR OILS IN SURFACE SOILS

The twenty-one (21) 42-inch diameter drilled shafts with depths varying between 36 and 61 feet deep located on the northbound and southbound shoulders of I-80 between Powell Street (in Emeryville, Alameda County) and Macdonald Avenue (in El Cerrito, Contra Costa County).

This classification shall be conspicuously posted at the place of employment.

Date November 17, 2011

Douglas Patterson, Senior Engineer

04-Ala/CC-80
Ala PM 2.0/8.0
CC PM 0.0/13.5
EA 04-3A7771

Interstate 80 Integrated Corridor Mobility / Active Traffic Management Project
Alameda and Contra Costa Counties, California
EA 04-3A7771
March 2012

Storm Water Information Handout

DRAFT

Prepared for:

Caltrans

Prepared by:

WRECO

March 2012

This page is intentionally left blank.

DRAFT

Table of Contents

1 Overview 1
1.1 Intent of this Document 1
1.2 Summary of New Requirements 1
2 General Project Information 2
2.1 Location 2
2.2 Major Engineering Features 3
2.3 Receiving Water Bodies 3
2.4 Climate and Rainfall 4
2.5 Soils and Geology 4
2.6 Hazardous Waste 5
2.7 Existing Treatment BMPs 5
3 Construction General Permit 9
3.1 Risk Assessment 9
3.1.1 Sediment Risk 9
3.1.2 Receiving Water Body Risk 12
3.1.3 Risk Level 12
3.2 Notice of Termination (NOT) 13
3.3 Caltrans Forms 13
4 Run-on Discharges 13
5 Project registration Documents 13
5.1 General Information Included 14
5.2 Storm Water Pollution Prevention Plan 14
5.3 Notice of Intent (NOI) 15
5.4 Site Maps 15

Figures

Figure 1. Vicinity Map 2
Figure 2. Rainfall Data 6
Figure 3. Soil erosion factor K map 7
Figure 4. R Factor 10
Figure 5. Sediment Risk Factor Worksheet 11
Figure 6. Receiving Water Risk Factor Worksheet 12
Figure 7. Combined Risk Level Matrix 12

Tables

Table 1. List of water bodies on the 303(d) List and beneficial uses 4
Table 2. Soil erosion factor K table 8
Table 3. LS Factor 10

Appendices

Appendix A Notice of Intent (NOI)
Appendix B Conceptual Monitoring Plan

DRAFT

Disclaimer

A "Disclaimer" is required specifying that the information provided in the Storm Water Information Handout is just a guideline and is to be used for information purposes only and should not be considered a sole source document to adhere to the requirements of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP), Number CAS000002, effective as of July 1, 2010. The Contractor is required to provide water quality monitoring, sampling and implement best management practices (BMPs) based on standard industry operations, field conditions and conditions encountered based on the Contractor's means and methods. The information in this handout is not to be construed in any way as a waiver of the provisions in the CGP. Bidders and Contractors are cautioned to make independent investigations and examinations as they deem necessary to satisfy the conditions encountered in performance of work, with respect to the following: sampling and monitoring locations, distribution of watershed areas for sizing of BMPs, and selection of BMPs in order to conform to the requirement of the contract documents and the CGP.

DRAFT

1 OVERVIEW

1.1 Intent of this Document

The objectives of this Water Quality Information Handout are: to summarize general water quality information of the Project; to summarize updated requirements per the new Construction General Permit (CGP), which became effective as of July 1, 2010; to aid in developing the Storm Water Pollution Prevention Plan (SWPPP) of the project; and to highlight information necessary to file Project Registration Documents (PRDs) to the State Water Resources Control Board via the Stormwater Multi Application Reporting and Tracking System (SMARTS) and file the Notice of Intent (NOI) at the start of construction.

1.2 Summary of New Requirements

The "National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities" (NPDES Number CAS000002), or CGP, regulates discharges from construction activities within the Project area.

The CGP is based on a risk level (RL) permitting approach. The RL is calculated by 1) project sediment risk and 2) receiving water risk. See the risk assessment calculations in Section 3.1of this document for details.

A risk assessment was done for the Interstate 80 Integrated Corridor Mobility / Active Traffic Management Project (Project). The Project was determined to be **RL 1**.

RL 1 projects are subject to minimum best management practice (BMP) implementation and visual monitoring requirements.

All projects will have to upload storm water data into SMARTS, such as NOIs, SWPPPs, annual reports, and monitoring data, as applicable.

DRAFT

2 GENERAL PROJECT INFORMATION

2.1 Location

The Project involves work along the I-80 corridor from the Bay Bridge Toll Plaza in Alameda County (R2-2003-0021) to the Carquinez Bridge in Contra Costa County (99-058), see Figure 1.

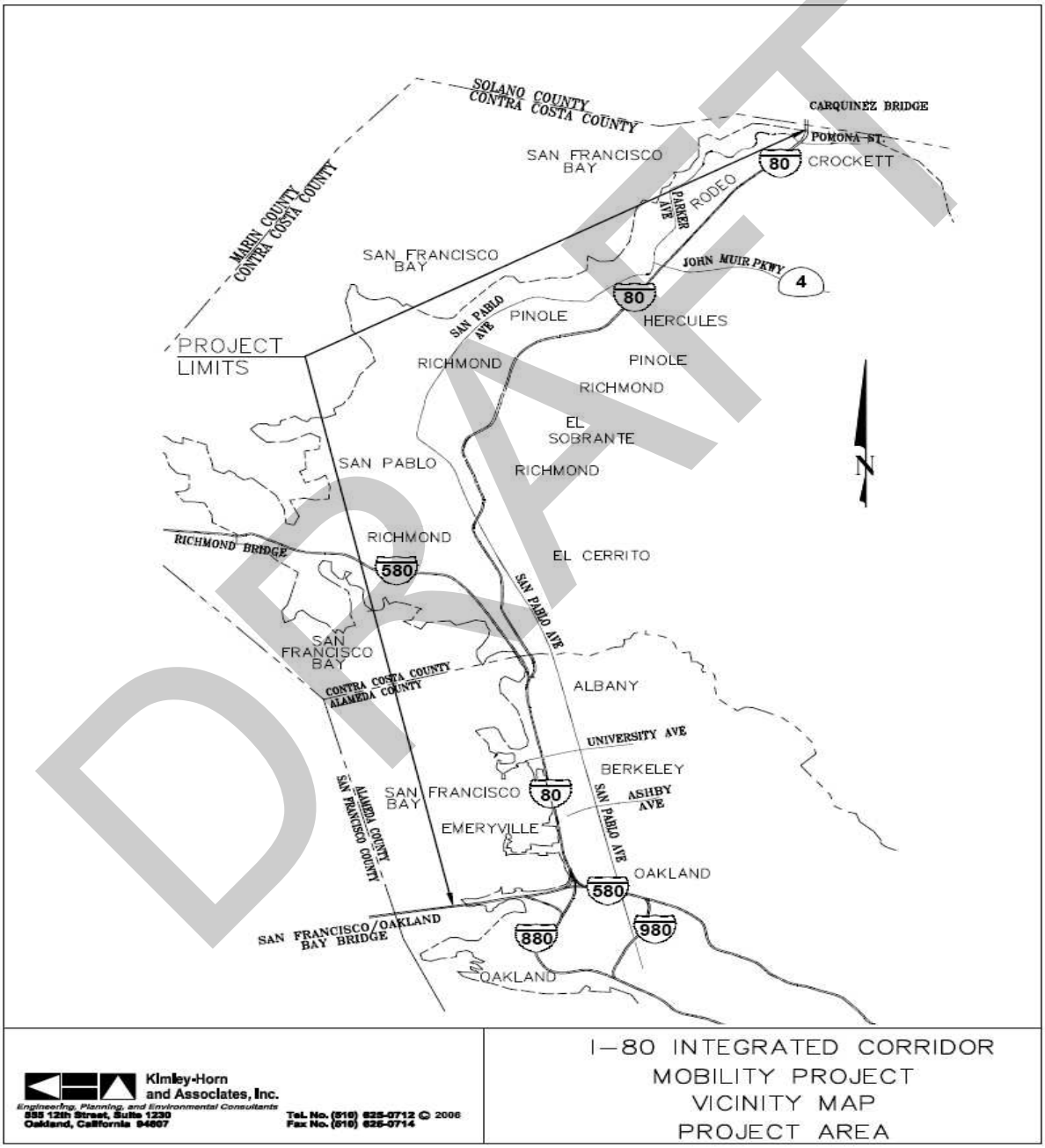


Figure 1. Vicinity Map

DRAFT

2.2 Major Engineering Features

This portion of the proposed Interstate 80 (I-80) Integrated Corridor Mobility (ICM) Project includes the implementation of traffic operations strategies, such as the active traffic management (ATM). The Project includes major components that require installation of signs as well as miscellaneous work:

I. ACTIVE TRAFFIC MANAGEMENT:

a. Sign Bridge Structures, also known as Active Traffic Management (ATM) gantries
   - 11 gantries with Lane Use Signs (LUS) and Full Color Graphic Variable Message Signs (Type 2) mounted on the gantries to be used for Lane Management;

b. Variable Advisory Speed Signs (VASS)
   - 67 locations to be placed on Sign Bridge Structures and stand-alone installations;

c. Closed-circuit television (CCTV) cameras
   - 19 cameras installed on 18 new poles;

d. Full Color Graphic Information Display Board (IDB)
   - 6 locations

e. Ramp Metering
   - Westbound Powell Street on-ramp
   - Westbound Buchanan Street on-ramp

Other devices, such as vehicle detection stations, conduits, pull boxes, service enclosures and controller cabinets will be installed at various locations along the I-80 corridor. Ramp metering will be installed at the Powell Street on-ramp and the Buchanan Street on-ramp, which include: ramp metering lights, vehicle detection loops and various underground and above ground equipments.

2.3 Receiving Water Bodies

The receiving water bodies for the locations where there is active soil disturbance within Alameda County are Temescal Creek, Strawberry Creek, Codornices Creek, Cerrito Creek, San Francisco Bay, Central and Berkeley Aquatic Park Lagoon; within Contra Costa County the receiving water bodies are Central Creek, Baxter Creek, Richmond Inner Harbor and Stege Marsh.

Table 1 lists the Project receiving water bodies that are on the 2010 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report) with proposed total maximum daily load (TMDL) completion date, and the Project water bodies with listed beneficial uses on the San Francisco Bay Regional Water Quality Control Board (RWQCB) *Water Quality Control Plan (Basin Plan).*

DRAFT

Table 1. List of water bodies on the 303(d) List and beneficial uses

Water Body	303 (d) Pollutant (TMDL Completion Date)	Beneficial use
San Francisco Bay, Central	Chlordane (2013) DDT (2013) Dieldrin (2013) Dioxin Compounds (including 2, 3, 7, 8-TCDD) (2019) Furan Compounds (2019) Invasive Species (2019) Mercury (2008) PCBs (2008) PCBs (dioxin-like) (2008) Selenium (2010) Trash (2021)	Industrial Service Supply (IND) Industrial Process Supply (PROC) Ocean, Commercial, and Sport Fishing (COMM) Shellfish Harvesting (SHEL) Estuarine Habitat (EST) Fish Migration (MIGR) Preservation of Rare and Endangered Species (RARE) Fish Spawning (SPWN) Wildlife Habitat (WILD) Water Contact Recreation (REC-1) Noncontact Water Recreation (REC-2) Navigation (NAV)
Strawberry Creek	Trash (2021)	
Codornices Creek	Temperature, water (2021) Trash (2021)	
Cerrito Creek	Trash (2021)	
Berkeley Aquatic Park		EST MIGR SPWN (potential only) WILD REC-1 REC-2
Baxter Creek	Trash (2021)	

2.4 Climate and Rainfall

A National Oceanic and Atmospheric Administration (NOAA) weather station located in Berkeley was used to obtain precipitation data (see Figure 2). The compliance storm event at the Berkeley station was determined from NOAA's online Atlas 14, Volume 6, Version 2 (http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ca).

Rainy days per year (assumed equal to precipitation 0.10 inches or greater): 42.4 days

Qualifying rain events per year (precipitation 0.5 inches or greater): 16.9 days

Compliance Storm Event (rainfall total for the 5 year, 24 hour storm) 3.41 inches

2.5 Soils and Geology

The soil erosion factor K indicates the erodibility of the fine-earth fraction of the soil. The factor is given as a percentage or fraction ranging from 0.02 to 0.69; the higher the value, the more susceptible the soil is to sheet and rill erosion by water. The K values for the Project were obtained from the Natural Resources Conservation Service "Web Soil Survey" (see Figure 3 and Table 2). The weighted average K value for the Project is 0.26.

DRAFT

2.6 Hazardous Waste

Soils containing aerially deposited lead (ADL) are present within the Project limits, but soils containing ADL is not reused for this Project.

2.7 Existing Treatment BMPs

There are no known existing treatment BMPs impacted by the Project.

DRAFT

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

Climatography of the United States No. 20 1971-2000

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: BERKELEY, CA

COOP ID: 040693

Climate Division: CA 4 **NWS Call Sign:** **Elevation: 310 Feet** **Lat: 37°52N** **Lon: 122°16W**

Precipitation (inches)

	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	5.13	4.99	6.98	1982	4	12.47	1973	.22	1984	10.6	7.8	3.5	1.6	.44	.79	1.47	2.18	2.96	3.85	4.91	6.24	8.08	11.16	14.18
Feb	4.75	4.46	3.20	2000	13	14.49	1998	.20	1997	9.9	7.1	3.4	1.5	.35	.65	1.26	1.91	2.64	3.48	4.49	5.77	7.55	10.54	13.50
Mar	4.08	2.86	2.60	1986	10	11.74	1983	.09	1988	10.1	6.7	2.9	1.0	.35	.63	1.17	1.73	2.36	3.06	3.91	4.97	6.43	8.88	11.29
Apr	1.63	1.36	2.43	1958	2	5.34	1982	.06	1985	6.2	3.9	.8	.2	.14	.25	.47	.70	.94	1.23	1.56	1.99	2.57	3.55	4.51
May	.61	.18	1.99	1957	18	4.00	1990	.00+	1992	2.9	1.5	.2	.1	.00	.00	.00	.03	.10	.21	.37	.62	1.01	1.76	2.57
Jun	.14	.06	1.04	1929	15	1.06	1995	.00+	1996	1.1	.4	.1	.0	.00	.00	.00	.00	.01	.05	.10	.16	.26	.42	.58
Jul	.07	.00	1.40	1974	8	1.50	1974	.00+	2000	.4	.1	@	@	.00	.00	.00	.00	.00	.00	.00	.00	.01	.17	.39
Aug	.10	.00	.69	1997	19	1.33	1976	.00+	2000	.6	.3	.1	.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.22	.56
Sep	.36	.11	2.52	1959	18	1.65	1977	.00+	1996	1.7	.9	.2	@	.00	.00	.00	.00	.02	.11	.23	.39	.64	1.07	1.50
Oct	1.37	1.12	2.34	1962	11	4.22	1975	.00+	1999	3.9	2.2	.9	.4	.00	.05	.22	.42	.64	.91	1.24	1.66	2.25	3.27	4.28
Nov	3.62	2.76	3.89	1994	5	11.47	1973	.00	1995	7.9	5.6	2.3	.8	.11	.37	.86	1.38	1.96	2.62	3.42	4.42	5.82	8.17	10.50
Dec	3.54	3.26	3.77	1995	11	9.44	1996	.00	1989	8.4	5.9	2.5	.9	.39	.81	1.40	1.91	2.43	2.99	3.61	4.36	5.36	6.97	8.49
Ann	25.40	23.25	6.98	Jan 1982	4	14.49	Feb 1998	.00+	Aug 2000	63.7	42.4	16.9	6.5	12.44	14.60	17.56	19.93	22.12	24.31	26.64	29.29	32.60	37.60	42.07

+ Also occurred on an earlier date(s)
# Denotes amounts of a trace
@ Denotes mean number of days greater than 0 but less than .05
** Statistics not computed because less than six years out of thirty had measurable precipitation

(1) From the 1971-2000 Monthly Normals
(2) Derived from station's available digital record: 1919-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

012-B

DRAFT

Figure 2. Rainfall Data

Figure 3. Soil erosion factor K map

Table 2. Soil erosion factor K table

K Factor, Rock Free— Summary by Map Unit — Alameda County, California, Western Part (CA610)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
122	Los Osos-Millsholm complex, 9 to 30 percent slopes	.32	18.1	0.4%
129	Millsholm silt loam, 50 to 75 percent slopes	.55	36.6	0.8%
146	Urban land		1,148.0	24.8%
148	Urban land-Clear Lake complex		23.2	0.5%
162	Water		213.5	4.6%
Cccc	Clear Lake clay	.20	7.8	0.2%
Subtotals for Soil Survey Area			**1,447.1**	**31.3%**
Totals for Area of Interest			**4,625.3**	**100.0%**

K Factor, Rock Free— Summary by Map Unit — Contra Costa County, California (CA013)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
146aw	URBAN LAND		20.4	0.4%
Cc	CLEAR LAKE CLAY	.20	481.6	10.4%
CeA	CONEJO CLAY LOAM, 0 TO 2 PERCENT SLOPES	.20	109.7	2.4%
CkB	CROPLEY CLAY, 2 TO 5 PERCENT SLOPES	.20	46.3	1.0%
CmE	CUT AND FILL LAND-DIABLO COMPLEX, 9 TO 30 PERCENT SLOPES		208.8	4.5%
CnE	CUT AND FILL LAND-LOS OSOS COMPLEX, 9 TO 30 PERCENT SLOPES		481.8	10.4%
CoE	CUT AND FILL LAND-MILLSHOLM COMPLEX, 9 TO 30 PERCENT SLOPES		26.9	0.6%
CoF	CUT AND FILL LAND-MILLSHOLM COMPLEX, 30 TO 50 PERCENT SLOPES		38.8	0.8%
DdE	DIABLO CLAY, 15 TO 30 PERCENT SLOPES	.20	107.0	2.3%
GcF	GILROY CLAY LOAM, 30 TO 50 PERCENT SLOPES	.20	1.3	0.0%
LcE	LODO CLAY LOAM, 9 TO 30 PERCENT SLOPES	.24	46.7	1.0%
LcF	LODO CLAY LOAM, 30 TO 50 PERCENT SLOPES	.24	16.2	0.3%
LeF	LOS GATOS LOAM, 30 TO 50 PERCENT SLOPES	.32	34.4	0.7%

K Factor, Rock Free— Summary by Map Unit — Contra Costa County, California (CA013)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
LhE	LOS OSOS CLAY LOAM, 15 TO 30 PERCENT SLOPES	.28	197.1	4.3%
LhF	LOS OSOS CLAY LOAM, 30 TO 50 PERCENT SLOPES	.28	189.0	4.1%
MeF	MILLSHOLM LOAM, 30 TO 50 PERCENT SLOPES	.32	125.4	2.7%
SdE	SEHORN CLAY, 15 TO 30 PERCENT SLOPES	.20	24.9	0.5%
SdF	SEHORN CLAY, 30 TO 50 PERCENT SLOPES	.20	208.7	4.5%
SdG	SEHORN CLAY, 50 TO 75 PERCENT SLOPES	.20	1.8	0.0%
TaC	TIERRA LOAM, 2 TO 9 PERCENT SLOPES	.32	392.3	8.5%
TaD	TIERRA LOAM, 9 TO 15 PERCENT SLOPES	.32	239.7	5.2%
TaE	TIERRA LOAM, 15 TO 30 PERCENT SLOPES	.32	15.5	0.3%
Ub	URBAN LAND		133.1	2.9%
W	WATER		31.2	0.7%
Subtotals for Soil Survey Area			**3,178.2**	**68.7%**
Totals for Area of Interest			**4,625.3**	**100.0%**

DRAFT

3 CONSTRUCTION GENERAL PERMIT

To minimize the potential effects of construction runoff on the quality of the receiving water bodies, any construction activity affecting one acre or more must obtain coverage under the CGP. Permit applicants are required to prepare a SWPPP and implement BMPs to reduce construction effects on receiving water quality.

3.1 Risk Assessment

The CGP requirements include a risk assessment to determine the Project's impact risk to receiving water bodies. The risk assessment uses measurements of the Project's potential sediment risk and the sensitivity of the receiving water bodies to sediment to determine the risk level of the Project.

3.1.1 Sediment Risk

The sediment risk is based on the following equation from the CGP "Fact Sheet" (Section J.1.a pg. 28):

Equation 1. Sediment Risk Equation
A = (R)(K)(LS)(C)(P)

Where:

R = Runoff erosivity factor
K = Soil erodibility factor
LS = Length-slope factor
C = Cover
P = Management operations and support practices
A = Rate of sheet and rill erosion (tons per acre)

The R of **78.03** was determined from the United States Environmental Protection Agency (EPA) "Rainfall Erosivity Factor Calculator for Small Construction Sites," see Figure 4.

As stated in Section 2.5, the weighted average K is **0.26**.

The LS of **0.34** was calculated based on the original grade delineated on electronic cross sections, see Table 3.

Based on these factors, the A is **7** tons per acre, because this value is less than 15, the Project is classified as having a **low** sediment risk, see Figure 5.

The cover factor (C) and management operations and support practices (P) are given values of 1.0 by the CGP to simulate bare ground conditions.

DRAFT

Rainfall Erosivity Factor Calculator for Small Construction Sites

Facility Information

Facility Name: I-80 ATM Project
Start Date: 06/14/2012
End Date: 04/23/2014
Latitude: 37.8780
Longitutde: -122.3072

Erosivity Index Calculator Results

AN EROSIVITY INDEX VALUE OF **78.03** HAS BEEN DETERMINED FOR THE CONSTRUCTION PERIOD OF **06/14/2012 - 04/23/2014**.

A rainfall erosivity factor of 5.0 or greater has been calculated for your site and period of construction. **You do not qualify for a waiver from NPDES permitting requirements**.

Figure 4. R Factor

Table 3. LS Factor

Site Specific Analysis of LS Factor
Project No. 04000020441 (EA 04-3a7771)

Number of X-Sections = 22

Alignment			Slope Segment 1				Weighted Average for All segments	
Station	Line	Number of Segments	Length (ft)	Rise (ft)	Steepness (%)	LS	Total Slope Length (ft)	Weighted LS
0	Ashby	1	37.000	2.000	5.41	0.41	37.000	0.41
37	Ashby	1	5.000	0.100	2.00	0.13	5.000	0.13
42	Ashby	1	6.000	0.100	1.67	0.12	6.000	0.12
48	Ashby	1	1.000	0.100	10.00	0.35	1.000	0.35
49	Ashby	1	1.000	0.100	10.00	0.35	1.000	0.35
50	Ashby	1	23.000	2.000	8.70	0.46	23.000	0.46
0	University	1	28.000	1.000	3.57	0.25	28.000	0.25
28	University	1	31.000	1.000	3.23	0.24	31.000	0.24
59	University	1	39.000	0.800	2.05	0.19	39.000	0.19
0	Clevland	1	7.161	3.000	41.89	0.99	7.161	0.99
7.161	Clevland	1	30.744	2.000	6.51	0.43	30.744	0.43
37.905	Clevland	1	27.529	2.000	7.27	0.44	27.529	0.44
65.434	Clevland	1	9.951	0.500	5.02	0.23	9.951	0.23
0	Cutting	1	4.267	2.000	46.87	0.72	4.267	0.72
4.267	Cutting	1	12.943	2.000	15.45	0.61	12.943	0.61
17.21	Cutting	1	53.094	1.000	1.88	0.21	53.094	0.21
70.304	Cutting	1	18.591	1.000	5.38	0.27	18.591	0.27
88.895	Cutting	1	6.128	0.500	8.16	0.32	6.128	0.32
95.023	Cutting	1	5.912	0.500	8.46	0.33	5.912	0.33
100.935	Cutting	1	5.834	0.200	3.43	0.18	5.834	0.18
106.769	Cutting	1	7.237	0.300	4.15	0.20	7.237	0.20
114.006	Cutting	1	43.153	0.500	1.16	0.13	43.153	0.13

Area Weighted LS = 0.34
(Composite Weigthed LS / Number of X-Sections)

DRAFT

	A	B	C
1	**Sediment Risk Factor Worksheet**		**Entry**
2	**A) R Factor**		
3	Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.		
4	http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm		
5	**R Factor Value**		78.03
6	**B) K Factor (weighted average, by area, for all site soils)**		
7	The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.		
8	Site-specific K factor guidance		
9	**K Factor Value**		0.26
10	**C) LS Factor (weighted average, by area, for all slopes)**		
11	The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.		
12	LS Table		
13	**LS Factor Value**		0.34
14			
15	**Watershed Erosion Estimate (=RxKxLS) in tons/acre**	7	
16	**Site Sediment Risk Factor**	**Low**	
17	Low Sediment Risk: < 15 tons/acre		
18	Medium Sediment Risk: >=15 and <75 tons/acre		
19	High Sediment Risk: >= 75 tons/acre		
20			

Figure 5. Sediment Risk Factor Worksheet

DRAFT

3.1.2 Receiving Water Body Risk

None of the receiving water bodies where there is active soil disturbance have the combined existing beneficial uses of SPWN, COLD and MIGR, nor are the receiving water bodies at these locations indentified as impaired for sediment; therefore, the receiving water risk is **low**.

Receiving Water (RW) Risk Factor Worksheet	**Entry**	**Score**
A. Watershed Characteristics	**yes/no**	
A.1. Does the disturbed area discharge (either directly or indirectly) to a **303(d)-listed waterbody impaired by sediment**? For help with impaired waterbodies please check the attached worksheet or visit the link below: 2006 Approved Sediment-impared WBs Worksheet http://www.waterboards.ca.gov/water_issues/programs/tmdl/303d_lists2006_epa.shtml **OR**	**NO**	**Low**
A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? http://www.ice.ucdavis.edu/geowbs/asp/wbguse.asp		

Figure 6. Receiving Water Risk Factor Worksheet

3.1.3 Risk Level

The Project is identified as having a **Low Sediment Risk** and **Low Receiving Water Risk**, classifying the Project as **RL 1**, see Figure 7.

Combined Risk Level Matrix

Receiving Water Risk	Sediment Risk: Low	Sediment Risk: Medium	Sediment Risk: High
Low	Level 1	Level 2	
High	Level 2		Level 3

Project Sediment Risk: Low
Project RW Risk: Low
Project Combined Risk: Level 1

Figure 7. Combined Risk Level Matrix

DRAFT

3.2 Notice of Termination (NOT)

The CGP provides both revised and new requirements for completion and approval of the NOT. The NOT requirements are presented in Section II.D of the CGP "Order." These requirements include demonstrating through photos, computational proof or other "custom methods," such as results of testing and analysis, that the terms of the NOT have been satisfied.

While these methods of demonstrating compliance are at the option of Caltrans, should the RWQCB determine that the visual photos do not adequately show compliance, further computational efforts may be required. This computational proof is obtained through the use of the Revised Universal Soil Loss Equation 2 (RUSLE2) program.

3.3 Caltrans Forms

The Caltrans Division of Construction has developed forms to comply with the CGP. These forms are available at: http://www.dot.ca.gov/hq/construc/forms.htm.

4 RUN-ON DISCHARGES

There are no anticipated run-on discharges to the Project site. Actual run-on discharges should be determined by the Contractor based on anticipated staging work and documented in the SWPPP. The Rational Method is typically used to calculate run-on discharges (see Equation 1).

Equation 1. Rational Method for run-on discharge

$$Q = CiA$$

Where:

Q = Run-on discharge (cubic feet per second)
C = Runoff coefficient (see HDM Figure 819.2A)
i = 2-year, 24-hour rainfall intensity (inches/hour) = **0.111**
(Berkeley Station, http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ca)
A = Drainage area (acre)

5 PROJECT REGISTRATION DOCUMENTS

To obtain permit coverage under the CGP, all dischargers must electronically file PRDs, NOTs, changes of information, sampling and monitoring information, annual reporting, and other compliance documents required by this CGP through the SWRCB's SMARTS. The Contractor will have to coordinate these submittals with Caltrans within the timeframe allotted in the contract special provisions and as specified in the CGP. SMARTS is found under the following website:

https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp

DRAFT

PRDs include the following information:

1. Notice of Intent (NOI)
2. Site Map(s) Includes:
    a. The project's surrounding area (vicinity)
    b. Site layout
    c. Construction site boundaries
    d. Drainage areas
    e. Discharge locations
    f. Sampling locations
    g. Areas of soil disturbance (temporary or permanent)
    h. Active areas of soil disturbance (cut or fill)
    i. Locations of all runoff BMPs
    j. Locations of all erosion control BMPs
    k. Locations of all sediment control BMPs
    l. Locations of sensitive habitats, watercourses, or other features which are not to be disturbed
    m. Locations of all post-construction BMPs
    n. Locations of storage areas for waste, vehicles, service, loading/unloading of materials, access (entrance/exits) points to construction site, fueling and water storage, water transfer for dust control and compaction practices

3. **SWPPPs**

4. **Risk Assessment**
    a. The Standard Risk Assessment includes utilization of the following:
        i. Receiving water Risk Assessment
        ii. EPA Rainfall Erosivity Factor Calculator Website
        iii. Sediment Risk Assessment
        iv. Sediment sensitive water bodies list

5.1 General Information Included

The following is a list of information included in this Storm Water Information Handout that can be used for the PRDs:

- Vicinity Map
- Risk Assessment

5.2 Storm Water Pollution Prevention Plan

The contractor for the Project is required to prepare a SWPPP because the Project involves disturbing more than 1 acre of soil. The SWPPP must include the following information:

- Active areas of cut and fill
- Areas of soil disturbance (temporary and permanent)

DRAFT

- Locations of storage areas for waste, vehicles, access, etc.
- Locations of all runoff BMPs
- Locations of all erosion control BMPs
- Locations of all sediment control BMPs

The SWPPP should be submitted with the PRDs and will be forthcoming from the Contractor.

5.3 Notice of Intent (NOI)

The NOI must be submitted once the contractor submits the SWPPP. This document is included in Appendix A.

5.4 Site Maps

Registration requirements can be met by the inclusion of the following plans, which can be found in the appendices.

- Conceptual Monitoring Plan - recommended and for reference only (Appendix B)
  - Subject to changes by the Contractor and approved by the RE

DRAFT

Appendix A Notice of Intent (NOI)

DRAFT

Attachment 2

State Water Resources Control Board

NOTICE OF INTENT

TO COMPLY WITH THE TERMS OF THE
GENERAL PERMIT TO DISCHARGE STORM WATER
ASSOCIATED WITH CONSTRUCTION ACTIVITY (WQ ORDER No. 99-08-DWQ)

I. NOI STATUS (SEE INSTRUCTIONS)

MARK ONLY ONE ITEM 1. ☐ New Construction 2. ☐ Change of Information for WDID#

II. PROPERTY OWNER

Name	Contact Person		
CALTRANS DISTRICT 4	BIJAN SARTIPI		
Mailing Address	Title		
111 GRAND AVENUE	DISTRICT DIRECTOR		
City	State	Zip	Phone
OAKLAND	CA	94623	(510) 286-5900

Owner Type (*check one*) 1.[ ] Private Individual 2.[ ]Business 3.[ ]Municipal 4.[X]State 5.[ ]Federal 6.[ ]Other

III. DEVELOPER/CONTRACTOR INFORMATION

Developer/Contractor	Contact Person		
Mailing Address	Title		
City	State	Zip	Phone

IV. CONSTRUCTION PROJECT INFORMATION

Site/Project Name	Site Contact Person		
EA 04-3A7771 I-80 ICM/ATM	Caltrans Resident Engineer		
Physical Address/Location	Latitude	Longitude	County
Bay Bridge to Carquinez Bridge	37.8780°	-122.3072°	Alameda and Contra Costa
City (or nearest City)	Zip	Site Phone Number	Emergency Phone Number
Oakland to Crockett	94710		

A. Total size of construction site area: 1140 Acres

B. Total area to be disturbed: 4.20 Acres (% of total _____)

C. Percent of site imperviousness (including rooftops):
Before Construction: ~80 %
After Construction: ~80 %

D. Tract Number(s): _____, _____

E. Mile Post Marker: Ala 2.0/8.0; CC 0.0/13.5

F. Is the construction site part of a larger common plan of development or sale?
☒ YES ☐ NO

G. Name of plan or development: Integrated Corridor Mobility

H. Construction commencement date: 06 / 14 / 12

I. % of site to be mass graded: _____

J. Projected construction dates:
Complete grading: ____/____/____ Complete project: 04 / 23 / 14

K. Type of Construction (Check all that apply):
1. ☐ Residential 2. ☐ Commercial 3. ☐ Industrial 4. ☐ Reconstruction 5. ☒ Transportation
6. ☐ Utility Description: _____ 7. ☐ Other (Please List): _____

V. BILLING INFORMATION

SEND BILL TO:	Name	Contact Person	
☐ OWNER (as in II. above)			
☐ DEVELOPER (as in III. above)	Mailing Address	Phone/Fax	
☐ OTHER (enter information at right)	City	State	Zip

DRAFT

VI. REGULATORY STATUS

A. Has a local agency approved a required erosion/sediment control plan? ☒ YES ☐ NO

Does the erosion/sediment control plan address construction activities such as infrastructure and structures? ☒ YES ☐ NO

Name of local agency: California Department of Transportation Phone: (510) 286-5900

B. Is this project or any part thereof, subject to conditions imposed under a CWA Section 404 permit of 401 Water Quality Certification? ☐ YES ☒ No

If yes, provide details: _____

VII. RECEIVING WATER INFORMATION

A. Does the storm water runoff from the construction site discharge to (Check all that apply):

1. ☒ **Indirectly to waters of the U.S.**
2. ☐ **Storm drain system - Enter owner's name:** _____
3. ☐ **Directly to waters of U.S. (e.g. , river, lake, creek, stream, bay, ocean, etc.)**

B. Name of receiving water: (river, lake, creek, stream, bay, ocean): Temescal Creek, Strawberry Creek, Codornices Creek, Cerrito Creek, Berkeley Aquatic Park Lagoon, San Francisco Bay Central

VIII. IMPLEMENTATION OF NPDES PERMIT REQUIREMENTS

A. STORM WATER POLLUTION PREVENTION PLAN (SWPPP) (check one)

☐ A SWPPP has been prepared for this facility and is available for review: Date Prepared: ____/____/____ Date Amended: ____/____/____

☐ A SWPPP will be prepared and ready for review by (enter date): ____/____/____

☐ A tentative schedule has been included in the SWPPP for activities such as grading, street construction, home construction, etc.

B. MONITORING PROGRAM

☒ A monitoring and maintenance schedule has been developed that includes inspection of the construction BMPs before anticipated storm events and after actual storm events and is available for review.

If checked above: A qualified person has been assigned responsibility for pre-storm and post-storm BMP inspections to identify effectiveness and necessary repairs or design changes ☐ YES ☐ NO

Name: _____ Phone: _____

C. PERMIT COMPLIANCE RESPONSIBILITY

A qualified person has been assigned responsibility to ensure full compliance with the Permit, and to implement all elements of the Storm Water Pollution Prevention Plan including:

1. Preparing an annual compliance evaluation ☐ YES ☐ NO

Name: _____ Phone: _____

2. Eliminating all unauthorized discharges ☐ YES ☐ NO

IX. VICINITY MAP AND FEE (must show site location in relation to nearest named streets, intersections, etc.)

Have you included a vicinity map with this submittal? ☒ YES ☐ NO

Have you included payment of the annual fee with this submittal? ☐ YES ☐ NO

X. CERTIFICATIONS

"I certify under penalty of law that this document and all attachments were prepared under my direction and 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, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. In addition, I certify that I have read the entire General Permit, including all attachments, and agree to comply with and be bound by all of the provisions, requirements, and prohibitions of the permit, including the development and implementation of a Storm Water Pollution Prevention Plan and a Monitoring Program Plan will be complied with."

Printed Name: _____

Signature: _____ **Date:** _____

Title: _____

DRAFT

Appendix B Conceptual Monitoring Plan

DRAFT

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.3/8.0, 0.0/13.1		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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

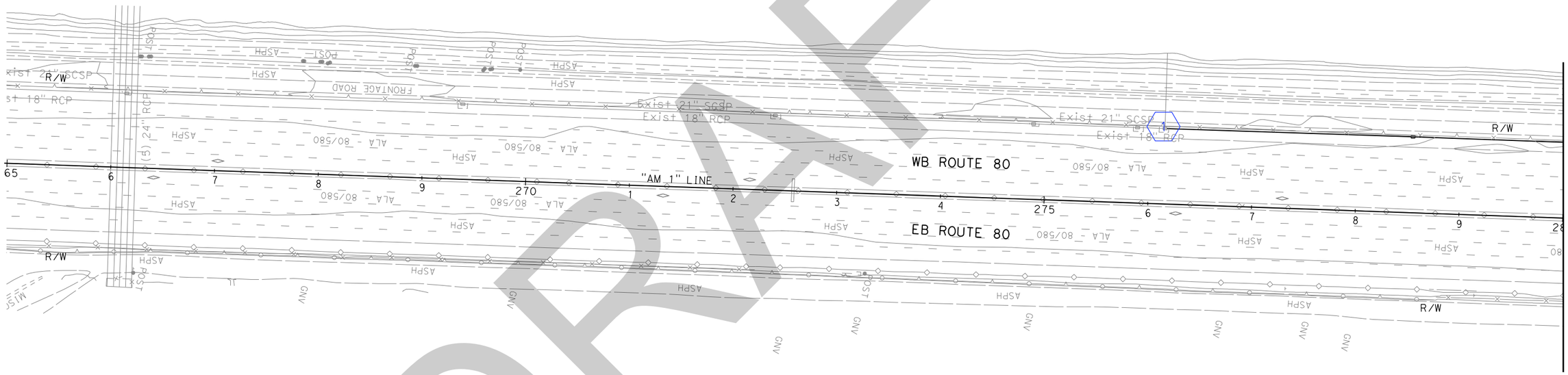
ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTE:

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

LEGEND:

No. MONITORING LOCATION



DRAFT

CONCEPTUAL MONITORING PLAN

SCALE: 1" = 50'

M-1

THIS PLAN FOR REFERENCE ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 3/6/2012
TIME PLOTTED => 2:42:51 PM

BORDER LAST REVISED 7/2/2010

USERNAME => andrew_chin
DGN FILE => ...\Dwg\0400002044cgp001.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0727

PROJECT NUMBER & PHASE 04000020441

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.3/8.0, 0.0/13.1		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTE:

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

CONCEPTUAL MONITORING PLAN

SCALE: 1" = 50'

M-2

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET M-1

THIS PLAN FOR REFERENCE ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 3/6/2012
TIME PLOTTED => 2:42:00 PM

BORDER LAST REVISED 7/2/2010

USERNAME => andrew_chin
DGN FILE => ...\Dwg\0400002044cgp002.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0727

PROJECT NUMBER & PHASE 04000020441

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.3/8.0, 0.0/13.1		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

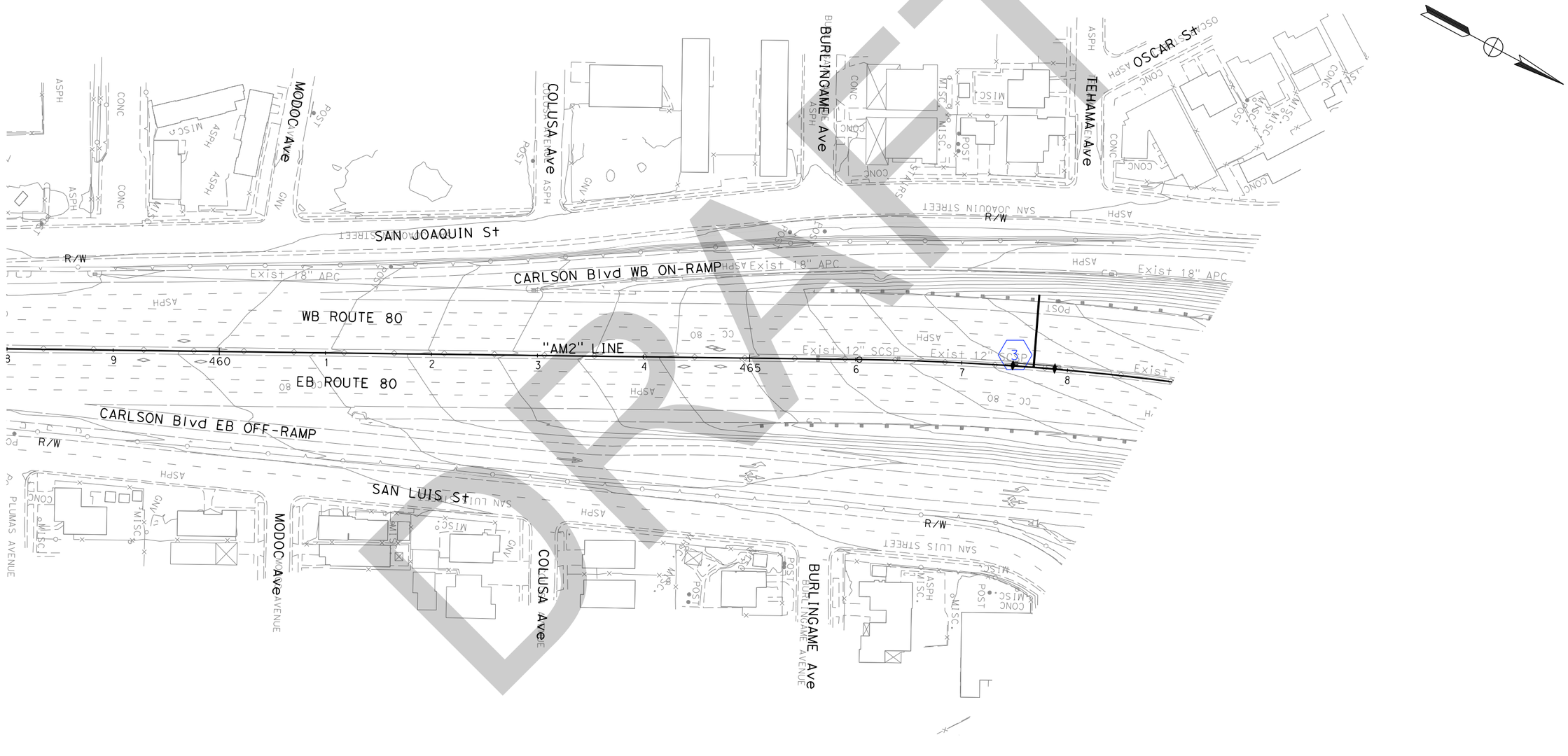
REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTE:

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



DRAFT

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET M-1

THIS PLAN FOR REFERENCE ONLY

CONCEPTUAL MONITORING PLAN

SCALE: 1" = 50'

M-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 3/6/2012
TIME PLOTTED => 2:43:37 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.3/8.0, 0.0/13.1		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

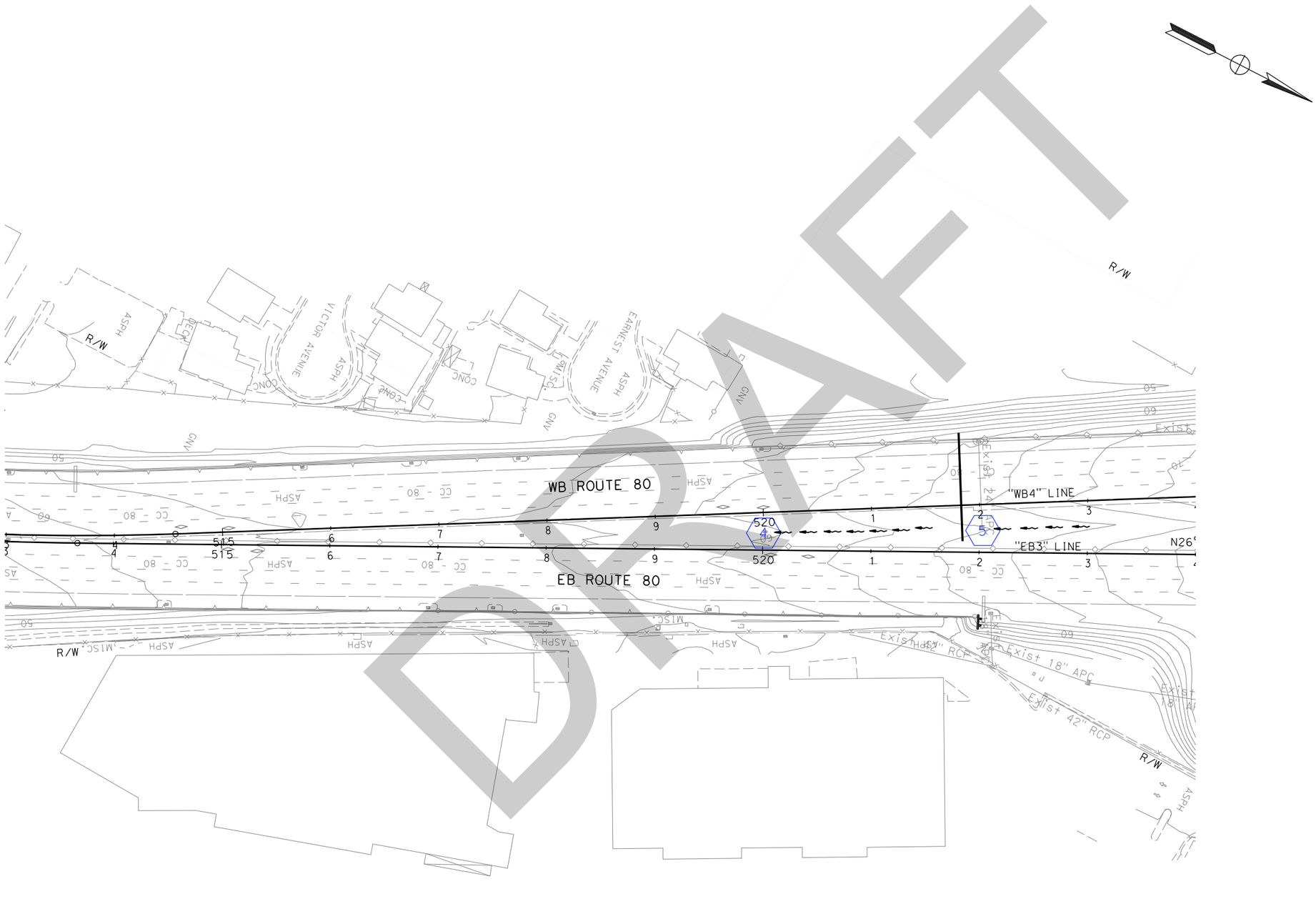
REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTE:

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



DRAFT

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET M-1

THIS PLAN FOR REFERENCE ONLY

CONCEPTUAL MONITORING PLAN

SCALE: 1" = 50'

M-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 3/6/2012
TIME PLOTTED => 2:44:22 PM

BORDER LAST REVISED 7/2/2010

USERNAME => andrew_chin
DGN FILE => ...\Dwg\0400002044cgp004.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0727

PROJECT NUMBER & PHASE 04000020441

NON-STORM WATER INFORMATION PACKAGE

CONTRACT NO. 0400002044-(3A7774)

04-ALA-80-2.3/8.0

04-CC-80-0.0/13.1

ACTIVE TRAFFIC MANAGEMENT IN ALAMEDA AND CONTRA COSTA COUNTIES AT VARIOUS LOCATIONS FROM POWELL STREET UNDERCROSSING TO 0.1 MILE WEST OF THE CARQUINEZ BRIDGE

1. **Project Description**

   This project proposes to install active traffic management (ATM) equipment on 11 gantries and other stand-alone locations of Interstate 80 from Powell Street to the Carquinez Bridge. ATM equipment includes lane use signs and variable message signs on gantries, variable advisory speed signs on gantries and stand-alone installations, 19 closed-circuit televisions cameras, 6 Information Display Boards, two ramp meters, and 17 vehicle detection stations.

2. **Construction Activities requiring Dewatering**

   Ground water may be encountered in the structure excavations while installing cast-in-drilled hole (CIDH) piles for ATM gantry locations. Pile excavation is 43 feet deep.

3. **Seepage Rate Memorandum**

   The seepage rate memorandum is included on the following page.

4. **Publicly Owned Treatment Facilities**

   A list and map of Publicly Owned Treatment Facilities is included on the following pages.

5. **Dewatering Location Maps**

   Locations of possible dewatering are shown on the attached design plan sheet. Foundation locations are at each gantry, ramp meter, and CCTV camera location shown on the attached plan sheets.

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. KAMRAN NAKHJIRI
Branch Chief
Water Pollution Control
Office of Water Quality

Date: November 9, 2011

Attention: J.Chen

File: 04- ALA-80 PM 2.3/8.0
04 – CC -80 PM 0.0/13.1
04- 3A7771
Integrated Corridor Mobility Project (ICM)

From: RIFAAT NASHED RN
Engineering Geologist
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

GRANT WILCOX GW
Chief, Branch B
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject : Seepage Rate (Flow Rate) Estimate at ATM and IDB sign structure Locations

This memo is in response to your request to provide the groundwater depth and seepage rate for the construction of 11 Active Traffic Management (ATM) signs and 6 Information Display Boards (IDB). It is our understanding that this information will be used in estimating dewatering quantities.

It should be noted that in our estimate for all locations, we considered the maximum depth and width of excavation under the groundwater elevation in each construction. All of the sign structures will be supported on Caltrans standard CIDH pile with different lengths and diameters.

Four sign locations (SS16-1, SS21-1, SS37-1 and SS56-1) are estimated dry because of either no groundwater encountered during drilling of the borings or the rocky nature of the subsurface (SS16-1, SS37-1, SS56-1) or due to the pile tip elevation is higher than the groundwater elevation (SS21-1).

The following table shows the summary of the sign structures that will encounter groundwater during their excavation, borings that utilized in estimating their seepage rate, groundwater elevations, and their seepage rates.

Sign TYPE	NO.	BORING NO.	Groundwater Elevation (ft)	Seepage Rate (Gallon/day/ ft^2)
ATM	SS3-2	A-11-002	2.5	0.6
	SS6-2	A-11-003	4.0	1.4
	SS8-1	A-11-004	5.5	1.0
	SS9-1	A-11-005	9.0	1.5
	SS12-1	A-11-006	13.0	1.4
	SS13-2	As-built, Ret. Wall	4.0	0.3
	SS18-1	A-11-018	-3.0	0.4
	SS23-1	A-11-012	27.0	1.1
	SS25-1	A-11-013	31.0	0.1
IDB	SS3-1	AS-built, Powel St.	5.0	1.4
	SS13-1	A-11-007	4.5	1.3
	SS26-1	As-built, Cutting Blvd	37.5	1.4
	SS50-1	A-11-017	129.0	0.2

According to "The Federal Highway Report NO. FHWA-TS-80-224, Page 48-49", the Coefficient of Permeability K (ft./day) for all soils encountered in the project area are as follows:

Unified Soil Classification	Coefficient of Permeability K (ft./day)
Well graded gravel (GW)	2.7 to 274
Gravel with silt (GM)	2.7^{-4}x 27
Clayey gravel (GC)	$2.7x10^{-5}$ to $2.7x10^{-2}$
Well graded sand (SW)	1.4 to 137
Poorly graded sand (SP)	0.14 to 1.4
Silty sand (SM)	$2.7x10^{-4}$ to 1.4
Clayey Sand (SC)	$2.7x10^{-5}$ to 0.14
Lean clay (CL)	$2.7x10^{-5}$ to $2.7x10^{-3}$
Elastic silt (MH)	$2.7x10^{-6}$ to $2.7x10^{-4}$
Fat clay (CH)	$2.7x10^{-7}$ to $2.7x10^{-5}$

This seepage rate (flow rate) estimate is provided for cost estimate purposes only.

If you have any questions or need additional information, please call Rifaat Nashed at (510) 622-1773 or Grant Wilcox at (510) 286-4835.

c: TPokrywka, GWilcox, Route File, Daily File

RNashed/

I-80 I(NTEGRATED CORIRIDOR MOBOLITY PROJECT

Seepage Rate for ATM & IDB Sign Structures

Sign Structure NO. (CIDH Pile)	SOIL	Length (ft)	CIDH Diameter (ft)	No of Piles/Holes	A (ft^2)	K (ft/day)	H (ft)	H_0 (ft)	dH (ft)	d S (ft)	i	q (ft^3/day)	q total (Gallon/day)	q total (Gallon/day/ft^2)	flow rate per sign(Gallon/day/ft 2)
SS3-2	sand with silt(SP-SM)	4.0	5.0	2	164.85	1.4	2.5	-35.0	37.5	142.5	0.26316	60.7342105	453.2403771	2.74941084	
	Fat clay (CH)	4.0	5.0	2	164.85	0.000027	2.5	-35.0	37.5	142.5	0.26316	0.0011713	0.008741064	5.3024E-05	
	clayey sand (SC)	13.0	5.0	2	447.45	0.14	2.5	-35.0	37.5	142.5	0.26316	16.485	123.0223881	0.27494108	
	clayey sand with gravel (SC)	9.0	5.0	2	321.85	0.00027	2.5	-35.0	37.5	142.5	0.26316	0.02286829	0.170658877	0.00053024	
	Lean Clay with sand(CL)	7.5	5.0	2	274.75	0.0027	2.5	-35.0	37.5	142.5	0.26316	0.19521711	1.456844069	0.00530244	**0.6**
SS6-2	Poorly graded sand (SP)	10.0	5.0	2	353.25	1.4	4.0	-34.0	38.0	144.4	0.26316	130.144737	971.2293794	2.74941084	
	Lean Clay with sand(CL)	14.0	5.0	2	478.85	0.0027	4.0	-34.0	38.0	144.4	0.26316	0.34023553	2.539071092	0.00530244	
	Poorly graded sand with silt(Sp-SM)	7.0	5.0	2	259.05	1.4	4.0	-34.0	38.0	144.4	0.26316	95.4394737	712.2348782	2.74941084	
	Lean Clay with sand(CL)	7.0	5.0	2	259.05	0.0027	4.0	-34.0	38.0	144.4	0.26316	0.18406184	1.373595837	0.00530244	**1.4**
SS8-1	Poorly graded sand (SP)	10.0	5.0	2	353.25	1.4	5.5	-40.5	46.0	174.8	0.26316	130.144737	971.2293794	2.74941084	
	clayey sand with gravel (SC)	14.0	5.0	2	478.85	0.14	5.5	-40.5	46.0	174.8	0.26316	17.6418421	131.6555381	0.27494108	
	Lean Clay with sand(CL)	22.0	5.0	2	730.05	0.00027	5.5	-40.5	46.0	174.8	0.26316	0.05187197	0.387104281	0.00053024	**1.0**
SS9-1	Poorly graded sand (SP)	4.0	5.0	2	164.85	1.4	9.0	-36.0	45.0	171	0.26316	60.7342105	453.2403771	2.74941084	
	silty sand (SM)	8.0	5.0	2	290.45	0.14	9.0	-36.0	45.0	171	0.26316	10.7007895	79.85663786	0.27494108	
	well graded gravel (GW)	5.0	5.0	2	196.25	2.7	9.0	-36.0	45.0	171	0.26316	139.440789	1040.602907	5.30243519	
	Lean Clay with sand(CL)	3.0	5.0	2	133.45	0.0027	9.0	-36.0	45.0	171	0.26316	0.09481974	0.707609976	0.00530244	
	clayey gravel (GC)	7.0	5.0	2	259.05	0.27	9.0	-36.0	45.0	171	0.26316	18.4061842	137.3595837	0.53024352	
	Lean Clay with sand(CL)	18.0	5.0	2	604.45	0.0027	9.0	-36.0	45.0	171	0.26316	0.42947763	3.205056952	0.00530244	**1.5**
SS12-1	Poorly graded sand (SP)	5.2	5.0	2	202.53	1.4	13.0	-22.5	35.5	134.9	0.26316	74.6163158	556.8381775	2.74941084	
	silty sand (SM)	11.1	5.0	2	387.79	1.4	13.0	-22.5	35.5	134.9	0.26316	142.87	1066.19403	2.74941084	
	clayey sand (SC)	4	5.0	2	164.85	0.14	13.0	-22.5	35.5	134.9	0.26316	6.07342105	45.32403771	0.27494108	
	Lean clay (CL)	5.2	5.0	2	202.53	0.00027	13.0	-22.5	35.5	134.9	0.26316	0.01439029	0.10739022	0.00053024	
	silty sand with gravel(SP)	4.8	5.0	2	189.97	1.4	13.0	-22.5	35.5	134.9	0.26316	69.9889474	522.3055774	2.74941084	
	Lean to fat clay(CL/CH)	5.2	5.0	2	202.53	0.000027	13.0	-22.5	35.5	134.9	0.26316	0.00143903	0.010739022	5.3024E-05	**1.4**
SS13-2	silty sandy gravel (GM)	2	3.5	1	31.596	0.27	4.0	-37.5	41.5	157.7	0.26316	2.24499671	16.75370679	0.53024352	
	Bay mud(CH)	10	3.5	1	119.52	0.000027	4.0	-37.5	41.5	157.7	0.26316	0.00084919	0.006337272	5.3024E-05	
	sandy clay (CL)	9	3.5	1	108.53	0.0027	4.0	-37.5	41.5	157.7	0.26316	0.07711076	0.575453407	0.00530244	
	clayey gravel (GC)	5	3.5	1	64.566	0.27	4.0	-37.5	41.5	157.7	0.26316	4.58760197	34.23583562	0.53024352	
	Lean clay (CL)	4	3.5	1	53.576	0.027	4.0	-37.5	41.5	157.7	0.26316	0.38067336	2.840845935	0.05302435	
	clayey sand (SC)	5	3.5	1	64.566	0.14	4.0	-37.5	41.5	157.7	0.26316	2.37875658	17.75191477	0.27494108	
	silty clay(CL)	6.00	3.5	1	75.56	0.27	4.0	-37.5	41.5	157.7	0.26316	5.36847039	40.0632119	0.53024352	**0.3**
SS18-1	Lean Clay with sand(CL)	6.4	5.0	2	240.21	0.27	-3.0	-33.5	30.5	115.9	0.26316	17.0675526	127.3697958	0.53024352	
	clayey sand with gravel (SC)	8.6	5.0	2	309.29	0.14	-3.0	-33.5	30.5	115.9	0.26316	11.3948947	85.03652789	0.27494108	
	Lean clay (CL)	21.5	5.0	2	714.35	0.27	-3.0	-33.5	30.5	115.9	0.26316	50.7564474	378.779458	0.53024352	**0.4**
SS23-1	Well graded sand w/ silt and gravel(Sw-SM)	5.0	5.0	2	196.25	1.4	27.0	2.50	24.5	93.1	0.26316	72.3026316	539.5718775	2.74941084	
	Lean clay(CL)	5.00	5.0	2	196.25	0.00027	27.0	2.50	24.5	93.1	0.26316	0.01394408	0.104060291	0.00053024	
	Clayey gravel with sand (GC)	14.50	5.0	2	494.55	0.27	27.0	2.50	24.5	93.1	0.26316	35.1390789	262.2319324	0.53024352	**1.1**
SS25-1	Sandy lean clay (CL)	3.0	5.0	2	133.45	0.027	31	28.0	3.0	11.4	0.26316	0.94819737	7.076099764	0.05302435	**0.1**

SS-3-1	Poorly graded sand (SP)	9.00	5.0	1	160.93	1.4	5.0	-27.0	32.0	121.6	0.26316	59.2881579	442.4489395	2.74941084	
	Lean clay (CL)	6.00	5.0	1	113.83	0.27	5.0	-27.0	32.0	121.6	0.26316	8.08756579	60.35496858	0.53024352	
	Clayey sand and gravel (SC)	9.00	5.0	1	160.93	0.14	5.0	-27.0	32.0	121.6	0.26316	5.92881579	44.24489395	0.27494108	
	Lean clay (CL)	5.00	5.0	1	98.13	0.27	5.0	-27.0	32.0	121.6	0.26316	6.97203947	52.03014533	0.53024352	
	Sand with gravel(SP)	3.0	5.0	1	66.73	1.4	5.0	-27.0	32.0	121.6	0.26316	24.5828947	183.4544383	2.74941084	**1.4**
SS13-1	Poorly graded sand with silt(Sp-SM)	5.2	5.0	1	101.27	1.4	4.5	-20.5	25.0	95	0.26316	37.3081579	278.4190888	2.74941084	
	Poorly graded sand (SP)	5.0	5.0	1	98.13	1.4	4.5	-20.5	25.0	95	0.26316	36.1513158	269.7859387	2.74941084	
	Sandy lean clay (CL)	5.2	5.0	1	101.27	0.27	4.5	-20.5	25.0	95	0.26316	7.19514474	53.69510998	0.53024352	
	Clayey sand (SC)	6.0	5.0	1	113.83	0.14	4.5	-20.5	25.0	95	0.26316	4.19355263	31.29516889	0.27494108	
	Lean clay (CL)	3.10	5.0	1	68.30	0.027	4.5	-20.5	25.0	95	0.26316	0.48525395	3.621298115	0.05302435	**1.3**
SS26-1	silty clay(CL)	2.5	5.0	1	58.88	0.027	37.5	11.5	26.0	98.8	0.26316	0.41832237	3.12180872	0.05302435	
	Silty sand(SM)	11.0	5.0	1	192.33	1.4	37.5	11.5	26.0	98.8	0.26316	70.8565789	528.7804399	2.74941084	
	silty clay(CL)	5.5	5.0	1	105.98	0.027	37.5	11.5	26.0	98.8	0.26316	0.75298026	5.619255695	0.05302435	
	Silty sand(SM)	7.0	5.0	1	129.53	1.4	37.5	11.5	26.0	98.8	0.26316	47.7197368	356.1174391	2.74941084	**1.4**
SS50-1	Lean clay with gravel(CL)	5.4	5.00	1	104.41	0.27	129	111.0	18.0	68.4	0.26316	7.41825	55.36007463	0.53024352	
	Elastic silt (MH)	5.6	5.00	1	107.55	0.00027	129	111.0	18.0	68.4	0.26316	0.00764136	0.057025039	0.00053024	
	sand lean clay (CL)	7.0	5.00	1	129.53	0.027	129	111.0	18.0	68.4	0.26316	0.92030921	6.867979183	0.05302435	**0.2**

q = KiA

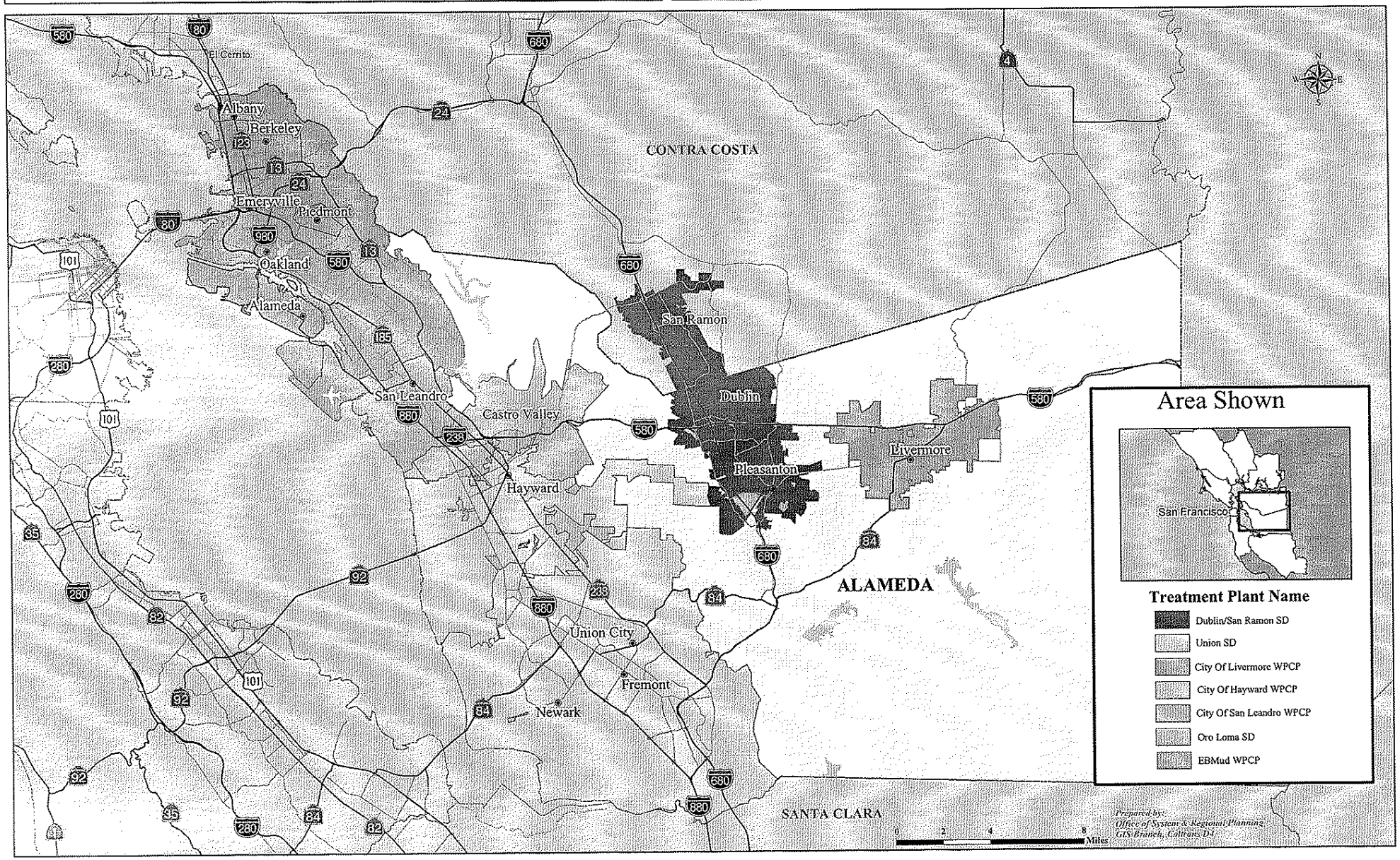
Notes

Length = bed thickness
Perimeter = is the circumference of the pile (hole) = 2 PI r/or width of of hole - trench
A = The cylender surface area = 2 PI r x Length
k = Soil permeability (from Hwy Subdrainage Design Report No. FHWA - TS-80-224- Page 48-49)
H = ground water elevation
H0 = the pile tip (bottom of the hole) elevation/bottom of trench
dH = water head
ds = gradient distance Li = 3.8x(H - H0)……Ref. FHWA-Ts-80-224 Page 66
"i" = dH/ds
q total = (gallon/day/ft2) = q total (gallon/day)/ total surface area

Alameda POTW

	City Discharger	Treatment Plant Name	WDR Discharger Name	Discharger Contact Name	Contact Phone No.	Contact Email	Mail Address	Ct Contact for Groundwater & De-Watering Discharges	Service Area of the POTW
6	Dublin	Dublin San Ramon Service District	Dublin San Ramon SD	Bob Anderson/ Levi Fuller	925-875-2360, cell 925-570-8757; 925-846-0568, ext. 119	anderson@dsrsd.com; fuller@dsrsd.com	DSRSD, 7051 Dublin Blvd., Dublin, CA 94568	Call Env. Compliance Officer Eric Kuefner @ 925-875-2335 "case-by-case situation -prefer not during storms" Testing required,$385 for annual permit, per million gal fee, etc.	Dublin, San Ramon, & Pleasanton
7	Pleasanton		City of Pleasanton	Richard Lagomarsino; Daniel Smith	925-931-5538; 925-931-5509	rlagomarsino@ci.pleasanton.ca.us; dsmith@ci.pleasanton.ca.us	Richard Lagomarsino, Lead Utility Operator and Daniel Smith, Utility Superintendent, 3333 Busch Road, Pleasanton, CA 94588	Same as Dublin-San Ramon SD - see line #A- 7	Same as Dublin-San Ramon SD - see line #A- 7
8	Union City	Union SD	Union SD	Roger Ham	510-477-7540	roger_ham@unionsanitary.com	Roger Ham, Collection Service Manager, Uniion Sanitary District, 5072 Benson Road, Union City, CA 94587	Best contact is Von Henry @ 510-477-7637. UCSD would consider if there are no other options available, ie. If non-contaminated using the storm drain is "ok"	Services: Fremont (including Niles), Union City, & Newark
9	Livermore	City of Livermore WPCP	City of Livermore	Darren Greenwood	925-960-8100	dggreenwood@ci.livermore.ca.us	Darren Greenwood, Water Resources Manager, 101 West Jacklondon Blv., Livermore, CA 94551	Call Env. Source Control's - Alex Paredes 925-960-8144 ; "requires testing, then annual G.W discharge Permit of $250, and $6,750 PMG's of discharge" - Will mail packet	City of Livermore, the Ruby Hills Development of Pleasanton, and the Veteran's Hospital of unincorporated Alameda County.
10	Hayward	City of Hayward WPCP	City of Hayward	Alex Ameri	510-583-4720	alexa@ci.hayward.ca.us	Alex Ameri, Deputy Director/Utilities, Dept. of Public Works, 777 B Street, Hayward, CA 94541-5007	Call Ms. Dije Ndreu @ 510-881-7960 They will accept discharge with test results. Permit fee is $470 plus per gallon fee. See email of 6/22/04 has all info	Per Alex Ameri: 90% of the city of Hayward is served by this sewer system - the other 10% (the North end, north of "A" St.) is serviced by Ora Loma Sanitation
11	San Leandro	San Leandro WPCP	City of San Leandro	Dean Wilson	510-577-6030	dwilson@ci.san-leandro.ca.us	Dean Wilson, Water Pollution Control Plant Manager, 3000 David St., San Leandro, CA 94577	Contact: John Camp in Env.Services @ 510-577-6029. "Haven't accepted in the past...prefers Baker tanks for sediment, then discharge to storm drain" There is a special Discharge Permit, includes $2.40 per 100 cu.ft. Would consider proposals.	Plant phone # is 510-577-3434 - they only do "the city boundaries of San Leandro - not the unincorporated areas - its sort of a Zig-Zag kind of thing..." They do have their boundaries on GIS - call Mike Hamer at 577-3339
12	San Lorenzo	Oro Loma SD	Oro Loma S.D.	Michael C. Cameron	510-481-6969	mcameron@oroloma.org	Michael Cameron, General Manager, Oro Loma Sanitary District, 2600 Grant Avenue, San Lorenzo, CA 94580	Best contact: Jeff Carson 510-481-6971. Fee, permit, plan, testing, possible treatment required. Potential problems are large sediments and amounts. May only allow discharge between 2 and 4 A.M. Service area is 40% of both Hayward and San Leandro, San Lorenzo, and some unincorporated Alameda County	Call Bill Halstead @ 510-481-6963 - he has base maps and shape files which he will make available on CD or pdf. Service area is all of San Lorenzo, parts of San Leandro, Hayward, and Castro Valley, and parts of unincorporated Alameda County. "Ora Loma is a 'district' and not subject to city boundaries..."
13	Castro Valley		Castro Valley S.D.	Roland Williams	510-537-0757	roland@cvsan.org	Roland William, General Manager, Castro Valley Sanitary District, 21040 Marshall Street, Castro Valley, CA 94546-6098	Same as Oro Loma SD - see line # A-12	Same as Oro Loma SD - see line # A-12
14	Oakland	EBMUD WPCP	EBMUD	Maura A. Bonnarens; Jennifer Smith	510-287-1141; 510-287-0509	mbonnaro@ebmud.com; jsmith@ebmud.com	David R. Williams, P.O. Box 2055 (MS#702), Oakland, CA 94623-1055	Web site: www.ebmud.com or call 510-287-1651 "for determination of your permitting needs" Best contact Gail Tupper at 510-287-1608 Permit is 13 pages long (costs $650) - "every situation is different/special..."	Cities of: Alameda, Albany, Berkeley, El Cerrito, Emeryville, Kensington, Oakland, and the Stege Sanitary section of Richmond.
15	Alameda		City of Alameda	Wali Waziri	510-749-5853	wwaziri@ci.alameda.ca.us	Mat Naclerio, Director of Public Works, City of Alameda, Alameda Point, Building 1, 950 West Mall Square, Room 110, Alameda, CA 94501	Same as EBMUD WPCP - see line # A-14	Part of EBMUD see # A -14
16	Albany		City of Albany	Ann Chaney	510-528-5768	achaney@albanyca.org	Ann Chaney, Director of Community Development and Environmental Resources, City of Albany-City Hall, 1000 San Pablo Ave, Albany, CA 94706	Same as EBMUD WPCP - see line # A-14	Part of EBMUD see # A -14
17	Berkeley		City of Berkeley	Henry Yee	510-981-6303	hyee@ci.berkeley.ca.us	Rene Cardinaux, Public Works Director, City of Berkeley, 2180 Milvia St., Berkeley, CA 94704	Same as EBMUD WPCP - see line # A-14	Part of EBMUD see # A -14
18	Emeryville		City of Emeryville	Maurice Kaufman	510-596-4334	mkaufman@ci.emeryville.ca.us	Hank Van Dyke, City Engineer, City of Emeryville, 1333 Park Ave., Emeryville, CA 94608	Same as EBMUD WPCP - see line # A -14	Part of EBMUD see # A -14
19	Oakland		City of Oakland	Fuad Sweiss; Allen Law	510-238-6607 (LR); 238-6939(AL)	fssweiss@oaklandnet.com; atlaw@oaklandnet.com	Michael Neary, Engineering Division Manager, Cit of Oakland, 250 Frank Ogawa Plaza, Suite 4314, Oakland, CA 94612	Same as EBMUD WPCP - see line #A -14	Part of EBMUD see # A -14
20	Piedmont		City of Piedmont	Larry Rosenberg	510-420-3050	lrosenberg@ci.piedmont.ca.us	Larry Rosenberg, Director of Public Works, City of Piedmont, 120 Vista Ave., Piedmont, CA 94611	Same as EBMUD WPCP - see line # A -14	Part of EBMUD see # A -14

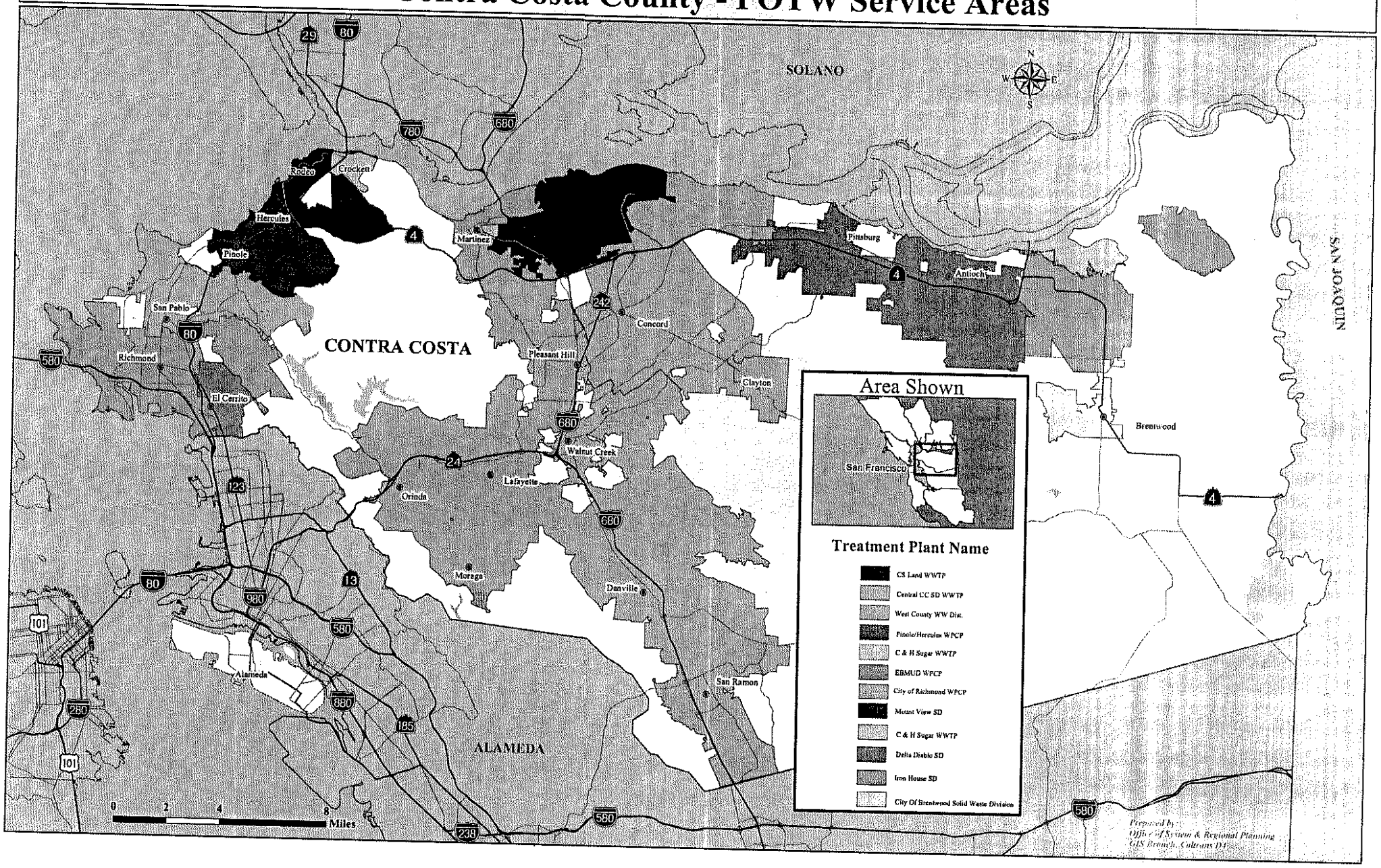
Alameda County - POTW Service Areas



Contra Costa POTW

	City Discharger	Treatment Plant Name	WDR Discharger Name	Discharger Contact Name	Contact Phone No.	Contact Email	Mail Address	Ct Contact for Groundwater & De-Watering Discharges	Service Area of the POTW
1	Richmond	City of Richmond WPCP	Veolia Water [formerly U.S. Filter]	Chris McAuliffe	510-412-2001	shalabel@usfilter.com	1401 Marine Way South, Richmond, CA 94804	Contact: Steve Friday @ 510-412-2009 website:"www.ci.richmond.ca.us/wastewater" Permit fee is now $750 (good for multiple sites), Total Scan for metals needed, possible site history needed. Steve has worked with Ct before on a 580 project with Chevron	City of Richmond
2	Richmond	West County WW District	West County WW District	John Foly(agency manager), Paul Winnick (collection system manager)	510-222-6700	jfoly@wcwd.org; pwinnicki@wcwd.org	2910 Hill Top Drive, Richmond, CA 94806	Contact Paul Winnecke @ 510-222-6700. Sevice area is San Pablo, N. Richmond, El Sobrante. Need permit, analysis, per gallon fee - wouldn't take during major storm event Try wcwd.org website	San Pablo, N. Richmond, El Sobrante
3	Pinole	Pinole-Hercules WPCP	Pinole-Hercules WPCP	Brent M. Salmi	510-724-9017	bsalmi@ci.pinole.ca.us	Brent M. Salmi, 2131 Pear St., Pinole, CA 94564	Brent Salmi is the City Engineer for both Pinole and Hercules 510-724-9017: No permit process - prefers, if tested, clean, and sediment-free to put in Storm drain. Also depends on quantity - will decide when given specifics of job	Cities of Pinole and Hercules
4	Hercules		City of Hercules	Jeff Brown	510-799-8252	jbrown@ci.hercules.ca.us	Jeff Brown, City of Hercules, 111 Civic Drive, Hercules, CA 94547	City of Hercules sends their Wastewater to the Pinole-Hercules Plant-see Line # A - 3	City of Hercules - see Line # A - 3
87	Contra Costa County, Port Costa WWTP	Contra Costa County, Port Costa WWTP	Contra Costa County, Public Works Dept. (include CCCSD6 and CCCSD5, CCCM28)	Lisa Carnahan	925-313-2191	lcarnaha@pw.co.contra-costa.ca.us	Contra Costa County Public Work, 255 Glacier Dr., Martinez, CA 94553	Per Lisa Carnahan 925-313-2191: "Absolutely not." This is a very small plant with limited capacity, ie. # 6 is 47 homes (Stonehurst @ Alhambra,) #5 is 86 homes in Port Costa and #28 is a small Trailer Park.	Probably Port Costa - which has no Caltrans ROW within its city limits
88	CS Land WWTP	CS Land WWTP	CS Land WWTP	Dylan Radke	925-228-1400	dylan@gdwp.com	Dylan Radke, Attorney, P.O. Box 630, Martinez, CA 94553	Contact Tracy Sizemore @ 602-728-3047. This is a small land holding of 1900 acres only has Hwy 123 (San Pablo Ave in Crockett and Rodeo) TS says see Region 2 2004 Order #64	Crockett and Rodeo
89	Mt. View SD	Mt. View SD	Mt. View SD	Dave Contreras	925-228-5635x32	dcontreras@mvsd.org	David Contreras, 3800 Authur Road, Martinez, CA 94553	Per Dave Riddle: "Normally they would not accept - they didn't on Caltrans' 680/Marina Vista project - and the water was trucked to CC Central San." They would listen to proposals and the final decision would be made by Dr. Teng Wu or David Contreras.	Services unincorporated areas of Martinez - mostly North of Hwy 4 and E/W of Hwy 680
90	Central Contra Costa SD WWTP	Central Contra Costa SD WWTP	Central Contra Costa SD WWTP	Jim Kelly, John Pearl	JK, 925-229-7386; JP, 925-229-7156	jkelly@centralsan.dst.ca.us ; jpeard@centralsan.dst.ca.us	CCCSD, 5019 Imhoff Place, Martinez, CA 94553	Call Doug Craig @ 925-229-7284. They have accepted 60,000 gallons (8-12 truck loads per day)from Ct from the Ben-Mtz Bridge/680 project. They need source control, analyze - then talk about requirements and fee structure - will do what's best for their service area	They do these cities: Orinda, Moraga, Lafayette, Walnut Creek, San Ramon, Concord, Clayton, Pleasant Hill, Martinez, Alamo, Danville, and Port Chicago
91			City of Concord	Qamar Khan, Director of Public Works for Maintenance Services	925-671-3231			Same as Central Contra Costa SD see line # A -90	The city of Concord had their own WWTP until CCSD (line # A - 91) was built. Their WW is collected by the city - then sent to CCSD
92			City of Clayton - system managed by City of Concord	Qamar Khan, Director of Public Works for Maintenance Services	925-671-3231			No Caltrans ROW within City of Clayton - Same as Central Contra Costa SD see line # A - 90	No Caltrans ROW within City of Clayton
104	C&H Sugar WWTP	C&H Sugar WWTP	C&H Sugar	Elizabeth Crowley	510-787-4352		They don't have sanitary sewer system, C&H sugar sends their WW to Crockett Valona SD and CVSD sends all the WW to C&H Sugar WWTP	Best contact: Elizabeth Crowley @ 510-787-4352. She is "scared to take on unknowns" anything would be "conditionally dependent" - they have very tight limits on all metals. She's approachable - but is very dissapointed in Ct re: the Zampa Bridge It's possible.	The C & H plant handles all the waste north of the Railroad (in Crockett), the "industrial" part of Crockett, and from their plant. WW is commingled with the Crockett-Valona residential wastes, treated and discharged.
105			Crockett-Valona SD	Kent Peterson	510-787-2992	cvsd@earthlink.net	Kent Peterson, Crockettt Valona Sanitary District, P.O. Box 578, Crockett, CA 94525	Per Kent Peterson @ 510-787-2992 Crockett sends their WW to C&H and they WOULD NOT accept as it is disallowed per their agreement with C&H	The "Crockett" section is the area on both sides of I-80, while the "Valona" section is further east of 3rd Ave. Crockett and Valona called "Cro-Lona" sends their wastes to the C & H plant (on the Strait) where it is treated at a plant that is jointly owned by both of them

Contra Costa County - POTW Service Areas



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.3/8.0, 0.0/13.1		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

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

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTES:

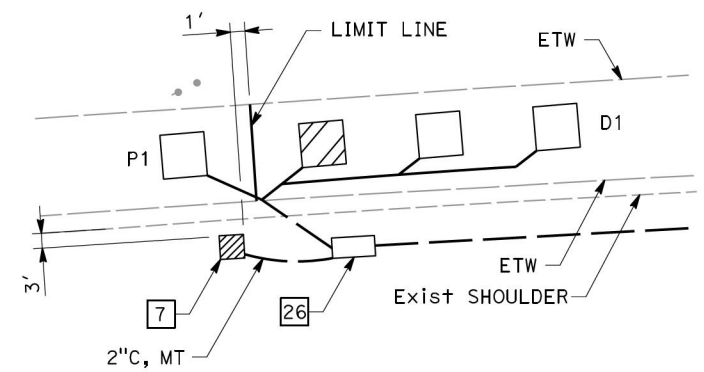
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED. WHERE PULL BOXES ARE TO BE INSTALLED WITHIN 30 FEET OF EDGE OF TRAVEL WAY, PULL BOX SHALL BE TRAFFIC RATED.

LEGENDS:

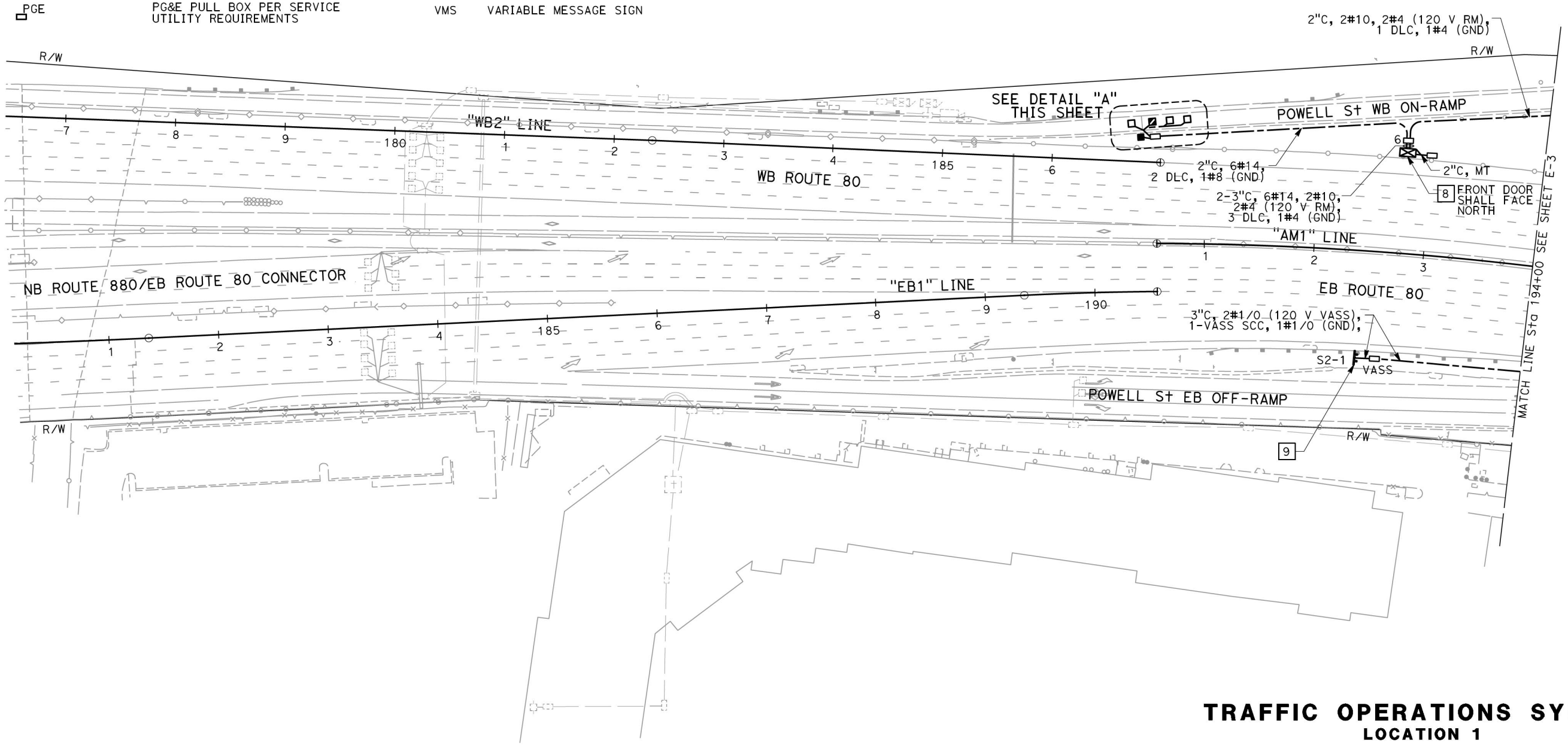
VASS	VARIABLE ADVISORY SPEED SIGN
ATM	ACTIVE TRAFFIC MANAGEMENT SIGN STRUCTURE
IDB	INFORMATION DISPLAY BOARD SIGN STRUCTURE
	STEP-UP OR STEP-DOWN TRANSFORMER
	1-B FOUNDATION FOR FUTURE USE
PGE	PG&E PULL BOX PER SERVICE UTILITY REQUIREMENTS

ABBREVIATIONS:

ATM	ACTIVE TRAFFIC MANAGEMENT
CTID	CALTRANS IDENTIFICATION
CCU	CAMERA CONTROL UNIT
EB/WB	EASTBOUND/WESTBOUND
GND	GROUND
GPRS	GENERAL PACKET RADIO SERVICE
HCC	HYBRID CAMERA CABLE
HOV	HIGH-OCCUPANCY VEHICLE
IDB	INFORMATION DISPLAY BOARD
LUS	LANE USE SIGN
PDA	POWER DISTRIBUTION ASSEMBLY
PG&E	PACIFIC GAS AND ELECTRIC
PTZ	PAN-TILT-ZOOM
RM	RAMP METERING
SCC	SIGN CONTROL CABLE
SINE	SIGNAL INTERCONNECT NETWORK ELEMENT
TC	TELEPHONE CABLE
VASS	VARIABLE ADVISORY SPEED SIGN
VCC	VMS CONTROL CABLE
VMS	VARIABLE MESSAGE SIGN



DETAIL "A"
SCALE: NTS



TRAFFIC OPERATIONS SYSTEM
LOCATION 1
SCALE: 1" = 50'

E-2

APPROVED FOR TRAFFIC OPERATIONS SYSTEM WORK ONLY.

FOR NOTES, SHEET E-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: RANDAL DURRENBERGER
CALCULATED-DESIGNED BY: DANIEL CARLEY
CHECKED BY: KAREN GEMMILL
REVISED BY: DCC
DATE REVISED: 10-13-11

LAST REVISION 10-13-11
DATE PLOTTED => 08-DEC-2011
TIME PLOTTED => 15:54

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.3/8.0, 0.0/13.1		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES No. 16999 Exp. 6/30/13 ELECT — STATE OF CALIFORNIA

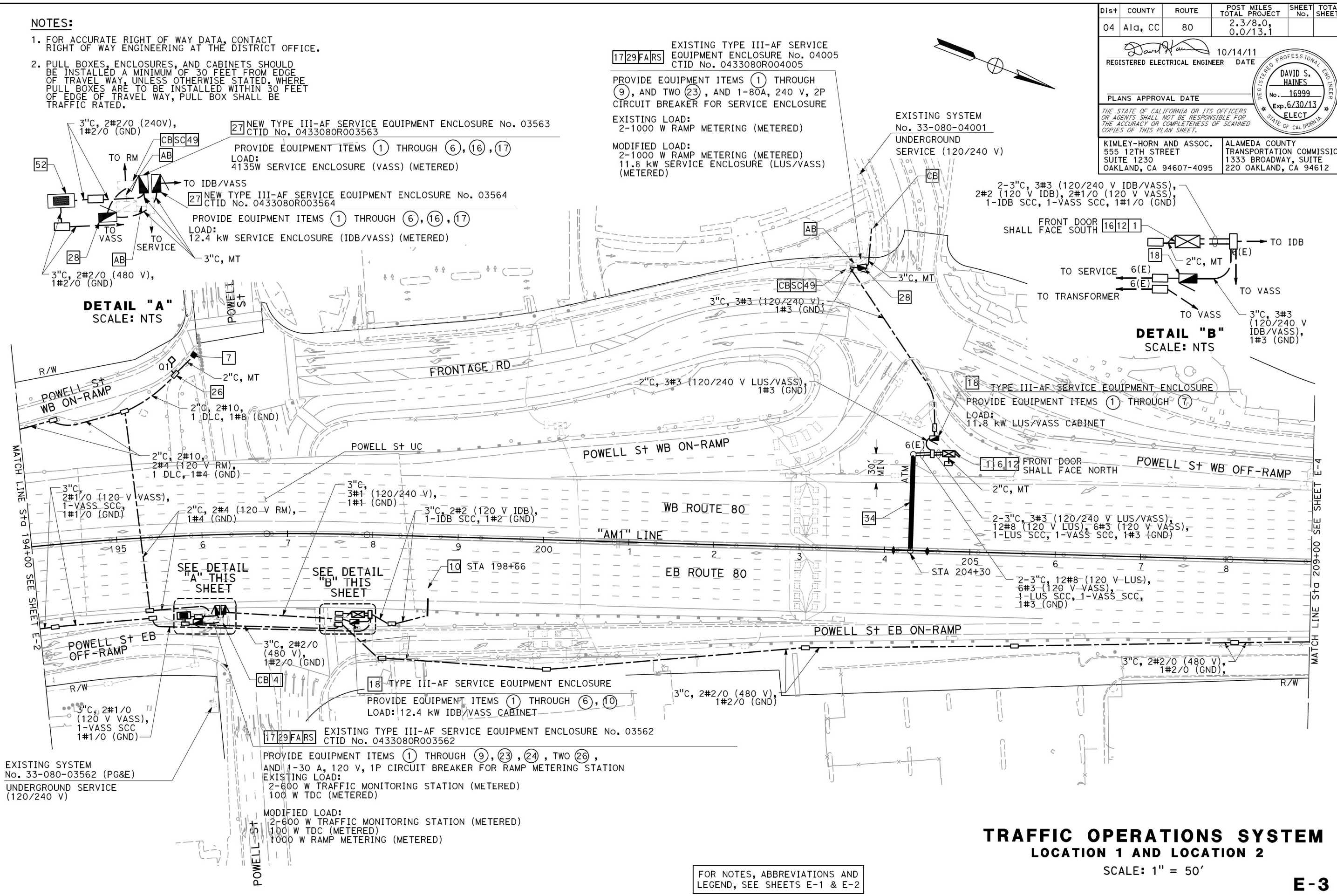
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED. WHERE PULL BOXES ARE TO BE INSTALLED WITHIN 30 FEET OF EDGE OF TRAVEL WAY, PULL BOX SHALL BE TRAFFIC RATED.



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEETS E-1 & E-2

TRAFFIC OPERATIONS SYSTEM
LOCATION 1 AND LOCATION 2

SCALE: 1" = 50'

E-3

REVISED BY	DATE REVISED
DCC	10-13-11

CALCULATED-DESIGNED BY: DANIEL CARLEY
CHECKED BY: KAREN GEMMILL
CONSULTANT FUNCTIONAL SUPERVISOR: RANDAL DURRENBERGER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 10-13-11
DATE PLOTTED => 08-DEC-2011
TIME PLOTTED => 15:54

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.3/8.0, 0.0/13.1		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

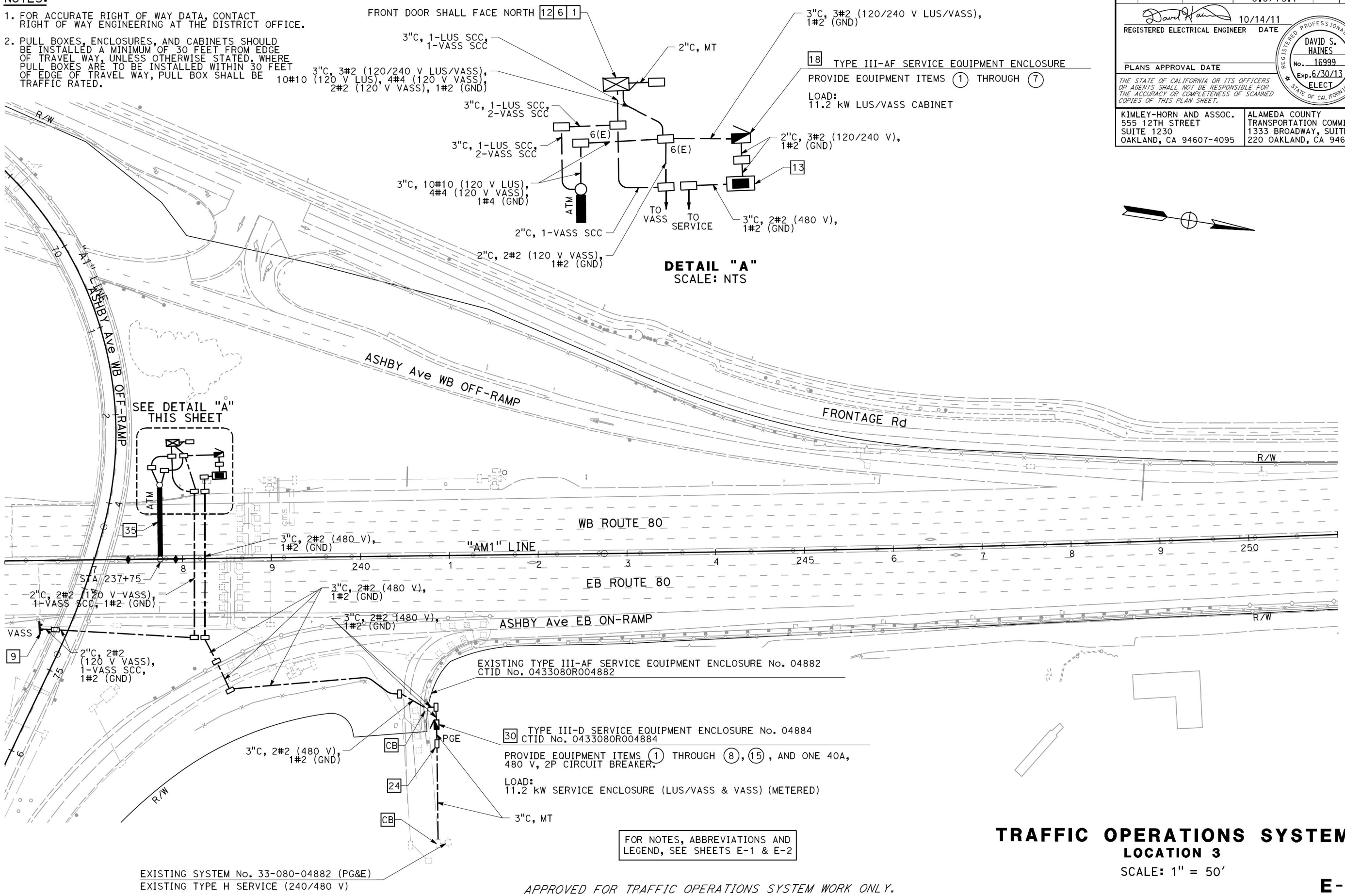
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED. WHERE PULL BOXES ARE TO BE INSTALLED WITHIN 30 FEET OF EDGE OF TRAVEL WAY, PULL BOX SHALL BE TRAFFIC RATED.



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEETS E-1 & E-2

APPROVED FOR TRAFFIC OPERATIONS SYSTEM WORK ONLY.

TRAFFIC OPERATIONS SYSTEM
LOCATION 3
SCALE: 1" = 50'

E-5

DCC	10-13-11
REVISED BY	DATE REVISED
DANIEL CARLEY	KAREN GEMMILL
CALCULATED-DESIGNED BY	CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR	RANDAL DURRENBERGER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION 10-13-11 — DATE PLOTTED => 08-DEC-2011 — TIME PLOTTED => 15:54

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.3/8.0, 0.0/13.1		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

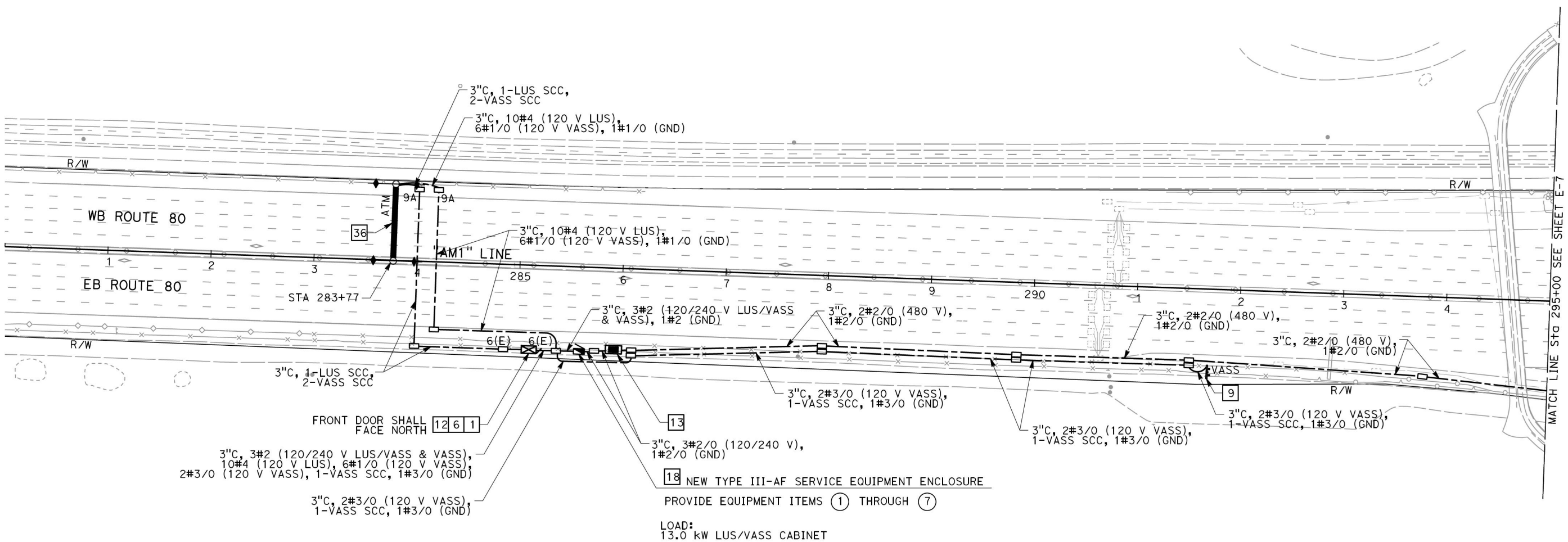
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED. WHERE PULL BOXES ARE TO BE INSTALLED WITHIN 30 FEET OF EDGE OF TRAVEL WAY, PULL BOX SHALL BE TRAFFIC RATED.



TRAFFIC OPERATIONS SYSTEM
LOCATION 4
SCALE: 1" = 50'

E-6

APPROVED FOR TRAFFIC OPERATIONS SYSTEM WORK ONLY.

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEETS E-1 & E-2

REVISED BY	DCC
DATE REVISED	10-13-11
CALCULATED-DESIGNED BY	DANIEL CARLEY
CHECKED BY	KAREN GEMMILL
CONSULTANT FUNCTIONAL SUPERVISOR	RANDAL DURRENBERGER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 10-13-11 | DATE PLOTTED => 08-DEC-2011 | TIME PLOTTED => 15:55

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.3/8.0, 0.0/13.1		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

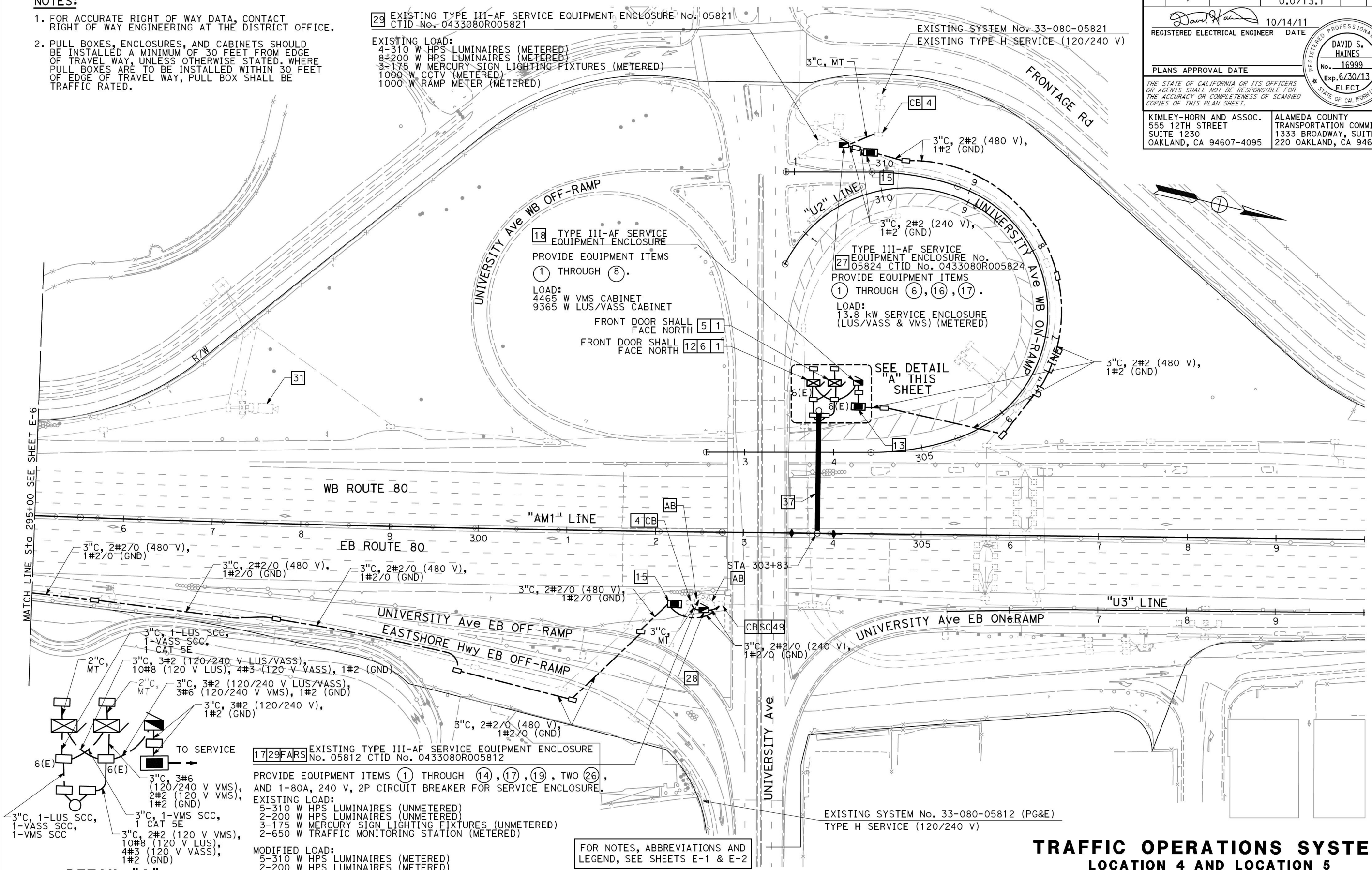
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED. WHERE PULL BOXES ARE TO BE INSTALLED WITHIN 30 FEET OF EDGE OF TRAVEL WAY, PULL BOX SHALL BE TRAFFIC RATED.



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEETS E-1 & E-2

DETAIL "A"
SCALE: NTS

APPROVED FOR TRAFFIC OPERATIONS SYSTEM WORK ONLY.

TRAFFIC OPERATIONS SYSTEM
LOCATION 4 AND LOCATION 5

SCALE: 1" = 50'

E-7

REVISED BY	DATE REVISED
DCC	10-13-11

DANIEL CARLEY — CALCULATED-DESIGNED BY
KAREN GEMMILL — CHECKED BY
RANDAL DURRENBERGER — CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION 10-13-11 — DATE PLOTTED => 08-DEC-2011 — TIME PLOTTED => 15:55

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.3/8.0, 0.0/13.1		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

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

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTES:

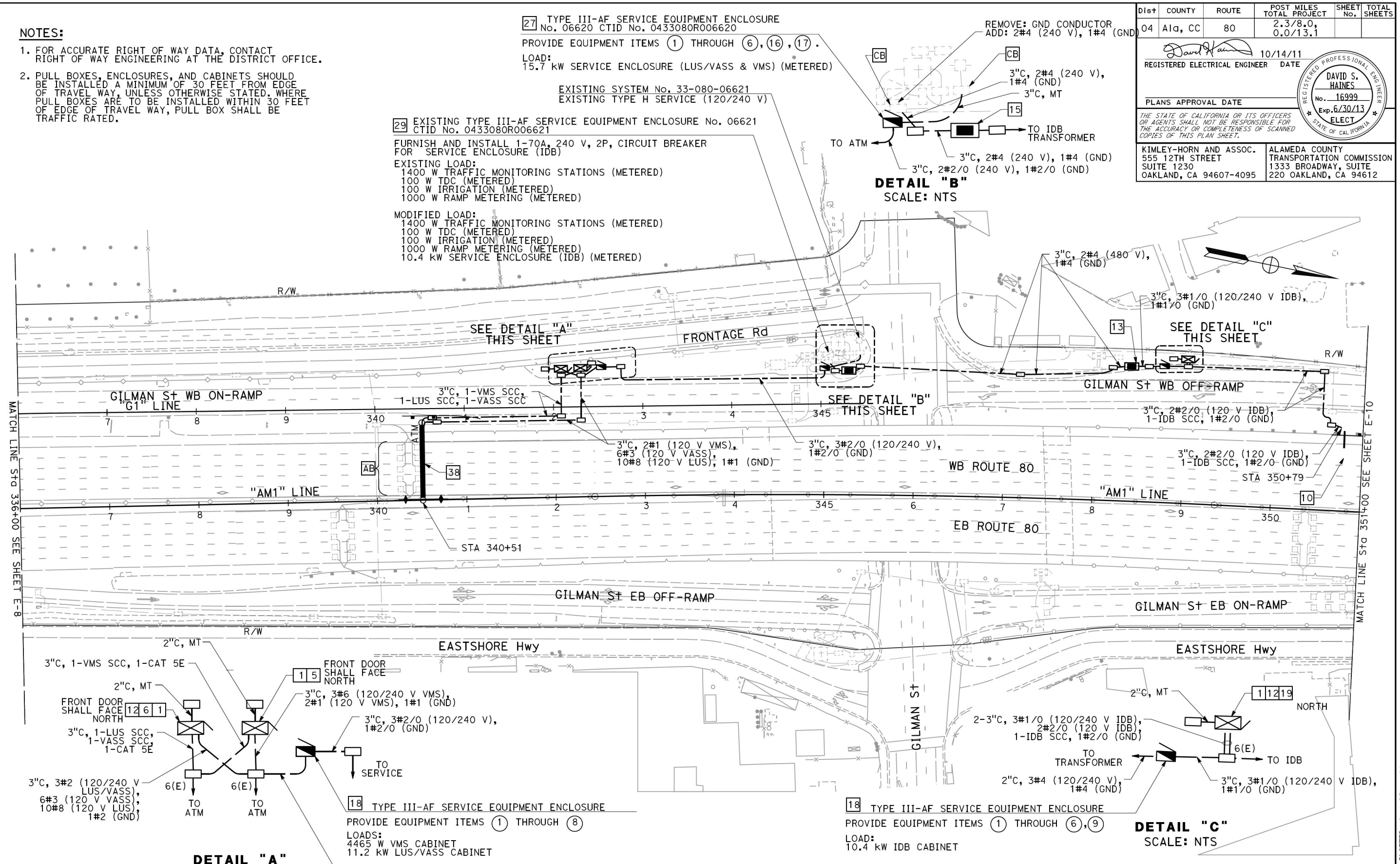
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED. WHERE PULL BOXES ARE TO BE INSTALLED WITHIN 30 FEET OF EDGE OF TRAVEL WAY, PULL BOX SHALL BE TRAFFIC RATED.

27 TYPE III-AF SERVICE EQUIPMENT ENCLOSURE
No. 06620 CTID No. 0433080R006620
PROVIDE EQUIPMENT ITEMS (1) THROUGH (6), (16), (17).
LOAD:
15.7 kW SERVICE ENCLOSURE (LUS/VASS & VMS) (METERED)

EXISTING SYSTEM No. 33-080-06621
EXISTING TYPE H SERVICE (120/240 V)

29 EXISTING TYPE III-AF SERVICE EQUIPMENT ENCLOSURE No. 06621
CTID No. 0433080R006621
FURNISH AND INSTALL 1-70A, 240 V, 2P, CIRCUIT BREAKER FOR SERVICE ENCLOSURE (IDB)
EXISTING LOAD:
1400 W TRAFFIC MONITORING STATIONS (METERED)
100 W TDC (METERED)
100 W IRRIGATION (METERED)
1000 W RAMP METERING (METERED)

MODIFIED LOAD:
1400 W TRAFFIC MONITORING STATIONS (METERED)
100 W TDC (METERED)
100 W IRRIGATION (METERED)
1000 W RAMP METERING (METERED)
10.4 kW SERVICE ENCLOSURE (IDB) (METERED)



TRAFFIC OPERATIONS SYSTEM
LOCATION 7
SCALE: 1" = 50'

APPROVED FOR TRAFFIC OPERATIONS SYSTEM WORK ONLY.

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEETS E-1 & E-2

E-9

REVISED BY	DATE REVISED
DCC	10-13-11

CALCULATED-DESIGNED BY: DANIEL CARLEY
CHECKED BY: KAREN GEMMILL
CONSULTANT FUNCTIONAL SUPERVISOR: RANDAL DURRENBERGER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 10-13-11
DATE PLOTTED => 08-DEC-2011
TIME PLOTTED => 15:55

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.3/8.0, 0.0/13.1		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

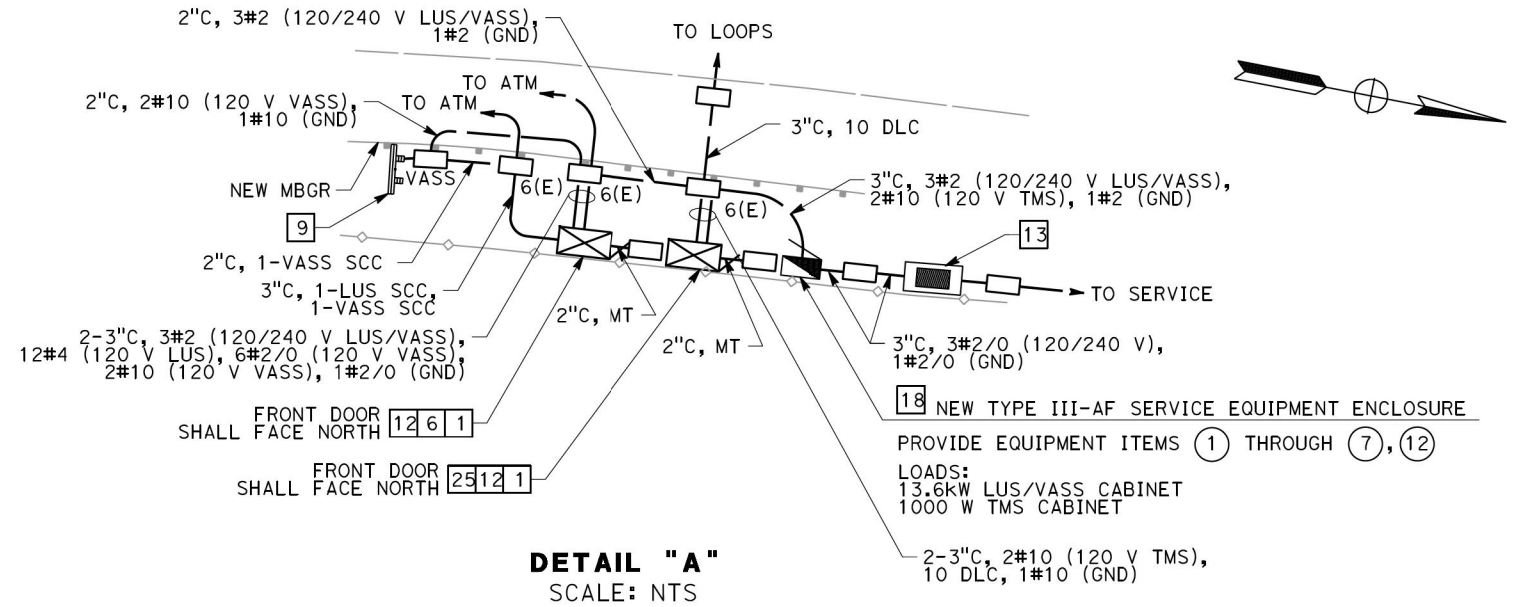
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

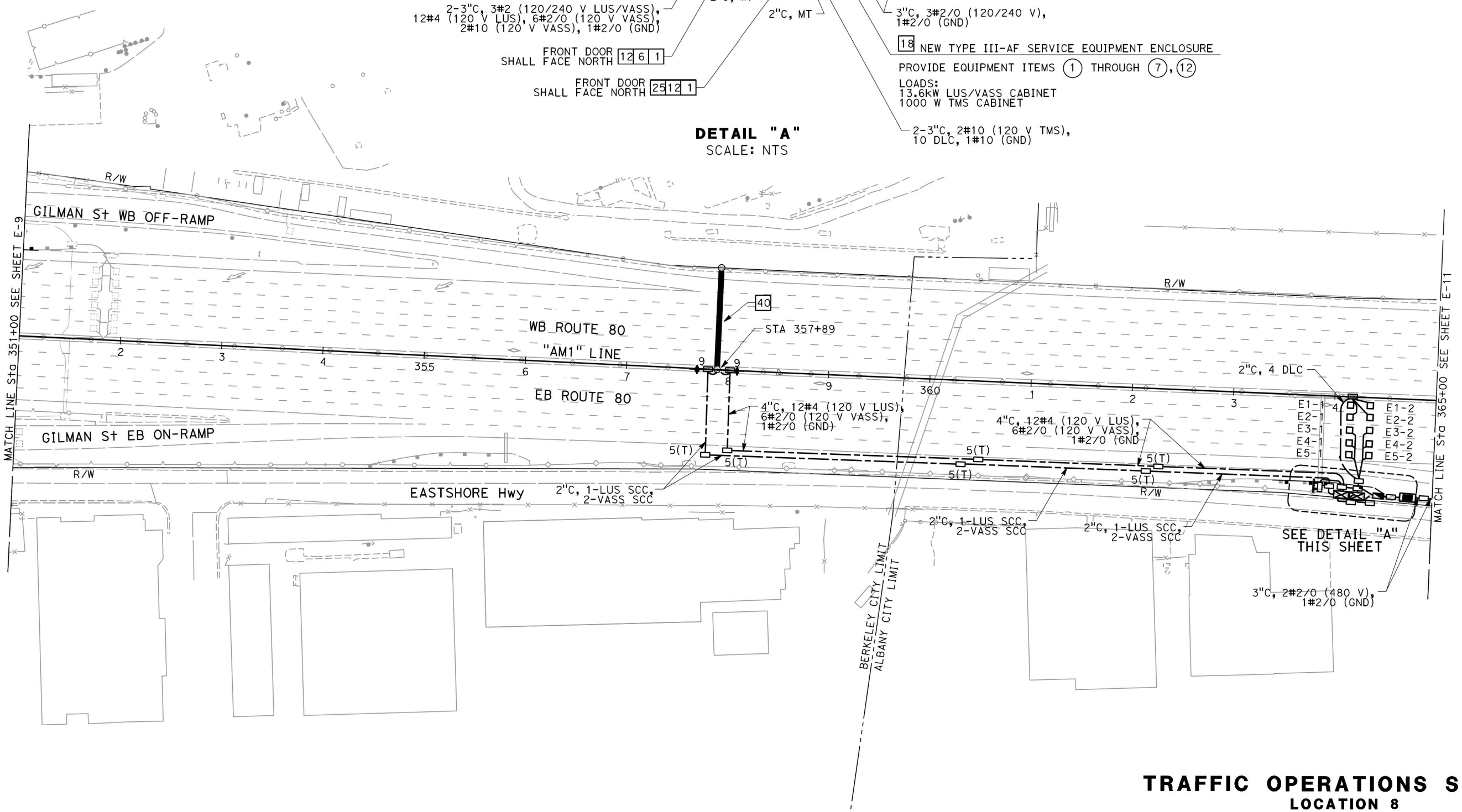
ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED. WHERE PULL BOXES ARE TO BE INSTALLED WITHIN 30 FEET OF EDGE OF TRAVEL WAY, PULL BOX SHALL BE TRAFFIC RATED.



DETAIL "A"
SCALE: NTS



TRAFFIC OPERATIONS SYSTEM
LOCATION 8
SCALE: 1" = 50'

APPROVED FOR TRAFFIC OPERATIONS SYSTEM WORK ONLY.

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEETS E-1 & E-2

E-10

REVISED BY	DATE REVISED
DCC	10-13-11

DANIEL CARLEY — KAREN GEMMILL — CALCULATED-DESIGNED BY — CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR — RANDAL DURRENBERGER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION 10-13-11 — DATE PLOTTED => 08-DEC-2011 — TIME PLOTTED => 15:55

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.3/8.0, 0.0/13.1		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES No. 16999 Exp. 6/30/13 ELECT — STATE OF CALIFORNIA

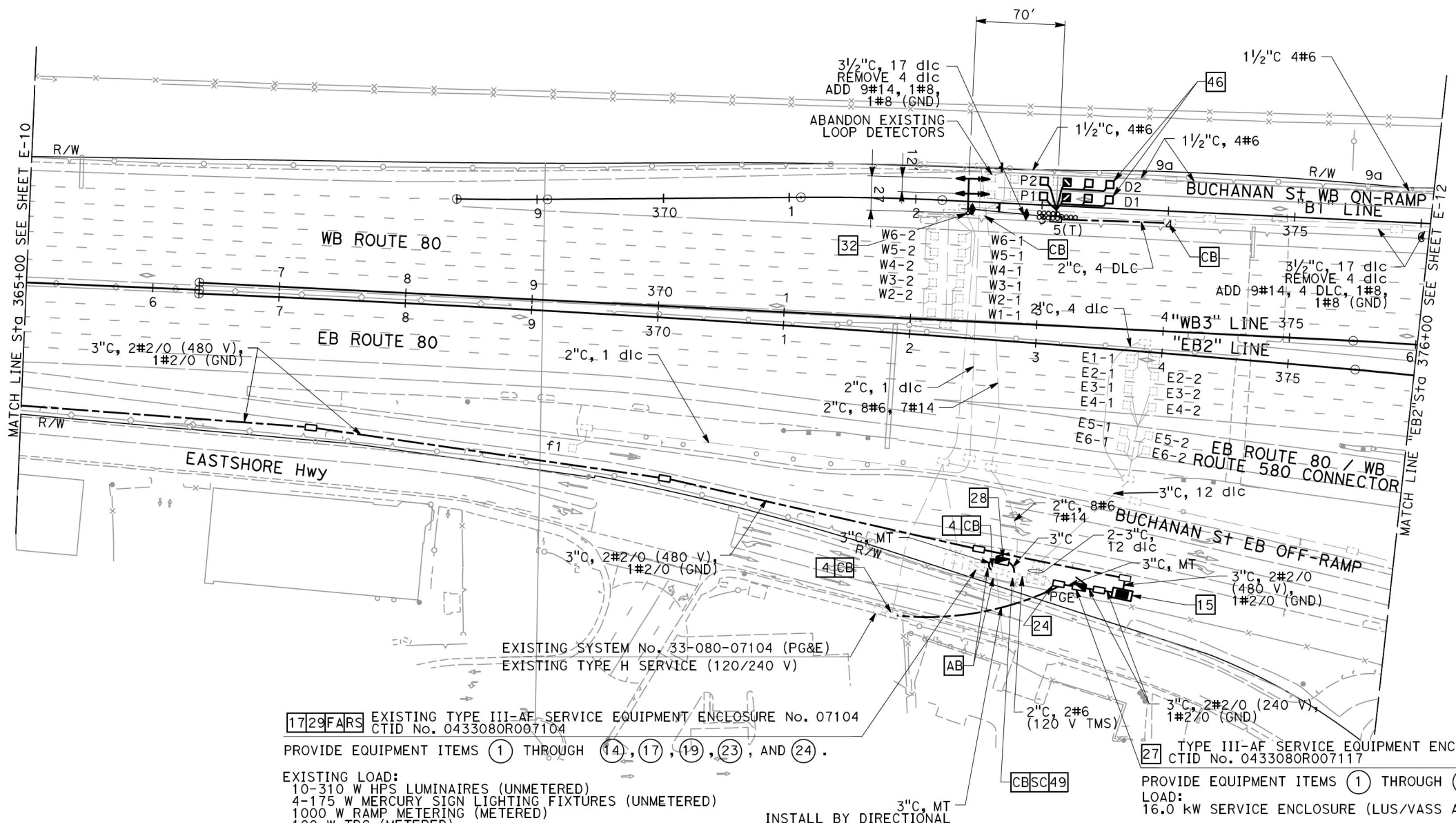
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED. WHERE PULL BOXES ARE TO BE INSTALLED WITHIN 30 FEET OF EDGE OF TRAVEL WAY, PULL BOX SHALL BE TRAFFIC RATED.



TRAFFIC OPERATIONS SYSTEM
LOCATION 8
SCALE: 1" = 50'

E-11

APPROVED FOR TRAFFIC OPERATIONS SYSTEM WORK ONLY.

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEETS E-1 & E-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: RANDAL DURRENBERGER

CALCULATED-DESIGNED BY: DANIEL CARLEY — CHECKED BY: KAREN GEMMILL

REVISED BY: DCC — DATE REVISED: 10-13-11

LAST REVISION 10-13-11 — DATE PLOTTED => 08-DEC-2011 — TIME PLOTTED => 15:55

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.3/8.0, 0.0/13.1		

REGISTERED ELECTRICAL ENGINEER 10/14/11 DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DAVID S. HAINES No. 16999 Exp. 6/30/13 ELECT STATE OF CALIFORNIA

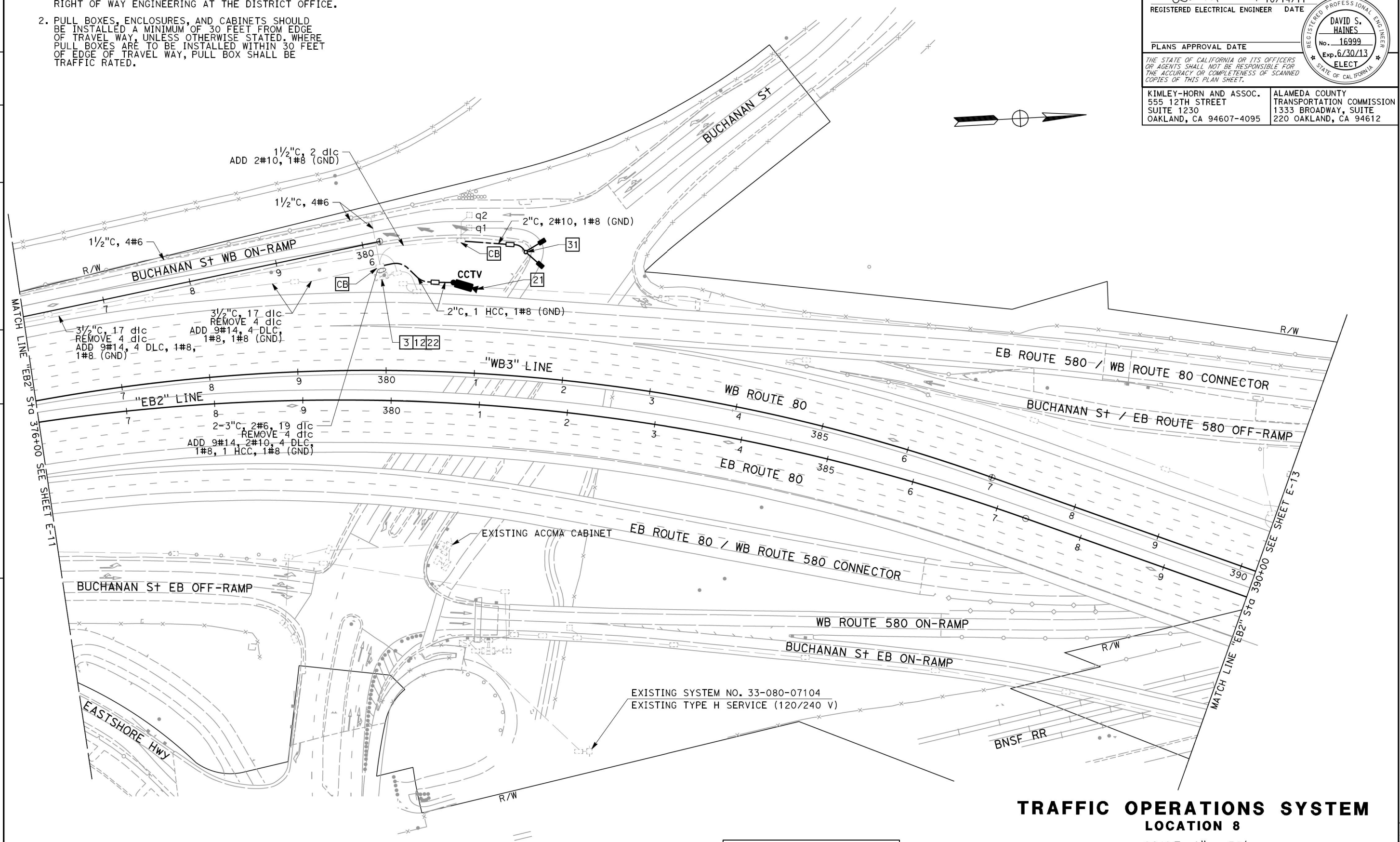
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED. WHERE PULL BOXES ARE TO BE INSTALLED WITHIN 30 FEET OF EDGE OF TRAVEL WAY, PULL BOX SHALL BE TRAFFIC RATED.



TRAFFIC OPERATIONS SYSTEM
LOCATION 8

SCALE: 1" = 50'

E-12

APPROVED FOR TRAFFIC OPERATIONS SYSTEM WORK ONLY.

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEETS E-1 & E-2

REVISED BY	DATE REVISED
DCC	10-13-11

CALCULATED-DESIGNED BY: DANIEL CARLEY
CHECKED BY: KAREN GEMMILL
CONSULTANT FUNCTIONAL SUPERVISOR: RANDAL DURRENBERGER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 10-13-11
DATE PLOTTED => 08-DEC-2011
TIME PLOTTED => 15:55

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.3/8.0, 0.0/13.1		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

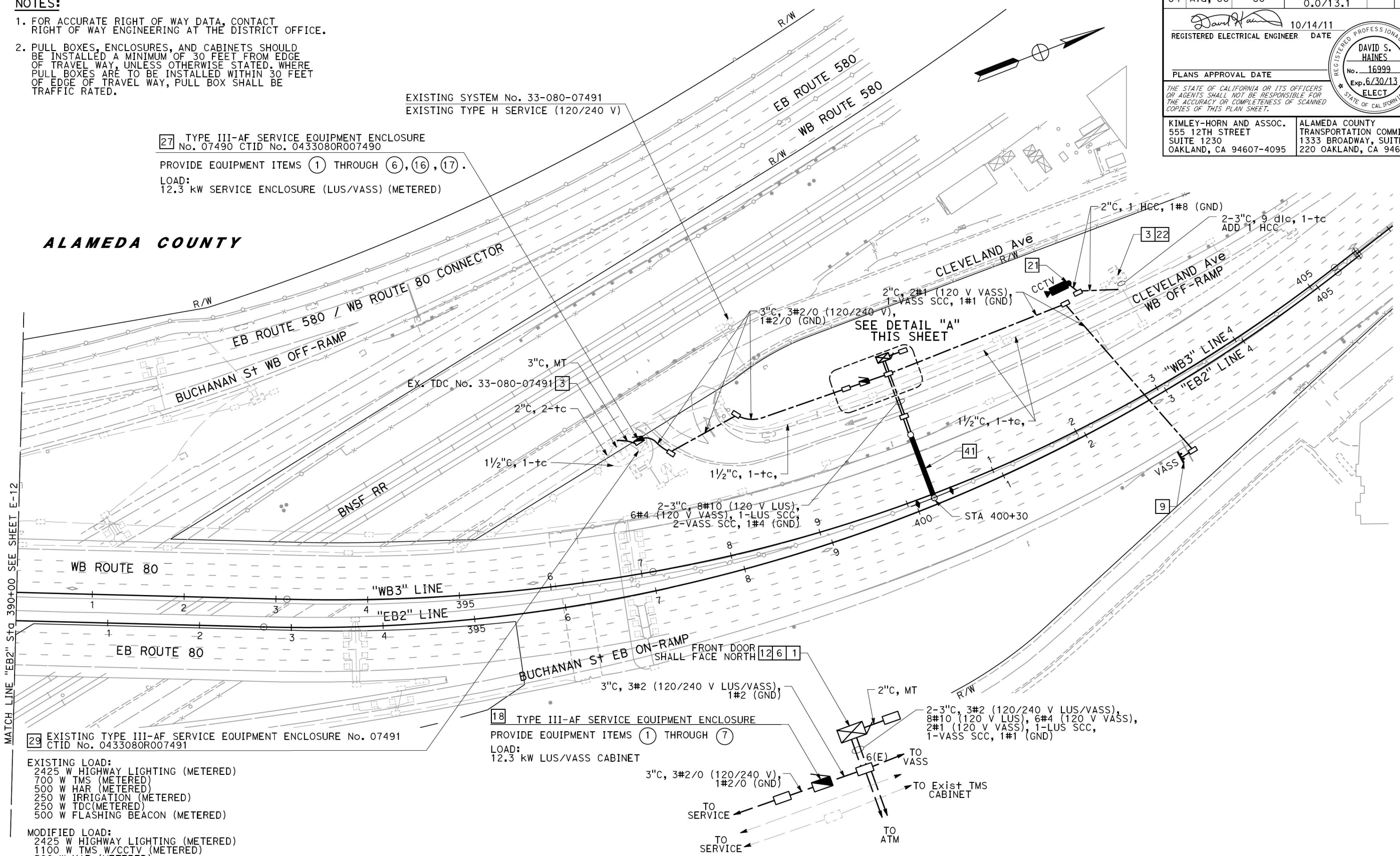
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED. WHERE PULL BOXES ARE TO BE INSTALLED WITHIN 30 FEET OF EDGE OF TRAVEL WAY, PULL BOX SHALL BE TRAFFIC RATED.



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEETS E-1 & E-2

DETAIL "A"
SCALE: NTS

TRAFFIC OPERATIONS SYSTEM
LOCATION 9
SCALE: 1" = 50'

E-13

APPROVED FOR TRAFFIC OPERATIONS SYSTEM WORK ONLY.

CALCULATED-DESIGNED BY	DANIEL CARLEY	REVISED BY	DCC
CHECKED BY	KAREN GEMMILL	DATE REVISED	10-13-11
CONSULTANT FUNCTIONAL SUPERVISOR	RANDAL DURRENBERGER		

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION 10-13-11 — DATE PLOTTED => 08-DEC-2011 — TIME PLOTTED => 15:55