FOR CONTRACT NO.: 08-0J8504

INFORMATION HANDOUT

WATER QUALITY

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
Lahontan Region (Water Board)
Order No. R6V2013-0084

PERMITS

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND GAME
NOTIFICATION NO. 1600-2012-0108-R6

UNITED STATES ARMY CORPS OF ENGINEERS
DEPARMENT OF THE ARMY NATIONWIDE PERMIT VERIFICATION
404 PERMIT

AGREEMENTS

UNITED STATES FISH AND WILDLIFE SERVICE (BIOLOGICAL OPINION)

MATERIALS INFORMATION

ASBESTOS CONTAINING MATERIALS AND LEAD-BASE PAINT SURVEY REPORT
PHOTOS OF REPRESENTATIVE SAMPLES

MEMORANDUM

TO: Scott Quinnell
California Department of Transportation, District 8
464 W. 4th Street, 6th Floor, MS 822
San Bernardino, CA 92401-1400
(email: scott_quinnell@dot.ca.gov)

FROM: Patty Z. Kouyoumdjian, Executive Officer
LAHONTAN REGIONAL WATER QUALITY CONTROL BOARD

DATE: October 7, 2013

SUBJECT: **ORDER NO. R6V-2013-0084 FOR CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION, HORSETHIEF CREEK BRIDGE REPLACEMENT PROJECT, SAN BERNARDINO COUNTY, WDID NO. 6B361304002**

The California Regional Water Quality Control Board, Lahontan Region (Water Board) has received project information from the California Department of Transportation (Applicant) and an application filing fee to complete an application for Clean Water Act (CWA) section 401 Water Quality Certification (WQC) for the Horsethief Creek Bridge Project (Project). This Order for WQC is based upon the information provided in the application and subsequent correspondence received in support of the application.

Any person aggrieved by this action of the Water Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with Water Code, section 13320, and California Code of Regulations (CCR), title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the internet at http://www.waterboards.ca.gov/public_notices/petitions/water_quality, or will be provided upon request.

PROJECT DESCRIPTION

Project details, as presented in the application and subsequent correspondence, are summarized in the following table.

Table of Project Information:

WDID Number	6B361304002
Applicant	Scott Quinnell California Department of Transportation, District 8 464 W. 4th Street, 6th Floor, MS 822 San Bernardino, CA 92401-1400 (email: scott_quinnell@dot.ca.gov)
Agent	Chun-Sheng Wang, California Department of Transportation
Project Name	Horsethief Creek Bridge Replacement Project
Project Purpose and Description	The Project is to replace the existing Horsethief Creek bridge structure with a new structure. The new structure will be in the same location as the existing structure. Temporary access routes will be established to allow equipment ingress and egress into the channel. A clear water diversion structure will be used, as necessary, to divert water flows around the work area.
Project Type	Transportation, Bridges
Project Address or other Locating Information	Horsethief Creek bridge along State Route 138 at post-mile 24.1 near Silverwood Lake; Hesperia, San Bernardino County
Latitude/Longitude	Latitude: 34.309763 Longitude: -117.345798 (center)
Hydrologic Unit(s)	Mojave Hydrologic Unit 628.00; Upper Mojave Hydrologic Area 628.20
Project Area	1.73 acres
Receiving Water(s) Name	Horsethief Creek, tributary to West Fork Mojave River
Water Body Type(s)	Minor surface waters, minor wetlands
Designated Beneficial Uses	MUN, AGR, GWR, FRSH, POW, REC-1, REC-2, COMM, WARM, COLD, WILD, RARE, WQE, FLD
Potential Water Quality Impacts to Waters of the United States (WOUS)	Short term changes in flow regime on the Project site may result in downstream sedimentation, siltation, and/or erosion.
Project Impacts (Fill) to WOUS	See nested table below
Federal Permit(s)	The Applicant has applied for coverage under a U.S. Army Corps of Engineers (USACOE) Nationwide Permit 14 (Linear Transportation Projects) pursuant to section 404 of the CWA.
Non-Compensatory Mitigation	During construction, the Applicant will follow Best Management Practices (BMPs) including construction stormwater controls designed to minimize the short-term degradation of water quality.
Compensatory Mitigation	Temporary impact areas will be restored in accordance with the Landscape Removal and Restoration Plan dated July 2013.
Applicable Fees	$ 2,892 ($944 base fee + [$4,059 x 0.48 acres of permanent and temporary impact]; fees calculated based on area of impact)
Fees Received	$ 2,892

Waterbody Type	**Permanent**			**Temporary**		
	Acres	Linear Feet	Cubic Yards	Acres	Linear Feet	Cubic Yards
Wetland	0	0	0	0.156	0	0
Stream	0	0	0	0.324	155	0
Total	**0**	**0**	**0**	**0.480**	**155**	**0**

CEQA COMPLIANCE

The Water Board finds that the Project is categorically exempt from the California Environmental Quality Act (CEQA), pursuant to CCR, title 14, section 15301, Existing Facilities, for the maintenance of and minor alteration of an existing bridge with negligible to no expansion of use. The Water Board will file a Notice of Exemption with the State Clearinghouse concurrently with this Order.

SECTION 401 WATER QUALITY CERTIFICATION

Authority

CWA, section 401 (33 U.S.C., paragraph 1341), requires that any applicant for a CWA, section 404 permit, who plans to conduct any activity that may result in discharge of dredged or fill materials to WOUS, shall provide to the permitting agency a certification that the discharge will be in compliance with applicable water quality standards of the state in which the discharge will originate. No section 404 permit may be granted (or valid) until such certification is obtained. The Applicant submitted a complete application and the fees required for WQC under section 401 of the CWA for the Project. The USACOE will regulate the Project under Nationwide Permit 14 (Linear Transportation Projects) pursuant to section 404 of the CWA.

CCR, title 23, section 3831(e) grants the Executive Officer the authority to grant or deny WQC for projects in accordance with CWA section 401. The proposed Project qualifies for such WQC.

Standard Conditions

Pursuant to CCR, title 23, section 3860, the following standard conditions are requirements of this certification:

1. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to CWC, section 13330 and CCR, title 23, section 3867.

2. This certification action is not intended and must not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license unless the pertinent certification application was filed pursuant to CCR, title 23, section 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

3. The validity of any non-denial certification action must be conditioned upon total payment of the full fee required under CCR, title 23, section 3833, unless otherwise stated in writing by the certifying agency.

4. Neither Project construction activities nor operation of the Project may cause a violation of the *Water Quality Control Plan for the Lahontan Region* (Basin Plan), may cause a condition or threatened condition of pollution or nuisance, or cause any other violation of the CWC.

5. The Project must be constructed and operated in accordance with the Project described in the application for WQC that was submitted to the Water Board. Deviation from the Project description constitutes a violation of the conditions upon which the certification was granted. Any significant changes to this Project that would have a significant or material effect on the findings, conclusions, or conditions of this certification, including Project operation, must be submitted to the Executive Officer for prior review and written approval.

6. This WQC is subject to the acquisition of all local, regional, state, and federal permits and approvals as required by law. Failure to meet any conditions contained herein or any conditions contained in any other permit or approval issued by the state of California or any subdivision thereof may result in the revocation of this WQC and civil or criminal liability.

7. The Water Board may add to or modify the conditions of this certification, as appropriate, to implement any new or revised water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act (CWC) or section 303 of the CWA, or as appropriate to coordinate the operations of this Project with other projects where coordination of operations is reasonably necessary to achieve water quality standards or to protect the beneficial uses of water. Notwithstanding any more specific conditions in this certification, the Project must be constructed and operated in a manner consistent with all water quality standards and implementation plans adopted or approved pursuant to the CWC or section 303 of the CWA.

8. This certification does not authorize any act which results in the taking of a threatened or endangered species or any act which is now prohibited, or becomes prohibited in the future, under the California Endangered Species Act (CEQA)(Fish and Wildlife Code, section 2050 et seq.) or the federal Endangered Species Act (16 USC, section 1531 et seq.). If a "take" will result from any act authorized under this certification, the Applicant must obtain authorization for the take prior to construction or operation of the Project. The Applicant is responsible for meeting all requirements of the applicable Endangered Species Act for the Project authorized under this certification.

Additional Conditions

Pursuant to CCR, title 23, section 3859, subdivision (a), the following additional conditions are required with this certification:

1. To document the completion of the Project, the Applicant must submit a **Project Completion Report** to the Water Board by **October 31, 2016**. The Project Completion Report should include the following, at minimum: a summary of the Project activities, including the date(s) those activities were performed, the total volume of material excavated and replaced, and the total area of permanent and

temporary disturbance; a summary of the activities related to water diversion, including dates, methods used, and BMPs used; photo documentation of the completed Project; and a summary of any activities that deviated from those described in the original application and supporting documents.

2. All temporary impact areas will be restored to pre-Project conditions in accordance with the Landscape Removal and Restoration Plan dated July 2013.

3. All surface waters must be diverted away from areas undergoing grading, construction, filling, vegetation removal, and/or any other similar construction activity. If surface water diversions are anticipated, the Applicant must develop and implement a **Surface Water Diversion Plan**. The plan must include the proposed method and duration of diversion activities, erosion and sediment controls, and a map or drawing indicating the locations of diversion and discharge points. Diversion activities must not result in the degradation of beneficial uses or exceedance of water quality objectives for the receiving waters as defined and described in the Basin Plan. The Basin Plan can be accessed online at http://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/index.shtml. A copy of the Surface Water Diversion Plan must be submitted to the Water Board prior to any water diversion activities.

4. Work within the channel is authorized only during dry weather conditions. Should inclement weather occur, all work within the stream channel must stop and all equipment and materials must be removed from the channel.

5. No debris, cement, concrete (or wash water there from), oil, or petroleum products must be allowed to enter into or be placed where it may be washed from the Project site by rainfall or runoff into surface waters. When operations are completed, any excess material and/or soil must be removed from the Project work area and any areas adjacent to the work area where such material may be transported into surface waters.

6. An emergency spill kit must be at the Project site at all times during Project construction.

7. Construction vehicles and equipment must be monitored for leaks and proper BMPs must be implemented should leaks be detected or the vehicles/equipment must be removed from service, if necessary, to protect water quality.

8. The Applicant must permit Water Board staff or their authorized representative(s) upon presentation of credentials:

    a. Entry onto Project premises, including all areas on which fill, excavation or mitigation is located or in which records are kept;

    b. Access to copy any record required to be kept under the terms and conditions of this WQC;

c. Inspection of any treatment equipment, monitoring equipment, or monitoring method required by this WQC; and

d. Sampling of any discharge or surface water covered by this WQC.

9. The Applicant must maintain at the Project site a copy of this Order and a copy of the complete WQC application provided to the Water Board so as to be available at all times to site operating personnel and agencies.

10. The Applicant is responsible for informing any contractors of the specific conditions contained in this WQC Order.

Enforcement

1. In the event of any violation or threatened violation of the conditions of this certification, the violation or threatened violation will be subject to any remedies, penalties, processes or sanctions, as provided for under state law. For purposes of CWA, section 401(d), the applicability of any state law authorizing remedies, penalties, processes or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this WQC.

2. In response to a suspected violation of any condition of this certification, the State Water Board or the Water Board may require the holder of any permit or license subject to this WQC to furnish, under penalty of perjury, any technical or monitoring report that the State Water Board or Water Board deems appropriate, provided that the burden, including costs, of the reports must be in reasonable relationship to the need for the reports and the benefits to be obtained from the reports.

3. In response to any violation of the conditions of this certification, the Water Board may add to or modify the conditions of this certification, as appropriate, to ensure compliance.

Section 401 Water Quality Certification Requirements Granted

I hereby issue an Order, certifying that any discharge from the referenced Project will comply with the applicable provisions of CWA, sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards), and with other applicable requirements of state law. This discharge is also regulated under State Water Board Order No. 2003-0017-DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State WQC," which requires compliance with all conditions of this WQC. A copy of State Water Board Order No. 2003-0017-DWQ is enclosed for your reference.

Except insofar as may be modified by any preceding conditions, all WQC actions are contingent on (a) the discharge being limited and all proposed mitigation being completed in strict compliance with the Applicant's Project description and the terms specified in this WQC Order, and (b) compliance with all applicable requirements of the Basin Plan.

We look forward to working with you in your efforts to protect water quality. If you have questions, please contact Jan Zimmerman, Engineering Geologist, at (760) 241-7376 (jan.zimmerman@waterboards.ca.gov), or Patrice Copeland, Senior Engineering Geologist, at (760) 241-7404 (patrice.copeland@waterboards.ca.gov). Please use the WDID referenced in the subject line of this WQC for future correspondence regarding this Project.

Enclosure: SWRCB Order No. 2003-0017-DWQ

cc: Chun-Sheng Wang, California Department of Transportation, District 8
(via email, chun-sheng.wang@dot.ca.gov)
Veronica Chan, U.S. Army Corps of Engineers
(via email, veronica.c.chan@usace.army.mil)
Paul Amato, Wetlands Regulatory Office (WTR-8), USEPA, Region 9
(via email, Leidy.Robert@epamail.epa.gov)
SWRCB, Division of Water Quality
(via email, stateboard401@waterboards.ca.gov)
Jeff Brandt, California Department of Fish and Wildlife
(via email, jeff.brandt@wildlife.ca.gov)

R6V-2013-0084_HorsethiefCreekBridge_6B361304002

California Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Inland Deserts Region
3602 Inland Empire Blvd., Suite C-220
Ontario, CA 91764
909-484-0459
www.dfg.ca.gov

EDMUND G. BROWN, Jr., Governor
CHARLTON H. BONHAM, Director

September 2, 2012

Mr. Scott Quinnell
California Department of Transportation – District 8
464 W. 4th St., 6th Floor, MS 822
San Bernardino, CA 92401-1400

Subject: No Lake or Streambed Alteration Agreement Needed
Notification No. 1600-2012-0108-R6
Horsethief Creek Boring Test

Dear Mr. Quinnell:

The Department of Fish and Game (Department) has reviewed your Lake or Streambed Alteration Notification (Notification). We have determined that your project is subject to the notification requirement in Fish and Game Code Section 1602, including payment of the notification fee.

The Department has also determined that your project will not substantially adversely affect an existing fish or wildlife resource. As a result, you will not need a Lake or Streambed Alteration Agreement for your project. You are responsible for complying with all applicable local, state, and federal laws in completing your work. A copy of this letter and your notification with all attachments should be available at all times at the work site.

Please note that if you change your project so that it differs materially from the project you described in your original Notification, you will need to submit a new Notification and corresponding fee to the Department.

Thank you for notifying us of your project. If you have any questions, please contact Juan Torres at (909) 484-3979 or **jtorres@dfg.ca.gov.**

Sincerely,

Jeff Brandt
Senior Environmental Scientist

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
VENTURA FIELD OFFICE
2151 ALESSANDRO DRIVE, SUITE 110
VENTURA, CA 93001

REPLY TO
ATTENTION OF

October 9, 2013

Regulatory Division

Scott Quinnell, Senior Environmental Planner
California Department of Transportation, District 8
464 West 4th Street Fl 6, MS-822
San Bernardino, California 92401-1400

Attn: Chun-Sheng Wang

DEPARTMENT OF THE ARMY NATIONWIDE PERMIT VERIFICATION

Dear Mr. Quinnell:

I am responding to your request (file no. SPL-2013-00330-VCC) for a Department of the Army permit. Your proposed project, State Route 138 Horsethief Creek Bridge Replacement, is located in Horsethief Creek, near the City of Hesperia, San Bernardino County, California. This project would result in a discharge of dredged and/or fill material into waters of the United States. Therefore, pursuant to section 404 of the Clean Water Act (33 U.S.C. 1344; 33 C.F.R. parts 323 and 330), your proposed project requires a Department of the Army permit.

I have determined construction of your proposed project would comply with Nationwide Permit (NWP) No. 33 *Temporary Construction, Access, and Dewatering*, if constructed as described in your application. Specifically, you are authorized to replace the existing Highway 138 Bridge with a new 2-lane bridge, including support piers located outside Corps jurisdiction, as depicted on the enclosed drawings. The project would result in approximately 0.16 acre of temporary impacts to wetland waters of the U.S. and 0.32 acre of temporary impacts to non-wetland waters of the U.S. due to vegetation clearing, equipment access and surface water diversion.

For this NWP verification letter to be valid, you must comply with all of the terms and conditions in Enclosure 1. Furthermore, you must comply with the non-discretionary Special Conditions listed below:

1. This Corps permit does not authorize you to take any threatened or endangered species, in particular the arroyo toad (*Anaxyrus californicus*) or adversely modify its designated critical habitat. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g. ESA section 10 permit, or a Biological Opinion (BO) under ESA section 7, with "incidental take" provisions with which you must comply). The BO issued to Caltrans by the U.S. Fish & Wildlife Service (No. 8-8-11-F-6) contains mandatory terms and conditions to implement the reasonable

and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the above-referenced BO. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The U.S. Fish & Wildlife Service is the appropriate authority to determine compliance with the terms and conditions of its BO and with the ESA.

2. The permittee shall ensure all sites within waters of the U.S. subject to authorized, temporary impacts are restored to pre-project alignments, elevation contours, and conditions, including revegetation with appropriate native plant species after completion of construction in the area, as described in the conceptual mitigation plan: "SR-138 Horsethief Creek Bridge Replacement Project Landscape Removal and Restoration" (dated July 2013, and prepared by Caltrans). A final mitigation/restoration plan, including success criteria shall be submitted and approved by the Corps Regulatory Division prior to initiating work in waters of the U.S. At a minimum, the acreage of waters of the U.S. and aquatic resource functions of each site shall equal or exceed pre-project acreage of waters of the U.S. and aquatic resource functions by the end of the monitoring period as specified in the plan. Functions for the above impact areas shall be assessed annually using CRAM or a similar Corps Regulatory Division-approved functional/condition assessment method as described in the above-mentioned mitigation plan. The permittee's responsibility to complete the required restoration as set forth in this special condition shall not be considered fulfilled until the permittee has met or exceeded all final performance standards for each impact area and has obtained written confirmation from the Corps Regulatory Division verifying successful restoration Note: if not done previously as part of the permit application evaluation process, then prior to initiating construction in sites within waters of the U.S. subject to authorized, temporary impacts, the permittee shall conduct a functional/condition assessment to establish pre-project (baseline) functions at each impact site.

This verification is valid through March 18, 2017. If on March 18, 2017 you have commenced or are under contract to commence the permitted activity you will have an additional twelve (12) months to complete the activity under the present NWP terms and conditions. However, if I discover noncompliance or unauthorized activities associated with the permitted activity we can exercise discretionary authority and thereby modify, suspend, or revoke this specific verification at an earlier date in accordance with procedures in 33 C.F.R. § 330.4(e) and 33 C.F.R. § 330.5(c) or (d). At the national level the Chief of Engineers at any time prior to the expiration of a NWP may chose to modify, suspend, or revoke the nationwide use of a NWP after following procedures set forth in 33 C.F.R. § 330.5. It is incumbent upon you to comply with all of the terms and conditions of this NWP verification and to remain informed of any change to the NWPs.

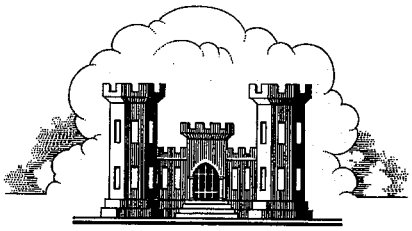
A NWP does not grant any property rights or exclusive privileges. Additionally, it does not authorize any injury to the property, rights of others, nor does it authorize interference with any existing or proposed Federal project. Furthermore, it does not obviate the need to obtain other Federal, state, or local authorizations required by law.

Thank you for participating in the regulatory program. If you have any questions, please contact Antal Szijj at 805-585-2147 or via e-mail at Antal.J.Szijj@usace.army.mil. Please complete the customer survey form at http://per2.nwp.usace.army.mil/survey.html, which would help me to evaluate and improve the regulatory experience for others.

Sincerely,

Aaron O. Allen, PhD
Chief, North Coast Branch
Regulatory Division

Enclosures



LOS ANGELES DISTRICT
US ARMY CORPS OF ENGINEERS

CERTIFICATE OF COMPLIANCE WITH DEPARTMENT OF THE ARMY NATIONWIDE PERMIT

Permit Number: *SPL-2013-00330-VCC*

Name of Permittee: *Scott Quinnell, California Department of Transportation, District 8*

Date of Issuance: *October 9, 2013*

Upon completion of the activity authorized by this permit and the mitigation required by this permit, sign this certificate, and return it by **ONE** of the following methods;

1) Email a digital scan of the signed certificate to Antal.J.Szijj@usace.army.mil

OR

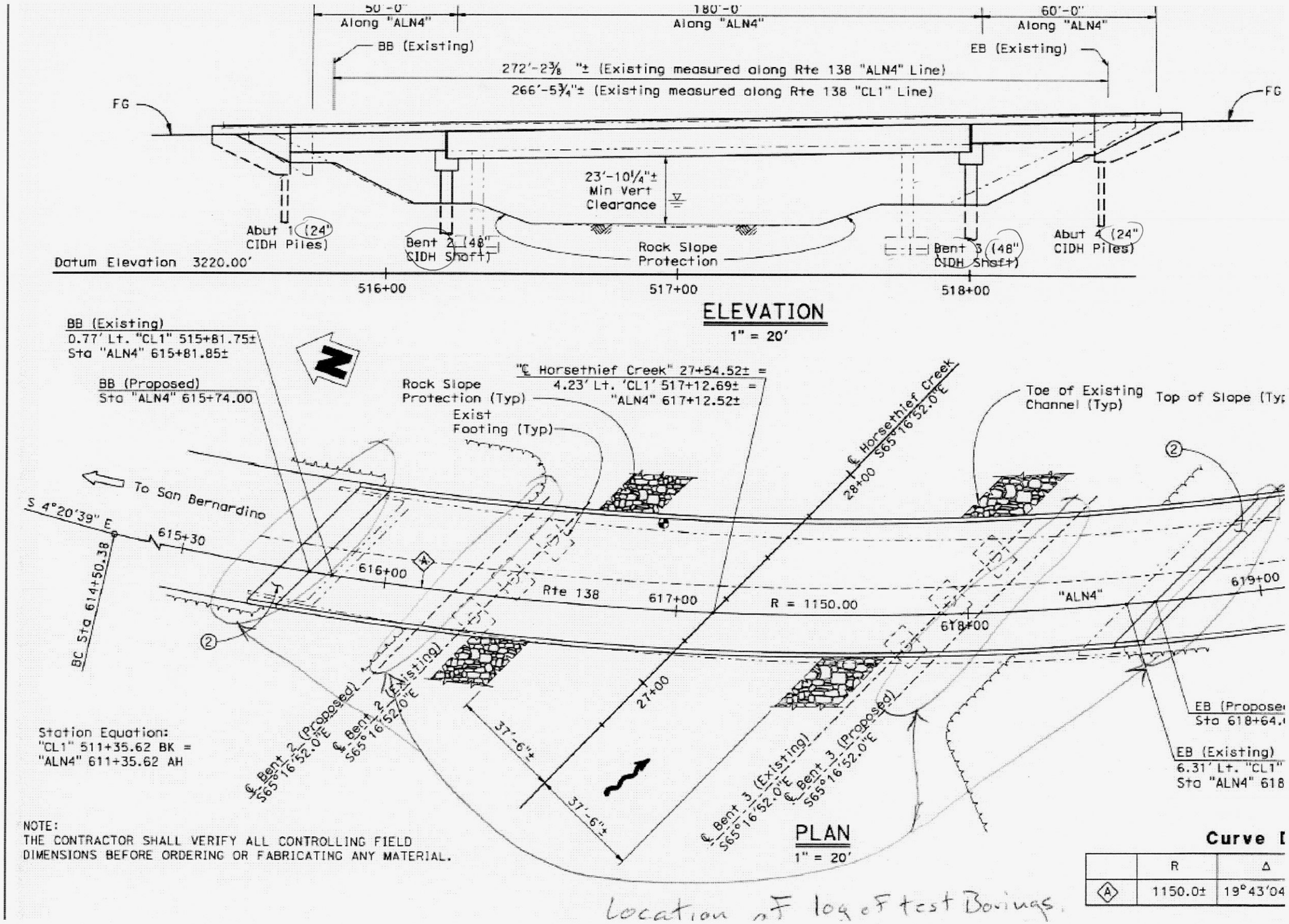
2) Mail the signed certificate to

US Army Corps of Engineers
ATTN: Regulatory Division SPL-2013-00330-VCC
Ventura Field Office
2151 Alessandro Drive, Suite 110
Ventura, CA 93001

I hereby certify the authorized work and any required compensatory mitigation has been completed in accordance with the NWP authorization, including all general, regional, or activity-specific conditions. Furthermore, if credits from a mitigation bank or in-lieu fee program were used to satisfy compensatory mitigation requirements I have attached the documentation required by 33 CFR 332.3(l)(3) to confirm the appropriate number and resource type of credits have been secured.

_____ _____

Signature of Permittee Date


50'-0" Along "ALN4"
180'-0" Along "ALN4"
60'-0" Along "ALN4"
BB (Existing)
EB (Existing)
272'-2⅜" ± (Existing measured along Rte 138 "ALN4" Line)
266'-5¾"± (Existing measured along Rte 138 "CL1" Line)
FG
FG
23'-10¼"± Min Vert Clearance
Abut 1 (24" CIDH Piles)
Bent 2 (48" CIDH Shaft)
Rock Slope Protection
Bent 3 (48" CIDH Shaft)
Abut 4 (24" CIDH Piles)
Datum Elevation 3220.00'
516+00
517+00
518+00
ELEVATION
1" = 20'
BB (Existing)
0.77' Lt. "CL1" 515+81.75±
Sta "ALN4" 615+81.85±
BB (Proposed)
Sta "ALN4" 615+74.00
℄ Horsethief Creek 27+54.52± =
4.23' Lt. 'CL1' 517+12.69± =
"ALN4" 617+12.52±
Rock Slope Protection (Typ)
Exist Footing (Typ)
℄ Horsethief Creek
S65°16'52.0"E
28+00
Toe of Existing Channel (Typ)
Top of Slope (Typ
To San Bernardino
S 4°20'39" E
615+30
616+00
617+00
618+00
619+00
Rte 138
R = 1150.00
"ALN4"
BC Sta 614+50.38
℄ Bent 2 (Proposed)
S65°16'52.0"E
℄ Bent 2 (Existing)
S65°16'52.0"E
27+00
37'-6"±
37'-6"±
℄ Bent 3 (Existing)
S65°16'52.0"E
℄ Bent 3 (Proposed)
S65°16'52.0"E
EB (Proposed)
Sta 618+64.
EB (Existing)
6.31' Lt. "CL1"
Sta "ALN4" 618
Station Equation:
"CL1" 511+35.62 BK =
"ALN4" 611+35.62 AH
PLAN
1" = 20'
NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.
Curve
R
Δ
A
1150.0±
19°43'04
Location of log of test Borings.

WATERS OF THE US AND STATE

FEDERAL WETLANDS

CENTERLINE OF HORSETHIEF CHANNEL

HORESTHIEF CHANNEL

TOP OF HORSETHIEF CHANNEL

EXISTING ROADWAY & BRIDGE

PROPOSED ROADWAY

PROPOSED BRIDGE

CUT & FILL LINE

MAJOR CONTOUR LINE

MINOR CONTOUR LINE

STATE RIGHT OF WAY

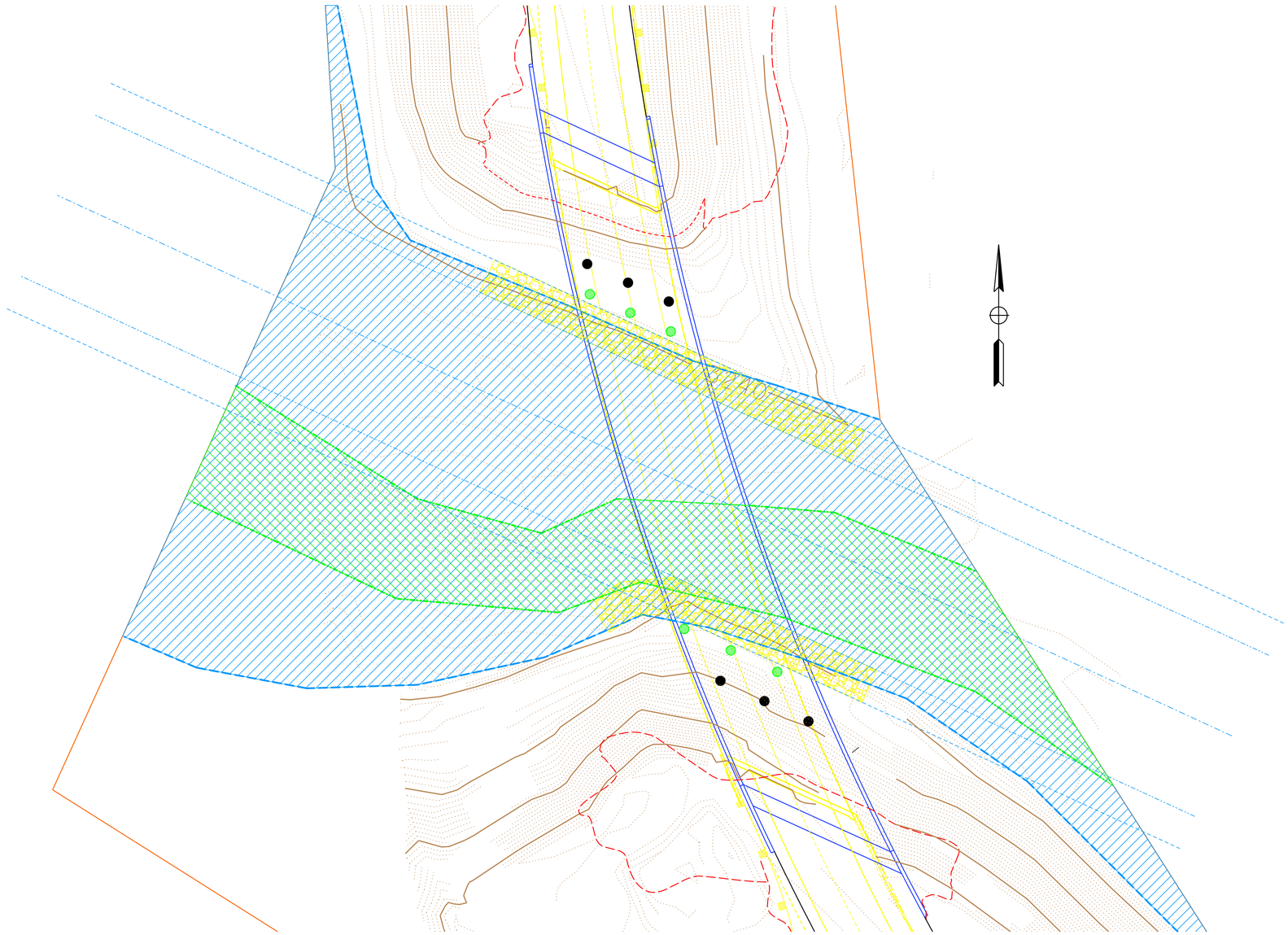
EXISTING BRIDGE COLUMNS

PROPOSED BRIDGE COLUMNS

APPROXMATE EXISTING RSP
(ROCK SLOPE PROTECTION)

WATERS OF THE US AND STATE

FEDERAL WETLANDS



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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO
81440-2011-F-0047

May 17, 2011

Craig Wentworth, Senior Environmental Planner
Environmental Planning, District 8
California Department of Transportation
464 West 4th Street, 6th Floor
San Bernardino, California 92401-1400

Subject: Biological Opinion for the State Route 138 Horsethief Creek Bridge Replacement Project (08-Sbd-138-EA OJ850), San Bernardino County, California (8-8-11-F-6)

Dear Mr. Wentworth:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the California Department of Transportation's proposal to demolish and replace a 2-lane bridge across Horsethief Creek, located 0.16 mile south of the junction of State Route 138 and State Route 173. At issue are the effects of the proposed action on the federally endangered arroyo toad (*Anaxyrus californicus*). This document was prepared in accordance with section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act). Your request for formal consultation was dated November 9, 2010, and received in our office on November 18, 2010.

This biological opinion is based on information that accompanied your request for consultation, including the biological assessment (California Department of Transportation 2010), a series of phone calls and electronic mail, and various reports and publications. A complete record of this consultation can be made available at the Service's Ventura Fish and Wildlife Office.

CONSULTATION HISTORY

The biological assessment identifies potential effects the proposed project may have on the federally endangered least Bell's vireo (*Vireo bellii pusillus*) and the southwestern willow flycatcher (*Empidonax traillii extimus*). The habitat for these species in the action area seems to be suitable. However, we have concluded that the proposed action is not likely to adversely affect the least Bell's vireo or southwestern willow flycatcher for several reasons. First, least Bell's vireos have never been detected on site and only two individuals of the willow flycatcher were detected briefly onsite (one in 2009 and one in 2010); they were not identified definitively

as *extimus*. Second, because individuals of these subspecies were not detected repeatedly on site during focused surveys, they are not nesting in the project area. Third, because of the small amount of southern cottonwood-willow riparian habitat that would be disturbed (0.48 acre), the potential loss of foraging habitat of either of these species would be insignificant. Finally, the California Department of Transportation would implement avoidance and minimization measures if individuals of either subspecies are found in or around the project area during construction. Therefore, we will not discuss these species further in this biological opinion.

At the time the biological assessment was written, the proposed project area was within proposed critical habitat for the arroyo toad. Since that time, the Service has issued a final rule to designate critical habitat (74 FR 52612); the project area remains within the boundaries of critical habitat. Because the impacts to the primary constituent elements of critical habitat would be minimal, the area to be disturbed comprises an insignificant portion of the critical habitat unit, and the impacts to primary constituent elements of critical habitat would be temporary, the California Department of Transportation determined that the proposed action was not likely to adversely affect critical habitat. Additionally, the California Department of Transportation would restore all the affected areas. Consequently, any effects would be insignificant and temporary. We concur with this determination and will not discuss critical habitat of the arroyo toad further in this document.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED PROJECT

The following is summarized from the biological assessment (California Department of Transportation 2010) unless otherwise noted.

Description of the Bridge Replacement

The California Department of Transportation proposes to demolish the existing Horsethief Creek Bridge located at post mile R24.1 and replace it with a new two-lane bridge. The structure would consist of one 12-foot lane, one 8-foot shoulder, and a one-foot bridge railing in each direction. Approximately 350 feet of the existing roadway on both sides of the bridge would require replacement. The existing bridge profile would remain the same and no new features are proposed to be added. Construction staging would be required to maintain traffic flow, as a temporary detour is not feasible. False work would be installed in the wash to secure the structure during construction. The footprint of the entire project area is 1.89 acres.

Avoidance and Minimization Measures

To reduce the adverse effects of the proposed action on the arroyo toad and its habitat, the California Department of Transportation has proposed to implement numerous measures. We have modified these measures slightly from those contained in the biological assessment to consolidate them and increase their clarity.

1. Prior to starting construction activities, arroyo toad awareness training will be provided to all project personnel. An arroyo toad handout will be prepared and always be available at the construction site.

2. All disturbed habitat will be restored to previous conditions with similar native vegetation present in the disturbed areas. A plant inventory of the proposed disturbed area will be prepared prior to commencing activities. The first vegetation planting will take place before removing the wildlife fencing and be monitored by the biologist. The habitat restoration will be monitored and maintained for at least 5 years to assure success of the restoration. Maintenance activities will take place outside the arroyo toad breeding season and monitored by the biologist. A monitoring report will be prepared and submitted to the Service until the habitat restoration is considered to be completed.

3. Vegetation removal in the work areas will take place outside the arroyo toad breeding season. The biological monitor will be present at all times during this work.

4. A water diversion will be installed once the project area is determined to be cleared of arroyo toads. The installation of the water diversion features will assure the existing hydrology values are maintained downstream and upstream from the project site.

5. No night work will be allowed.

6. Best management practices will be implemented for the control of dust, sediment, and erosion including the following:

   - Conduct all work according to site-specific construction plans that minimize the potential for sediment input to the aquatic system. This may include constructing silt barriers immediately downstream of the construction site.

   - Identify all areas requiring clearing, grading, dredging, revegetation and re-contouring, and minimize the area affected.

   - Store construction and dredge spoils out of the stream (above the ordinary high water mark) and protect receiving waters with sedimentation fences or other effective sediment control devices.

   - Prevent contamination of stream-side soil and the water course from cement, concrete, asphalt, paint or other coating material, oil or other petroleum products and other hazardous materials.

   - Set up staging areas away from Horsethief Creek and any ditches that drain into the creek.

   - Provide staging and storage areas outside of the stream zone for equipment, construction materials, fuels, lubricants, solvents and other possible contaminants.

- Design an appropriate cleanup plan and implement immediately should contamination occur.

- Notify appropriate personnel (California Department of Fish and Game, Service) of any contamination and cleanup procedures.

- Minimize equipment operations in flowing water and remove vehicles from the normal high water mark before refueling and lubrication.

Arroyo Toad Relocation

Exclusion Fencing

Onsite, the area will likely include, but not limited to, the riparian habitat within and adjacent to Horsethief Creek. To minimize adverse effects to the arroyo toad, the California Department of Transportation will temporarily fence the boundary of project site prior to the breeding season (February 15 to July 15). Fence installation and vegetation removal for the fence installation will be accomplished by using hand tools only. Block netting will be used across Horsethief Creek both upstream and downstream from the project site. The block netting will be secured into the substrate in the bottom of the creek and weighted down to prevent entry by arroyo toads, their eggs, or larva. During installation of the fence, the number of workers in the creek will be limited to no more than eight at one time.

No work will be allowed outside of the fenced exclusion area. All onsite staging areas, equipment movement and parking, soil stockpiling, trenches, or other surface disturbances will take place within the exclusion area. The monitor or project personnel trained by the monitor will inspect the fence and enclosure (the onsite cleared areas) on a daily basis prior to the onset of construction activities.

Pitfall Traps and Cover Boards

To facilitate the detection of arroyo toads within the exclusion fence, the California Department of Transportation will manually brush cut (only vegetation of less than 4 inches in diameter at breast height) prior to the breeding season (February 15 to July 15).

After installation of the exclusion fence and prior to commencement of construction activities, the California Department of Transportation will install pitfall traps and cover boards within the fence to aid in the capture of arroyo toads for relocation. Pitfall traps will consist of plastic buckets approximately 12 inches wide and at least 12 inches deep. The buckets will be buried to a depth at which the tops are flush with, or just below, ground level. Up to 2 inches of sand will be placed in the traps and kept moist. In addition, a 1- to 1.5-inch- wide strip of hardware cloth with 3/8-inch mesh will be hung from the side of the bucket to allow for the escape of small mammals or lizards incidentally captured. The bottom of the escape ladder will be taped. The bases of the buckets will be punctured to allow water to drain after rains. If placed in areas with a high water table (i.e., adjacent to the creek), buckets without drain holes may be required.

Each bucket will be provided with a lid that will be held about 1.5 to 2 inches above the rim by spacers to provide shelter from weather and predators.

Traps will be placed along the inside of the exclusion fence at intervals determined appropriate by the authorized biologist (e.g., 30 to 60 feet). The traps will be placed in the most optimal habitat for arroyo toads (e.g., clearings, sandy patches, wet areas, near natural obstacles).

Cover boards will be placed at various locations inside and along the exclusion fence. They will be constructed of new, thick (i.e., ¼ inch) sheets of untreated plywood cut to size (at least 2 x 3 feet). Wood that had previous contact with other animals will be not be used. Cover boards will be placed flat against the ground with little space between the bottom side of the board and the substrate. Some site preparation (smoothing, removal of rocks and debris) may be required at each location to ensure proper fit and placement. Boards will be placed at regular intervals and in between pitfall traps. The California Department of Transportation will ensure extreme caution when checking the cover boards for arroyo toads and returning the board to its original location and orientation.

Preconstruction Clearance Surveys

A qualified biologist familiar with arroyo toad identification and ecology and authorized to handle arroyo toads by the Service will conduct preconstruction clearance surveys prior to the commencement of onsite project activities. The clearance surveys will consist of nocturnal focused surveys within the fenced project site to search for arroyo toads. Clearance surveys will be conducted under appropriate environmental conditions (suitable weather, moon phase, calm winds, etc.) to maximize arroyo toad encounters. Construction will not proceed until the authorized biologist is satisfied that all onsite arroyo toads have been found and relocated. The excluded area will be considered cleared after surveys conducted during optimum conditions within the breeding season are negative for 4 consecutive weeks.

During preconstruction sweeps of the enclosed areas, the biologist will inspect the pitfall traps and cover boards daily in the early morning hours to locate any arroyo toads that may have breached onsite fences.

Construction Monitoring

A qualified biologist familiar with arroyo toad identification and ecology and authorized to handle arroyo toads by the Service will be present at all times during fence, pitfall trap and cover board installations, bridge demolition, and vegetation removal and restoration.

Once the area is considered cleared of arroyo toads and vegetation has been cleared, the authorized biologist will inspect routine construction activities every other day during the breeding season and once a week outside of the breeding season.

Daily fence and enclosure inspections will occur throughout the duration of the project by the authorized biologist and project personnel trained by the authorized biologist. A log with the inspections will be maintained and, if the fence is damaged, no construction activities will

commence until the California Department of Transportation's personnel is notified that the fence is in order. No work will be allowed if any of the exclusionary devices are not installed in accordance with respective specifications. Fencing will be maintained until completion of project-related site disturbance, including initial revegetation efforts. If the fence fails during construction, work will cease until it is repaired and the authorized biologist inspects (and clears) the site of arroyo toads.

If an arroyo toad is discovered with the project site during construction activities, all construction activities will stop and the authorized biologist will be notified. The authorized biologist will relocate the arroyo toad as described in this biological opinion.

Arroyo Toad Handling and Relocation

Arroyo toads found onsite after the exclusionary devices have been installed will be relocated to the Service-approved and designated offsite area within the California Department of Transportation's right-of-way in Horsethief Creek.

Arroyo toads may only be handled by biologists specifically authorized under this biological opinion. Arroyo toads will be handled in accordance with any and all terms and conditions set forth in this biological opinion. In general, when found onsite, arroyo toads will be captured by hand, temporarily placed in a holding bucket (i.e., 5-gallon bucket), and immediately relocated upstream, outside of the project site and within the California Department of Transportation's right-of-way. The California Department of Transportation chose the upstream site for relocation because it contains habitat that is more suitable for arroyo toads than the downstream area, which is more of a permanent wetland with thick vegetation and no arroyo toads have been there.

Prior to handling arroyo toads, all field equipment (i.e., boots, waders, seine nets, dip nets, buckets, etc.) that comes into contact with onsite waters or arroyo toads will be thoroughly cleaned, disinfected and freed of debris in accordance with decontamination guidelines approved by the Service (*Decontaminate Your Equipment Between Ponds* by S. Lynch and A. Fesnock). Thorough mechanical cleaning (e.g., scrubbing with a stiff brush) of equipment must take place offsite, away from arroyo toad habitat and jurisdictional areas. Once equipment is free of debris, it will be disinfected with bleach solution (via soaking).

Authorized biologists will avoid use of insecticides, sunscreens, or any other lotions, creams or products on their skin, clothing, footwear or field equipment immediately prior to and during handling arroyo toads.

Exotic Species Removal

Any exotic species found onsite (i.e., bullfrogs [*Rana catesbeiana*], crayfish, mosquito fish [*Gambusia affinis*], African clawed frogs [*Xenopus laevis*], etc.) that may prey on, displace or compete for natural resources with the arroyo toad will be removed from the site and dealt with

in accordance with the Service's and/or the California Department of Fish and Game's stipulations, requirements and guidelines.

Reporting

The Service will be notified in writing within one week of arroyo toad handling and relocation. The notice will include the date, time, personnel, and any other pertinent information on the relocation effort.

A report summarizing the project's arroyo toad relocation efforts will be submitted to the Service following project completion. The report will include data such as schedule, personnel, finding, and actions taken.

A log will be kept containing all monitor activities and be readily available to personnel from the Service. A monthly report will be submitted to the Service with all monitoring activities.

ANALYTICAL FRAMEWORK FOR THE JEOPARDY DETERMINATION

Section 7(a)(2) of the Endangered Species Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. "Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 Code of Federal Regulations 402.02).

The jeopardy analysis in this biological opinion relies on four components: (1) the *Status of the Species*, which evaluates the range-wide condition of the arroyo toad, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the arroyo toad in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the arroyo toad; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the arroyo toad; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the arroyo toad.

STATUS OF THE SPECIES

The arroyo toad was listed as endangered on December 16, 1994 (59 FR 64589). Critical habitat for the arroyo toad was designated on April 13, 2005 (70 FR 19562) and proposed revised critical habitat was published on October 13, 2009 (74 FR 52612). The recovery plan for the arroyo toad was published in 1999 (Service 1999). In addition to the recovery plan, important sources for information on the biology of the arroyo toad include: Campbell et al. (1996), Griffin and Case (2001), Griffin et al. (1998), Holland and Sisk (2001), Ramirez (2002a, 2002b, 2002c, 2003), and Sweet (1992, 1993).

The arroyo toad is a small, dark-spotted toad of the family Bufonidae. The parotid glands, located on the top of the head, are oval-shaped and widely separated. A light or pale area or stripe is usually present on these glands and on top of the eyes. The arroyo toad's underside is buff-colored and usually without spots (Stebbins 2003). Recently metamorphosed individuals typically blend in with stream side substrates.

Optimal breeding habitat consists of low-gradient sections of slow-moving streams with shallow pools, nearby sandbars, and adjacent stream terraces. Arroyo toads breed and deposit egg masses in the shallow, sandy pools of these streams, which are usually bordered by sand-gravel flood-terraces. Stream order, elevation, and flood plain width appear to be important factors in determining habitat capability (Sweet 1992, Griffin et al. 1999). High stream order (i.e., third to sixth order), low elevation (particularly below 3,000 feet), and wide flood plains seem to be positively correlated with arroyo toad population size. However, small arroyo toad populations are found along first and second order streams at elevations up to 4,600 feet. Outside of the breeding season, arroyo toads are essentially terrestrial and are known to use a variety of upland habitats including, but not limited to, sycamore-cottonwood woodlands, oak woodlands, coastal sage scrub, chaparral, and grassland (Holland 1995, Griffin et al. 1999).

Breeding typically occurs from February to July on streams with persistent water (Griffin et al. 1999). Female arroyo toads must feed for a minimum of approximately 2 months to develop the fat reserves needed to produce a clutch of eggs. Eggs are deposited and tadpoles develop in shallow pools with minimal current and little or no emergent vegetation. The substrate in these pools is generally sand or fine gravel overlain with silt. The eggs hatch in 4 to 5 days and the tadpoles are essentially immobile for an additional 5 to 6 days. They then begin to disperse from the pool margin into the surrounding shallow water, where they spend an average of 10 weeks. After metamorphosis (June and July), the juvenile arroyo toads remain on the bordering gravel bars until the pool dries out (usually from 8 to 12 weeks depending on the site and rainfall). Most individuals become sexually mature by the following spring (Sweet 1992).

Arroyo toad tadpoles feed on loose organic material such as interstitial algae, bacteria, and diatoms. They do not forage on macroscopic vegetation (Sweet 1992, Jennings and Hayes 1994). Juvenile arroyo toads feed on ants almost exclusively (Service 1999). By the time they reach 0.7 to 0.9 inch in length, they consume more beetles, along with the ants (Sweet 1992, Service 1999). Adult arroyo toads probably consume a wide variety of insects and arthropods including ants, beetles, spiders, larvae, caterpillars, and others.

Individuals of this species have been observed moving approximately 1 mile within a stream reach and 0.6 mile away from the stream into native upland habitats (Sweet 1992, Holland 1995) or agricultural areas (Griffin et al. 1999). Movement distances may be regulated by topography and channel morphology. Griffin et al. (1999) reported a female arroyo toad traveling more than 948 feet perpendicular from a stream and Holland and Goodman (1998) found arroyo toads 0.7 mile from a water course. At Little Rock Creek on the desert slopes of the San Gabriel Mountains, arroyo toads were found up to approximately 120 feet from the active channel; they burrowed closer to the active stream channel as the time after the last spring rain increased

(Ramirez 2000). Arroyo toads are critically dependent on upland terraces and the marginal zones between stream channels and upland terraces during the non-breeding season, especially during periods of inactivity (generally late fall and winter) (Sweet 1992).

A study by Ramirez (2003) found that arroyo toads generally burrowed within sandy or loamy substrates with no associated canopy cover, or within mule fat (*Baccharis salicifolia*) scrub or arroyo willow (*Salix lasiolepis*) patches. The majority of individuals tracked in that study were located immediately adjacent to the active channel or within the bench habitats located within flood prone areas. Arroyo toads are known to aestivate in their burrows during the non-breeding season, which usually starts in the late summer and extends from August to January (Ramirez 2003).

Arroyo toads have disappeared from approximately 75 percent of the previously occupied habitat in California. They were known historically to occur in coastal drainages in southern California from San Luis Obispo County to San Diego County and in Baja California, Mexico. In Orange and San Diego Counties, the species occurred from estuaries to the headwaters of many drainages. In 1996, arroyo toads were discovered on Fort Hunter Liggett, Monterey County. This discovery constituted a northern range expansion for the species. Populations of this species also occur on the desert slopes of both the San Gabriel Mountains (in Little Rock Creek in Los Angeles County) and the San Bernardino Mountains (in the Mojave River and in its tributaries, Little Horsethief and Deep Creeks, in San Bernardino County). Arroyo toads now survive primarily in the headwaters of coastal streams as small isolated populations, having been extirpated from much of their historic habitat.

A variety of factors have contributed to the decline of arroyo toads but nearly half of the extirpations can be attributed to dam building and operation (Sweet 1992; Ramirez 2003). Suitable habitat is often flooded out by reservoir water, and downstream breeding and non-breeding habitat are affected by reduced flows as well as unnatural discharges that increase flow rates. These unnatural releases of water destroy sand bars used during the breeding season, and reconfigure or destroy suitable breeding pools, thus disrupting clutch and larval development (Ramirez 2003). In addition to flood control projects, other threats include agriculture, sand and gravel mining, urban development, off-highway vehicle use, urbanization, and recreational activities such as camping, fishing, hiking, and the use of campgrounds (Service 1999, Ramirez 2003). The introduction of non-native species that compete for resources or that prey on arroyo toads also pose a serious threat to arroyo toad existence. Non-native bullfrogs and African clawed frogs are known to feed on arroyo toads in various life stages. Non-native plant species, particularly tamarisk (*Tamarix* spp.) and giant reed (*Arundo donax*) alter the natural hydrology of stream drainages by eliminating sandbars and breeding pools and upland habitats.

In summary, the loss of habitat, coupled with habitat modifications due to the manipulation of water levels in many central and southern California streams and rivers, and predation from introduced aquatic species, have caused arroyo toads to disappear from a large portion of their previously occupied habitat in California (Jennings and Hayes 1994).

ENVIROMENTAL BASELINE

Action Area

The implementing regulations for section 7(a)(2) of the Act define the action area to be "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." We consider the action area of this project to be what the California Department of Transportation considers to be the "impact area" (California Department of Transportation 2010). This area includes a portion of the active stream channel, the riparian vegetation and adjacent upland plant communities immediately beneath and adjacent to the existing bridge and highway within the California Department of Transportation's existing right-of-way for Horsethief Creek and State Route 138. The proposed project is expected to temporarily affect 1.89 acres, including 0.24 acre of which is already developed, and all of which is within designated critical habitat for the arroyo toad. Areas upstream of the affected area, within the California Department of Transportation's right-of-way, where arroyo toads would be relocated are considered part of the action area. Downstream areas of Horsethief Creek could be affected by increased sediment that is disturbed by construction activities. We cannot estimate the distance that sediment disturbed by the proposed action would travel downstream; however, because this area supports wetland habitat with slow flowing water, we expect that the sediment would settle from the water column in a fairly short distance.

Habitat Characteristics of the Action Area

The following description of the action area is from the biological assessment (California Department of Transportation 2010) unless otherwise noted. The project site is located where State Route 138 crosses Horsethief Creek at the toe of the north-facing foothills of the desert slope of the San Bernardino Mountains. The topography of the project area varies from generally flat within the creek bed to steep slopes. The steepest slopes are at the southern end of the bridge, on the west side of the roadway. The soils of the project site are sandy to cobbly.

Three plant communities occur within the action area: chamise chaparral, approximately 0.84 acre of the action area, is largely composed of shrubs typically 3 to 6 feet in height and dominated by chamise (*Adenostoma fasciculatum*). Southern cottonwood-willow riparian forest, approximately 0.48 acre of the action area, lines the creek with a tall, well-developed, open, broad-leafed winter-deciduous riparian forest dominated by western cottonwood (*Populus fremontii*) and several species of willow, with an understory of shrubby willows (*Salix* spp.). Ruderal areas, approximately 0.33 acre located along the roadside edges, are dominated by non-native, invasive species including wild oats (*Avena* spp.), foxtail brome (*Bromus madritensis* ssp.), and cheat grass (*B. tectorum*). Approximately 0.24 acre of the action area is developed (i.e., paved road and bridge).

Status of the Arroyo Toad in the Action Area

Biologists from the California Department of Transportation observed eight adult and one juvenile arroyo toad while conducting a survey onsite on April 29, 2009. On May 28, 2009, biologists from the California Department of Transportation, Service, and California Department of Fish and Game observed six adults. All of the arroyo toads were found within or immediately adjacent to the aquatic and riparian habitats located directly beneath the existing bridge. The number of individuals observed during these surveys likely represents only a small portion of how many are actually present due to the cryptic nature of the species and the difficultly in detection within the relatively dense vegetation; smaller individuals are particularly difficult to detect. For the purposes of this biological opinion, we estimate that 30 arroyo toads reside in the project area; we will not estimate the number of individuals that may occur in the portion of the action area to which arroyo toads would be relocated because focused surveys were not conducted in that area.

EFFECTS OF THE ACTION

Several aspects of the proposed action may affect arroyo toads within the action area. These aspects are the capture and relocation of any arroyo toads that may be in the action area and the demolition and construction of the bridge. We will discuss these aspects in the following paragraphs.

Capture and Relocation

Exclusion Fence

Construction of the temporary exclusion fencing and the block netting around the perimeter of the project area has the potential to directly kill or injure arroyo toads through crushing individuals that are within or outside of their burrows. The exclusion fence will be installed prior to the breeding season, when arroyo toads are likely to be in upland habitat away from the creek. Workers could trample on the arroyo toads or burrows, or the hand tools used to dig and secure the fence could injure or kill arroyo toads if individuals are not detected by authorized biologists. Adults, juveniles, or eggs present within the creek could be crushed from worker foot traffic or the placement of the block netting across the water. To minimize these potential effects, authorized biologists will survey for arroyo toads where the fence will be installed and monitoring activities very closely, the fence will be installed using hand tools only, the fence will be installed prior to the breeding season, and authorized biologists will allow a limited number of workers within the project area. Additionally, when in upland habitat, arroyo toads are likely widely dispersed; therefore, encountering them during work activities may be less likely. For these reasons, we anticipate very few arroyo toads will be injured or killed during installation of the temporary exclusion structures. Although we expect that biologists will be able to detect and remove larger arroyo toads, smaller individuals are harder to find and thus may escape detection and be killed by installation of the fence. (Smaller individuals will be more difficult to detect throughout every aspect of the proposed action and thus may be less protected by the

minimization measures proposed by the California Department of Transportation. We will not repeat this information in subsequent sections of this analysis.)

Disturbance generated from installation of the block netting across the creek could modify the existing dynamics of the creek bed and flow, thus, damaging eggs or injuring juveniles or adults that require this specialized habitat. Because this exclusion structure will be installed prior to breeding season, arroyo toads should not be within the creek; however, an authorized biologist will be present, closely monitoring activities and for the presence of arroyo toads. The authorized biologists will also limit the number of workers within the creek during installation. For these reasons, the installation of the block netting across the creek is unlikely to damage eggs or injure any arroyo toads.

For the duration of clearance surveys and project construction, the block netting will remain within the creek. Debris, especially during a rain event, could flow up against the netting and be concentrated enough to prevent the flow of the water through the netting. Water would accumulate upstream and substantially decrease downstream, which would modify the creek enough to adversely affect arroyo toads within the creek and the riparian habitat they depend on for breeding and foraging. If the block netting is breached during project construction, arroyo toads and egg strands upstream will flow into the action area and in harm's way. This effect will be minimized by measures that the California Department of Transportation proposes, including a daily inspection of the exclusion structures. If the fence or netting fails, construction will cease, an authorized biologist will be informed immediately, the fence will be repaired, and construction will not commence until the biologist is confident the area is cleared of arroyo toads. For these reasons, we anticipate very few arroyo toads will be injured or killed from the block netting failing.

Pitfall Traps and Cover Boards

Activities involved in installing and checking the pitfall traps and cover boards could potentially injure or kill arroyo toads. Digging into the ground for bucket placement or preparing an area for the cover boards (i.e., trimming or removing vegetation, moving rocks and debris, etc.) could affect an individual burrowed into the ground or one that is outside of its burrow. Arroyo toads could be injured or killed while inside a bucket (i.e., become dehydrated, drown, or preyed upon by ants or other predators that enter trap) or crushed when underneath a cover board if it was stepped on by a worker.

The California Department of Transportation has proposed several measures to minimize these potential impacts. The moist sand and holes in the bottom of the buckets should reduce mortality of arroyo toads due to dehydration and drowning, respectively. The scape ramps will allow individuals of other species to escape and possibly reduce the likelihood that these individuals would attack any captured arroyo toad. None of these measures would protect arroyo toads from shrews or ants, which would likely attack regardless of their ability to escape the pitfall trap. Only frequent checking of the pitfall trap would be useful in protecting arroyo toads from this source of mortality; the California Department of Transportation has proposed to check the traps daily, in the early morning. Daily checking of the pitfall traps should enable the California

Department of Transportation to detect sources of mortality of arroyo toads that could arise in the pitfall traps before numerous individuals are killed or injured. We reached this conclusion primarily because we do not expect numerous individuals to be captured in any single night; consequently, the California Department of Transportation should be able to address any source of mortality before many arroyo toads are killed or injured. We anticipate few, if any, arroyo toads will be injured or killed from installing, checking, or using the pitfall traps and cover boards.

Clearance Surveys

The potential exists for injury or mortality to arroyo toads by crushing individuals when walking through the upland and riparian habitats during clearance surveys. Because all clearance surveys will be conducted by Service-approved biologists, surveyors will be familiar with the habitat, ecology and identification of the species, and will be aware of what precautions to take when within arroyo toad habitat (i.e., enclosed project site and surrounding suitable habitat).

Handling and Relocating Arroyo Toads

Capturing and handling of arroyo toads to remove them from the proposed project area may cause injury or mortality as a result of improper handling, contamination, or releasing individuals into unsuitable habitat.

Arroyo toads could be injured or killed from improper handling; however, all individuals that would capture and handle arroyo toads will be authorized by the Service. Therefore, these biologists will have the knowledge and experience to handle arroyo toads appropriately. For this reason, we anticipate very few, if any, arroyo toads will be injured or killed from this activity.

Some potential exists that biologists releasing arroyo toads in the relocation area may step or and kill resident individuals in that area. Because the biologists would be spending far less time in this area and would likely be accessing it during the day when most arroyo toads would be under cover, we anticipate that few, if any, arroyo toads are likely to be killed or injured as a result of this activity.

Injury or mortality due to contamination can occur as a result using field equipment (i.e., buckets, nets, boots, etc.) that has not been disinfected prior to entering arroyo toad habitat or handling arroyo toads. Injury can occur when a biologist wearing insecticide or sunscreen makes contact with the animal's skin. This potential will be minimized by the California Department of Transportation ensuring the agency-approved biologists will follow guidelines approved by the Service on how to decontaminate all field equipment and themselves before entering arroyo toad habitat and handling arroyo toads; therefore, we anticipate very few, if any, arroyo toads will be injured or killed from contamination.

Chytrid fungus is a water-borne fungus that can be spread through direct contact between aquatic animals and by a spore that can move short distances through the water. The fungus only attacks the parts of an animal's skin that have keratin (thickened skin), such as the mouthparts of tadpoles and the tougher parts of adults' skin, such as the toes. It can decimate amphibian

populations, causing fungal dermatitis, which usually results in death in 1 to 2 weeks. Infected animals may spread the fungal spores to other ponds and streams before they die. Once a pond has become infected with chytrid fungus, the fungus stays in the water for an undetermined amount of time. Infected equipment could introduce chytrid fungus into areas where it did not previously occur during the relocation of arroyo toads. If this occurs in the action area, many arroyo toads could be affected. We expect aquatic habitats within close proximity to have similar exposure to the pathogen because amphibians could move easily between these areas; therefore, the relocation associated with the proposed action is unlikely to spread chytrid fungus because arroyo toads would be moved only short distances. The threat of the spread of chytrid fungus from infected equipment or clothing would be minimized by the proposed protective measure to limit handling to an agency-approved biologist. Because the California Department of Transportation will ensure that only Service-approved biologists relocate individuals and arroyo toads will be moved a relatively short distance from the project site, we do not anticipate any arroyo toads will be affected by chytrid fungus.

The potential exists that arroyo toads could be relocated into unsuitable habitat that would not provide the essential habitat components needed to survive or breed and could stress the animal; however, the California Department of Transportation and the Service have agreed that the most appropriate place to relocate arroyo toads found onsite would be upstream from the project area, within the California Department of Transportation's right-of-way. Arroyo toads have been found in the habitat upstream from the work area; therefore, this area provides suitable habitat. For this reason, we do not anticipate individuals will be injured or killed by being moved into an unsuitable area.

Vegetation Removal and Restoration

To facilitate the detection of arroyo toads within the fenced action area, manual brush cutting, with hand tools only, will occur prior to the breeding season. Only vegetation less than 4 inches in diameter at breast height will be cut. The potential exist that arroyo toads could be crushed and injured or killed by workers inside the enclosed area while removal is taking place. Authorized biologists will be onsite and surveying for arroyo toads while vegetation trimming and removal is taking place. For this reason, and because it would occur with hand tools only, we anticipate very few, if any, arroyo toads to be killed or injured from vegetation removal.

Activities involved in habitat restoration could harm arroyo toads by workers or equipment crushing individuals. Because restoration activities will begin after construction ceases and prior to removal of the temporary exclusion fence to ensure arroyo toads do not move into the area and into harm's way, injuring or killing arroyo toads is unlikely. After the fence is removed, maintenance activities (i.e., watering, invasive species removal) could potentially injure or kill arroyo toads. Because the California Department of Transportation will ensure an authorized biologist will be onsite, few arroyo toads are likely to be injured or killed.

Some actions proposed by the California Department of Transportation may involve the use of herbicides to control or eliminate non-native plant species in suitable arroyo toad habitat. If the California Department of Transportation uses herbicides, glyphosate (formulated as Rodeo® or

Aquamaster®) is the most likely herbicide to be used. Glyphosate is the active ingredient in a variety of herbicides including Roundup®, Rodeo®, Aquamaster®, Buccaneer®, Glyfos®, Honcho®, Touchdown®, Vision®, Duramax®, Rattler®, and others. Glyphosate is a systemic herbicide that will kill broadleaf and grass species by inhibiting the production of aromatic amino acids in plants and some microorganisms that are necessary to build proteins (Devine et al. 1993). Because many animals lack the synthesis pathway that glyphosate disrupts, it is considered to have low potential to cause toxicity in animals (Devine et al. 1993). Most glyphosate products are formulated to contain surfactants that allow the active ingredients to spread over and penetrate the plant cuticles. Surfactants can be the most toxic portion of a pesticide product. The surfactant associated with many glyphosate products is a polyethoxylated tallowamine (POEA) surfactant.

Arroyo toad egg strands, tadpoles, juveniles and adults may be exposed to glyphosate products and POEA surfactants in aquatic habitats through direct overspray of wetlands, drift from treated areas, or contaminated runoff from treated areas. The half-life of glyphosate in pond water ranges between 12 days and 10 weeks (Extoxnet 1996). Additionally, juvenile and adult arroyo toads can also be exposed to glyphosate in terrestrial habitats that have been treated. Glyphosate and POEA readily bind to soil particles and can be degraded by microbes in 7 to 70 days depending on soil conditions (Giesy et al. 2000). The half-life of glyphosate in soil can range from 3 to 249 days and the POEA surfactant in Roundup® has a soil half-life of less than one week (U.S. Forest Service 1997).

No information is available regarding the toxicity of glyphosate products specifically to arroyo toads. Studies exploring the lethal and sub-lethal effects of glyphosate products on other amphibians or fish, including similar species classified in the same genus as the arroyo toad (*Anaxyrus*) are available but are largely focused on aquatic life stages of the species and formulations of glyphosate that include surfactants. Roundup Original Max®, a glyphosate product with POEA surfactant, was demonstrated to be moderately to highly toxic to nine species of frog and toad tadpoles (Relyea and Jones 2009). Mann and Bidwell (1999) also found evidence of acute toxicity to four Australian frog species exposed to Roundup ®, while the isopropylamine (IPA) salt of glyphosate (the active constituent in Roundup®) was found to be non-toxic. The mortality of tadpoles is hypothesized to be caused by the lysis of gill cells from exposure to surfactants (Lajmanovich et al. 2003, Edington et al. 2004) resulting in either asphyxiation or loss of osmotic stability (Able 1974) indicating that the life stage during which frogs and toads have gills may be particularly vulnerable. Glyphosate products containing POEA surfactants have also been shown to have sub-lethal effects on amphibians including decreased size, increased time to metamorphosis, tail malformations, and gonadal abnormalities (Govindarajulu 2008, Howe et al. 2004).

The California Department of Transportation proposes to submit a habitat restoration plan to the Service for approval and will ensure that measures be included that minimize effects to the arroyo toad generated by herbicide use within the action area, including conducting activities outside of breeding season. For this reason, we anticipate that aquatic life stages will not be

affected. The potential continues to exist that the application of herbicides will affect terrestrial stages of the arroyo toad; these effects may include sublethal impacts that are difficult to detect.

The removal or trimming of riparian or upland vegetation within the action area would result in temporary loss of shelter and foraging habitat. The California Department of Transportation will prepare and implement a habitat restoration plan, including a plant inventory of the site, prior to any removal to ensure the replacement of anything removed (native vegetation) and the quality of the area to the arroyo toad is not diminished. Because the disturbed habitat will be restored and will be a relatively small amount (1.65 acres), we do not anticipate this temporary loss will reduce the animals' ability to find shelter or foraging habitat.

When removing or trimming vegetation, non-native plant species may spread or be introduced into the action area. A change in the plant community (e.g., introduction or spread of giant reed, tamarisk, and pampas grass (*Cortaderia* spp.) can alter the invertebrate population on which arroyo toads prey. If the food that arroyo toads need to survive is displaced, they will eventually die or be forced to move in search of other riparian habitats. The California Department of Transportation proposed to remove invasive species, both plant and animal, from the action area, and monitor for at least 5 years, once construction ceases and the area is restored. For this reason, we anticipate the area to remain good quality habitat for the arroyo toad.

Water Diversion

Project construction would require temporary diversion of the section of Horsethief Creek that flows underneath the bridge and would disturb 0.48 acre of riparian habitat. This activity may result in the disturbance of foraging and breeding habitat for adult and juvenile arroyo toads and temporary loss of shade structure. To ensure this impact is minimized, the California Department of Transportation will install a diversion structure before the breeding season, will minimize the area to be disturbed, will restore any vegetation that is disturbed, and will maintain existing hydrology values both upstream and downstream from the project site. Because the California Department of Transportation will implement these measures, we anticipate the habitat to remain suitable after the project is completed.

The installation of the diversion could result in workers trampling on and injuring or killing arroyo toads or eggs. Installation will take place before the breeding season and an authorized biologist will survey for arroyo toads and monitor all activities, including limiting the number of workers within the creek. For these reasons, we expect few, if any, individuals will be killed or injured from workers within the creek.

Installing a water diversion structure could result in changes to stream morphology and flow characteristics, potentially resulting in increased water velocities that could flush arroyo toads or eggs downstream. In general, diverting the water could temporarily result in increased levels of siltation downstream which could alter the quality of the habitat to the extent that use by individuals of the species is precluded. In this case, however, the area downstream is composed of wetland habitat and is therefore unlikely to support arroyo toads; consequently, downstream sedimentation that may result from the proposed action is unlikely to affect arroyo toads.

Upstream from the diversion, water may pond to the extent that breeding habitat is no longer suitable for arroyo toads; this situation would be exasperated if the diversion structure becomes clogged with debris. If a large pond forms upstream from the diversion structure, it may provide suitable habitat for bullfrogs, which would then prey on arroyo toads.

Predator and prey populations may be altered in the vicinity of the project area as a result of altering channel morphology and flow characteristics both upstream and downstream. The California Department of Transportation will minimize these impacts by installing the device before the breeding season, removing any arroyo toads that may be in the work area, ensuring existing hydrology values remain when the structure is in place, and by monitoring the creek and surrounding habitat during construction and throughout the project. The California Department of Transportation also proposes to implement best management practices to minimize potential water quality impacts during project construction, which includes measures to reduce erosion. For these reasons, we anticipate very few arroyo toads will be injured or killed within the riparian habitat during installation and use of the diversion structure.

Demolition and Construction of Bridge

Direct impacts to the arroyo toad in action area would include injury or mortality from being crushed by earth-moving equipment, construction debris, and worker foot traffic. The California Department of Transportation has proposed several measures to minimize these impacts, including installing a temporary fence around the perimeter of the site and relocating all arroyo toads found within the enclosed area before any construction is allowed to begin. In addition, daily monitoring of the fence and the enclosed area will occur to ensure arroyo toads stay outside of the project site and out of harm's way. All project personnel will be provided with an arroyo toad awareness training to ensure if an animal is found, the monitor onsite will be notified and the correct precautions will be taken. We anticipate these measures will decrease the likelihood of arroyo toads being injured or killed during replacement of the bridge; however, individuals could be missed during clearance surveys or breach the exclusion fence or block netting undetected. Therefore, arroyo toads could be injured or killed from construction equipment or worker foot traffic; however, given all of the proposed measures, we anticipate very few individuals would remain in the work area.

Project-related noise and activity within habitat occupied by arroyo toads could disturb individuals to the extent that foraging and burrowing behavior could be altered. Because arroyo toads within the project site will be removed, we do not anticipate any onsite arroyo toads will be affected; however, arroyo toads in adjacent habitat may be disturbed. We cannot predict how far away from the project-related noise and activity arroyo toads are likely to be affected; thus, we cannot predict the number of arroyo toads that will be affected from this impact.

Accidental spills of hazardous materials or careless fueling or oiling of vehicles or equipment could degrade water quality or upland habitat to the degree arroyo toads are adversely affected or killed. The potential for this impact to occur would be reduced by the best management practices that the California Department of Transportation will implement, ensuring fueling and

storing of equipment and materials away from the creek and ditches that drain into the creek. In addition, the California Department of Transportation will design plans for and notify all personnel of any contaminant and cleanup procedures. Because numerous measures will be implemented to ensure habitat within the project area is kept clear of contaminants and because all of the arroyo toads within the project area will be relocated before construction begins, we anticipate very few arroyo toads will be injured or killed from this activity.

Project personnel associated with the project could travel outside of areas where work is occurring; such activities, particularly with vehicles, could kill or injure arroyo toads and damage their habitat. Flagging of the construction areas may help reduce intrusions. Careless workers could release toxic materials, leave garbage that would attract predators of the arroyo toad, or conduct activities outside of designated areas. The California Department of Transportation has proposed to clear the area of all arroyo toads and enclose the action area with fencing, and limit construction activities within the creek bed. These measures should be effective in reducing direct mortality or injury of arroyo toads and damaging the habitat during bridge replacement.

Summary

The action area comprises a minor portion of the habitat available to the arroyo toad along Horsethief Creek, in the Desert Recovery Unit, and throughout its range. The effects of the proposed action on habitat of the arroyo toad will be temporary. Considering the combination of the small area that would be affected and the temporary nature of the effects, we expect that the potential impacts of the proposed action will not appreciably diminish the reproduction, numbers, or distribution of the arroyo toad.

The proposed action would likely disrupt reproduction in a small section of creek for one year because the project area would be unavailable. However, relocated arroyo toads may continue to breed in the relocation area, although some potential exist that resident arroyo toads may prevent their access to the prime breeding areas. Even if they do not, the work area would again be available for breeding after construction is completed. Consequently, the proposed action would not appreciably diminish the reproduction of the arroyo toad.

We expect very few arroyo toads will be killed or injured by the proposed action because of the protective measures proposed by the California Department of Transportation. The loss of a few individuals would not appreciably diminish the ability of the arroyo toad to survive and recover because the action area and surrounding habitat seem to support a viable population of arroyo toads and the species' breeding strategy (i.e., the production of large numbers of offspring every year) is likely to allow for sufficient recruitment to replace any individuals that may be killed. Consequently, the proposed action is unlikely to appreciably diminish the reproduction of the arroyo toad.

The distribution of the arroyo toad will not be affected by the proposed action. The proposed action would result in the short-term disturbance of a small amount of habitat. We expect arroyo toads to reoccupy the work area shortly after construction is completed.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The action area is entirely within the right-of-way of the California Department of Transportation; consequently, after future action in this area that would be federally funded is not considered cumulative to the proposed action. Additionally, the California Department of Transportation is not considering any future work in the action area. Consequently, we do not anticipate any cumulative effects will occur in this area.

CONCLUSION

After reviewing its current status, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the proposed replacement of the bridge across Horsethief Creek on State Route 138 is not likely to jeopardize the continued existence of the arroyo toad. We reached this conclusion primarily because the proposed action will affect a very limited number of arroyo toads, in part because the California Department of Transportation has proposed numerous measures to avoid, reduce, and minimize the potential adverse effects of the action on the arroyo toad.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the proposed protective measures in the biological assessment and the terms and conditions of this incidental take statement.

The measures described in this incidental take statement are non-discretionary; the California Department of Transportation must undertake these measures or make them binding conditions of any authorization provided to contractors. The California Department of Transportation has a continuing duty to regulate the activities covered by this incidental take statement. If the California Department of Transportation fails to assume and implement the terms and conditions

of the incidental take statement or to make them enforceable terms of its contracts, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the California Department of Transportation must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement (50 Code of Federal Regulations 402.14(i)(3)).

We anticipate that all the arroyo toads within the action area are likely to be taken during replacement of the bridge. As we discussed in the Environmental Baseline – Status of the Arroyo Toad in the Action Area section of this biological opinion, we anticipate that 30 arroyo toads are likely to occur in the action area. Consequently, 30 arroyo toads are likely to be taken.

We anticipate that most arroyo toads are likely to be taken in the form of capture when biologists remove them from the work area. Arroyo toads that are not captured and removed from the work area are likely to be taken in the form of injury or mortality during installation of the exclusion fence, installation and operation of the pitfall traps and cover boards, clearance surveys, vegetation removal and restoration, water diversion, and demolition and construction of the bridge. A small number of arroyo toads in the work area are likely to be taken in the form of injury or mortality when they are handled and relocated; a few arroyo toads in the relocation area are likely to be taken in the form of injury or mortality when biologists access this area.

Because the protective measures proposed by the California Department of Transportation are likely to be effective in reducing the number of arroyo toads that are injured or killed, we cannot quantify (i.e., predict) the amount of these forms of take. Therefore, we will include a threshold for re-initiation of formal consultation for this potential source of take in the terms and conditions of this biological opinion.

The exemption provided by this incidental take statement to the prohibitions against take contained in section 9 of the Act extends only to the action area as described in the Environmental Baseline - Action Area section of this biological opinion; maps of the construction portion of the action area are available in the biological assessment (California Department of Transportation 2010).

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of arroyo toads during the implementation of the bridge replacement project:

1. The California Department of Transportation must ensure that only experienced biologists conduct surveys for and relocate arroyo toads during the implementation of the proposed project.

2. The California Department of Transportation must ensure that the level of incidental take that occurs during implementation of the proposed action is commensurate with the analysis contained in this biological opinion.

3. The California Department of Transportation must ensure that habitat restoration is implemented in a manner that minimizes the incidental take of arroyo toads.

4. The California Department of Transportation must ensure that excessive ponding does not occur upstream from the diversion structure throughout the duration of the project.

5. The California Department of Transportation must ensure that the injury and mortality associated with pitfall traps is minimized.

Our evaluation of the proposed action includes consideration of the protective measures proposed by the California Department of Transportation in its biological assessment and reiterated in the Description of the Proposed Action section of this biological opinion. Consequently, any changes in these protective measures may constitute a modification of the proposed action that causes an effect to the arroyo toad that was not considered in the biological opinion and require re-initiation of consultation, pursuant to the implementing regulations of the section 7(a)(2) of the Act (50 Code of Federal Regulations 402.16). The reasonable and prudent measures and terms and conditions are intended to compliment and clarify the protective measures proposed by the California Department of Transportation.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the California Department of Transportation must comply with the following terms and conditions, which implement the reasonable and prudent measures described in the previous section, and the reporting and monitoring requirements. These conditions are non-discretionary.

1. The following term and condition implements reasonable and prudent measure 1:

   The California Department of Transportation must ensure that only biologists authorized by the Service under the auspices of this biological opinion conduct clearance surveys for and relocate arroyo toads. We request that you provide us with the credentials of authorized biologists who you wish to conduct these duties at least 30 days prior to the time they must be in the field.

2. The following terms and conditions implement reasonable and prudent measure 2:

   a. To ensure that the measures proposed by the California Department of Transportation are effective and are being properly implemented, the California Department of Transportation must contact the Service immediately if it becomes aware that an arroyo toad has been killed or injured by project activities. At that time, the Service and the California Department of Transportation must review the circumstances surrounding the incident to determine whether additional protective measures are required. Project activities may continue pending the outcome of the review, provided that the California

Department of Transportation's proposed protective measures and any appropriate terms and conditions of this biological opinion have been and continue to be fully implemented.

b. If three arroyo toads are killed or injured during implementation of the proposed action, the California Department of Transportation must re-initiate consultation, pursuant to the implementing regulations for section 7(a)(2) of the Endangered Species Act at 50 Code of Federal Regulations 402.16, on the proposed action. Because we do not expect that the handling of arroyo toads is likely to result in injury or mortality, we are not establishing a criterion for re-initiation of formal consultation for this activity.

3. The following terms and conditions implement reasonable and prudent measure 3:

a. The California Department of Transportation must implement specific measures to reduce contact of herbicides with arroyo toads. These measures can include surveying for arroyo toads and removing them from work areas immediately prior to beginning spraying. Herbicides must only be used in areas where the density of weeds renders removal by hand infeasible. If surfactants are required, the California Department of Transportation must use non-ionic chemicals, such as Agri-Dex, which are approved for aquatic use and are the least toxic alternative to aquatic species like the arroyo toad.

b. Restoration activities such as weeding, planting, watering, and any other activities within arroyo toad habitat must be done by hand and under the supervision of the authorized biologist.

4. The following terms and conditions implement reasonable and prudent measure 4:

a. The block netting and the diversion structure must be checked at least once a day to ensure debris is not causing excessive ponding above the diversion structure. If ponding continues to occur as a result of blockage, the California Department of Transportation must increase the frequency of debris removal to prevent any debris build-up.

b. The California Department of Transportation must monitor the diversion structure during, or immediately after, rain events to ensure integrity of the installed structures within the creek.

5. The following terms and conditions implement reasonable and prudent measure 5:

a. If an arroyo toad dies or is injured as a result of being captured in a pitfall trap, the California Department of Transportation must increase the frequency of monitoring to attempt to prevent further similar occurrences, unless the Service agrees that increased frequency of monitoring would not remedy the situation. After the first mortality of injury, pitfall traps must be examined at intervals of no longer than 4 hours; after a second incident, the traps must be examined at 2-hour intervals.

b. The California Department of Transportation must close or remove any traps in which ants become established or for which the cause of injury or mortality cannot be removed through more frequent monitoring.

REPORTING REQUIREMENTS

Within 60 days of completion of the proposed action, the California Department of Transportation must provide a report to the Service that provides details on the effects of the action on the arroyo toad. Specifically, the report must include information on any instances when arroyo toads were killed, injured, or handled; the circumstances of such incidents; and any actions undertaken to prevent similar injuries or mortalities from re-occurring. We recommend that the California Department of Transportation provide us with any recommendations that would facilitate the implementation of the protective measures while maintaining protection of the arroyo toad.

DISPOSITION OF DEAD OR INJURED ARROYO TOADS

Upon locating a dead or injured arroyo toad, initial notification must be made by telephone and writing to the Ventura Fish and Wildlife Office in Ventura, California (2493 Portola Road, Suite B, Ventura, California 93003, (805) 644-1766) within two working days of the finding. The report must include the date, time, location of the carcass, a photograph, cause of death, if known, and any other pertinent information.

Care must be taken in handling dead specimens to preserve biological material in the best possible state for later analysis. Should any injured listed species survive, the Service must be contacted regarding their final disposition.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. We have no conservation recommendations at this time.

RE-INITIATION NOTICE

This concludes formal consultation on the proposed Horsethief Creek Bridge replacement project in San Bernardino County. Re-initiation of formal consultation is required where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) if the amount or extent of taking specified in the incidental take statement is exceeded; (b) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (c) if the identified action is subsequently

modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (d) if a new species is listed or critical habitat designated that may be affected by the identified action (50 Code of Federal Regulations 402.16).

If you have any questions regarding this biological opinion, please contact Danielle Dillard of my staff at (805) 644-1766, extension 315.

Sincerely,

Diane K. Noda
Field Supervisor

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ASBESTOS CONTAINING MATERIALS AND LEAD-BASED PAINT SURVEY REPORT

Horsethief Creek Bridge No. 54-0816
08-SBD-138-PM 24.1

Prepared for:
California Department of Transportation, District 8
Task Order No. 27
Contract No. 08A1542
EA No.: 0J8500

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June 19, 2009

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If you have any questions or comments regarding the information enclosed herein, please contact the undersigned at your convenience.

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LIST OF ACRONYMS

ACM – Asbestos Containing Material
ACCM – Asbestos-Containing Construction Material
AHERA – Asbestos Hazard Emergency Response Act
Cal-DHS – California Department of Health Services
Cal-DOSH – California Division of Occupational Safety and Health
Cal-OSHA – California Division of Occupational Safety and Health Administration
Caltrans – California Department of Transportation, District 8
CCR – California Code of Regulations
CERCLA – Comprehensive Environmental Response, Compensation and Liability Act
CFR – Code of Federal Regulations
DTSC – Department of Toxic Substances Control
ELAP – Environmental Laboratory Accreditation Program
EMC – Environmental Management Consultant
HUD – Department of Housing and Urban Development
LBP – Lead-Based Paint
Mg/kg – Milligrams per Kilogram
Mg/L – Milligrams per Liter
ND – None Detected
NESHAP – National Emission Standard for Hazardous Air Pollutants
NVLAP – National Voluntary Laboratory Accreditation Program
O&M – Operations & Management
PEL – Permissible Exposure Limit
PLM – Polarized Light Microcopy
ppm – parts per million
QA/QC – Quality Assurance/Quality Control
RACM – Regulated Asbestos-Containing Material
RCRA - Resource Conservation and Recovery Act
SCAQMD – South Coast Air Quality Management District
SOP – Standard of Procedure
TCLP – Toxicity Leaching Characteristic Procedure
TSI – Thermal System Insulation
US EPA – United States Environmental Protection Agency

1.0 EXECUTIVE SUMMARY

This document describes the results of an asbestos containing materials (ACM) and lead-based paint (LBP) survey performed at the request of the California Department of Transportation, District 8 (Caltrans), for the Horsethief Creek Bridge located along State Route 138, just west of Silverwood Lake and 0.16 miles south of State Route 173, in the county of San Bernardino, state of California. The ACM/LBP surveys were performed to support Caltrans proposed demolition and reconstruction of the existing Horsethief Creek Bridge.

As part of the ACM survey, all samples were analyzed using Polarized Light Microscopy (PLM) techniques in accordance with methodology approved by the United States Environmental Protection Agency (US EPA). According to the US EPA, ACM is defined as material containing more than one percent asbestos. The lower limit of reliable detection for asbestos using the PLM method is approximately one percent by volume; however, California Division of Occupational Safety and Health Administration (Cal-OSHA) defines ACMs as those materials having an asbestos content greater than one-tenth of one percent (>0.1%).

As part of the LBP survey, samples were analyzed by Environmental Management Consultant's Standard of Procedure (EMC SOP) Method #L01/1, after US EPA SW-846 Method 7420. The US EPA defines Lead-Based Paint as: paint, varnish, shellac, or other coating on surfaces that contains 0.5 percent or more lead by weight.

The following is a description of materials that contain greater than one-percent asbestos (USEPA Regulated Asbestos Containing Materials (RACM), Category 1) that may become friable if disturbed (such as by demolition activities):

Guardrail Post Shims:

Sixty-four guardrail posts were observed on the Horsethief Creek Bridge. Fibrous shims were used beneath selected guardrail posts for leveling purposes. Of the sixty-four guardrail posts, fourteen were observed to have shims. The shims measure approximately 8-inches x 8-inches. One layer of the shims was observed at the base of each guardrail, and one shim was observed on the side of one guardrail. The shims are estimated to be about 1/8 inch in thickness. There is an estimated total area of approximately 6.7 square feet of asbestos containing shim material. The material was observed to be in good condition, but due to its fibrous nature, is considered a friable ACM Material.

Prior to demolition activities, a licensed asbestos abatement firm should be contracted to remove and dispose of identified asbestos containing materials. This work should be completed in accordance with the South Coast Air Quality Management District (SCAQMD) guidelines.

An inspection of the bridge components was conducted to evaluate the location, and condition of painted surfaces and random surfaces suitable for LBP sampling. No surfaces on the bridge structure were observed to be painted. Samples of both yellow and white roadway striping were collected at random locations for lead analysis.

Because representative roadway striping paint chip samples collected and analyzed from the Horsethief Creek Bridge were below 0.5 percent lead by weight (5,000 parts per million (ppm)), no special requirements pertaining to LBP would apply during future demolition or construction/improvements to the bridge. However, if Caltrans intends to strip the paint, the waste may be considered a hazardous waste and additional sampling and analysis are recommended for characterization and disposal. Of the samples collected, only one showed detectable concentrations of lead at 3,460 milligrams per kilogram (mg/kg), which is above the California total threshold concentrations limit of 1,000 mg/kg, it is likely that waste paint chips would qualify as a hazardous waste. If structural components are disposed with paint coating intact it is unlikely that such wastes will qualify as a hazardous waste.

Attempts were made to access all areas of the structures; however, during demolition activities, suspect ACM/LBP materials may be uncovered or discovered in areas that are currently not readily accessible. If found, these materials should be sampled and analyzed prior to disturbance.

2.0 SITE DESCRIPTION AND FORMER REPORT REVIEW

2.1 SITE DESCRIPTION

At the time of the inspection, the Horsethief Creek Bridge was a functional two-lane bridge along State Route 138, just west of Silverwood Lake, and 0.16 miles south of State Route 173, in the county of San Bernardino, state of California.

According to the task order request, the Department of Transportation is proposing to demolish the existing bridge and construct a new bridge.

The Horsethief Creek Bridge is approximately 309 feet in length and 42 feet in width. The bridge is constructed of steel, reinforced concrete with an asphalt covered deck and concrete support columns. Steel safety railings extended approximately 309 feet along both sides of the bridge. Leveling shims were observed on the bridge.

A site specific Health and Safety Plan was prepared and implemented during field sampling activities. Sampling activities occurred on the shoulders of the east and westbound lanes, and no lane closure was required. Delineators and a two-man traffic watch team were utilized for traffic control along the road shoulder of the bridge during field sampling activities.

A photographic log of building components and current Site conditions is provided as Section 7.0.

2.2 FORMER REPORT REVIEW

No former reports were provided for review nor was there any indication of former asbestos or lead-based paint related documents pertaining to the Horsethief Creek Bridge.

3.0 INTRODUCTION

This document describes the results of an ACM and LBP survey performed at the request of Caltrans for the Horsethief Creek Bridge located along Route 138, just west of Silverwood Lake and 0.16 miles south of State Route 173, in the county of San Bernardino, state of California. The ACM/LBP surveys were performed to support Caltrans proposed demolition and reconstruction of the existing Horsethief Creek Bridge.

The objectives of the surveys were to identify, estimate quantities of, and assess the condition/friability of asbestos within the building components, and the content of lead on painted surfaces of the Site structure. These objectives were met by completing the following tasks:

- Perform a visual inspection and destructive sampling for asbestos following criteria outlined in the Asbestos Hazard Emergency Response Act (AHERA) to identify sources of friable and non-friable ACMs.
- Collect bulk samples of suspect asbestos containing materials.
- Collect paint chip samples of painted surfaces.
- Submit bulk samples to a certified laboratory for analysis.
- Compile the findings into a report.
- Ensure the technical quality of all work by using AHERA-accredited Inspectors and Management Planners, Certified Consultants, and a proven Quality Assurance/Quality Control (QA/QC) Program.

The ACM/LBP survey field activities were performed on June 1, 2009, and consisted of a visual inspection and sampling of existing representative building materials to identify potential ACMs and LBP.

Bulk samples of suspect ACMs and LBP were collected using destructive techniques in selected representative locations. The visual inspection, bulk sampling, and survey documentation was performed by Ms. Tammy Lapp. Ms. Lapp is accredited by the California Division of Occupational Safety and Health (Cal-DOSH) as a Certified Asbestos Consultant, No. 91-2969 and by the California Department of Health Services (Cal-DHS) as a Lead Inspector/Assessor and Project Monitor No. 12810. Qualifications are presented in Appendix A.

Attempts were made to access all areas of the structures, however, during demolition activities if any suspect ACM/LBP materials are uncovered that were not previously sampled, representative samples should be collected and analyzed prior to disturbance.

4.0 ASBESTOS SURVEY

4.1 BACKGROUND

Asbestos is a common term for a group of naturally occurring mineral fibers. Due to its durability and insulating quality, it was used in a wide variety of building products including structural fireproofing, pipe and duct insulation, plasters, roofing, floor tile, and vinyl floor sheeting. Adverse health effects have been associated with the inhalation of airborne asbestos fibers by asbestos industry workers. The asbestos fibers that are tightly bound in building materials do not represent an exposure hazard unless disturbed in such a way that releases airborne fibers (i.e., cutting, drilling, or sanding). By June of 1978, the US EPA had effectively banned the use of asbestos in spray application products such as structural fireproofing and acoustic ceilings, pipe-lagging, joint compounds, and spackles. Asbestos is still used in the manufacture of non-friable products such as vinyl floor tile and roofing materials.

4.2 CURRENT REGULATIONS

The following is a summary of current state and federal regulations which contain requirements related to the performance of building surveys for asbestos. These summaries are not intended to be all inclusive and do not contain every aspect of the regulations discussed. Regulations pertaining to the removal and disposal of ACMs are not included.

4.2.1 Environmental Protection Agency National Emission Standard for Hazardous Air Pollutants

Under the National Emission Standard for Hazardous Air Pollutants (NESHAP), regulation 40 CFR Part 61, no visible emissions are allowed during building demolition or renovation activities which involve RACMs. For this reason, all buildings must be surveyed for ACMs prior to demolition or renovation. The US EPA and/or the local air quality management district which implements US EPA actions must be notified prior to any building demolition even if no ACMs are present. RACM is defined as any material with an asbestos content of greater than one percent and is friable, or Category I non-friable ACM that has or will become friable, or Category II friable ACM that may become or will become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation.

According to NESHAP, ACM is material containing more than one percent asbestos as determined using the methods specified in Appendix A, Subpart E, 40 CFR Part 763, Section 1, PLM. The NESHAP classifies ACM as friable or non-friable. Friable ACM is ACM that contains more than one percent asbestos and when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

Non-friable ACM also contains more than one percent asbestos and is further classified as either Category I ACM or Category II ACM. The materials are distinguished by their potential to release fibers when damaged. Category I ACMs are much more likely to release fibers when damaged. Examples of Category I ACM include acoustical ceilings. Category II materials are less likely to release fibers. Examples of Category II ACM include other non-friable ACM; such as transite pipe and transite boards or panels.

In accordance with the US EPA's NESHAP regulation, facilities planned for renovation or demolition must be surveyed for the total amount of RACM, Category I Non-friable Asbestos Containing Materials, and Category II Non-friable Asbestos Containing Materials prior to the planned renovation or demolition.

4.2.2 South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD) is a government agency that regulates sources of air pollution within San Bernardino County to protect public health. The District's regulating and enforcement authority comes from state law and, in certain cases, federal law.

In response to the NESHAP requirements, SCAQMD implemented Rule 1403 that pertains to demolition/renovation activities including the removal and associated disturbance of ACMs. These requirements for demolition and renovation activities include notification, ACM removal procedures, time schedules, ACM handling and cleanup procedures, storage, disposal, and landfill requirements for asbestos-containing waste materials. Rule 1403 is applicable to owners and operators of any demolition or renovation activity and associated disturbance of ACMs. Failure to comply with Rule 1403 requirements could result in violations that carry daily penalties (penalties assessment is based upon the size of the project and severity of noncompliance).

The SCAQMD's Rule 403/Fugitive Dust was created to reduce the amount of particulate matter entrained in the ambient air as a result of man-made fugitive dust sources, such as road construction and grading. Although not specific to asbestos, Rule 403 outlines best available control measures that could apply to the disturbance of asbestos-containing soils.

4.2.3 Asbestos Hazard Emergency Response Act

The Asbestos Hazard Emergency Response Act (AHERA) requires performance of asbestos surveys and the development of Asbestos Management Plans for all of the nation's primary and secondary schools. The general procedures mandated under AHERA are considered the industry standard and are applied to all surveys performed.

4.2.4 California Occupational Safety and Health Administration (Cal-OSHA)

Per Cal-OSHA standards, 1926.1101, Asbestos-Containing Construction Materials (ACCMs) are defined as any material with an asbestos content greater than one-tenth of one percent (>0.1%). Cal-OSHA sets forth work requirements for disturbance of ACCMs including removal operations for all types of ACCMs. The requirements have been classified as Class I, Class II, Class III, or Class IV Asbestos related work. The classes are distinguished by their potential to release fibers. Cal-OSHA prescribes specific engineering controls and work practices for each Class of Asbestos related Work.

- Class I – This Class refers to removal of ACMs identified as Thermal System Insulation (TSI) or surfacing (sprayed-on or troweled-on) materials. These materials are generally considered friable.
- Class II – This Class refers to removal of ACMs identified that are not TSI or surfacing materials. These materials are generally considered non-friable.

- ❑ Class III – This Class refers to repair and maintenance operations of all identified ACMs.
- ❑ Class IV – This Class refers to incidental contact with identified ACMs such as custodial staff.

4.2.5 California Health and Safety Code

The California Health and Safety Code 25915 (former Connelly Bill) requires all building owners in the State of California to provide written notification to employees, tenants, and contractors of the presence and location of ACCMs within their buildings. Some exclusion to the notification rule for restricted access areas is allowed. All documentation related to asbestos surveys (and air monitoring) must be made available to employees, tenants, or contractors for review. ACCMs are defined as any materials with an asbestos content greater than one-tenth of one percent (>0.1%).

The California Health and Safety Code also require that a seller with any knowledge of ACMs on a property disclose such information or knowledge to other parties involved in a real estate transaction.

4.3 ASBESTOS REMOVAL AND BUILDING DEMOLITION/RENOVATION

In accordance with the US EPA's NESHAPs regulation and the SCAQMD, all structures planned for renovation or demolition must be surveyed for ACMs prior to the planned renovation or demolition. Subsequent removal of identified ACMs is also required. Removal involves, to the greatest extent practical, the complete removal, disposal, and replacement, if necessary, of the ACMs. Removal usually also requires encapsulation of the remaining structure to lock down residual fibers which may exist. Removal of ACMs is required prior to renovation and/or demolition activities.

The US EPA and SCAQMD require removal of all RACMs prior to demolition or renovation. RACMs include friable and non-friable (Category I and II) which have or will become friable by demolition or renovation activities.

4.4 ACM SURVEY METHODOLOGY

4.4.1 Visual Inspection

Building materials were visually inspected for asbestos using the methods presented in the Federal AHERA regulations (40 CFR, Part 763) as a guideline. The principles presented under the US EPA Asbestos-Containing Materials in Schools, Final Rule and Notice is generally accepted as the industry standard for ACM inspections. Potential ACMs were also physically assessed for friability, condition, and disturbance factors.

Reasonable efforts were made to locate and sample materials representative of the entire site. However, for any facility the existence of unique or concealed materials or debris is a possibility. It is common practice to collect additional bulk samples during actual abatement or demolition activities when hidden suspect ACMs are discovered.

4.4.2 Bulk Sampling for Asbestos

Bulk samples of all homogeneous materials containing suspect ACMs were collected. A homogeneous material is defined as a surfacing material, thermal system insulation, or miscellaneous material that is uniform in use, color, and texture.

Bulk samples were collected to evaluate if there is any asbestos in representative material. The sample result identifies the percentage of each type of asbestos detected.

AHERA sample criteria guidelines are followed to determine the number of samples collected off each homogeneous area as identified in the table below.

AHERA Sample Criteria	
Type of Material (Homogeneous area)	*AHERA Recommended Number of Samples (per Homogeneous Material)*
Surfacing (sprayed/troweled) ex. acoustical ceilings: Less than 1000 ft^2 1000 – 5000 ft^2 Greater than 5000 ft^2	 Three Five Seven
Thermal System Insulation such as pipe insulation and wrap	Three
Miscellaneous Materials such as (but not limited to) floor tile, drywall, and roofing.	Number of samples is the discretion of the Building Inspector. Typically two to three samples collected.

A sample approximately one-half square inch in size was collected off each suspect ACM. The sample was collected by removing the material using a chisel or other sharp instrument to cut a representative piece away. No attempt was made to replace or repair these materials. However, the removal of small pieces of building materials does not typically compromise structural integrity. A plastic bag was used to contain the sample of suspect material and quickly sealed to prevent the escape of the material or the introduction of contamination from outside sources. A unique sample number was assigned to each sample.

4.4.3 Asbestos Laboratory Testing

EMC Analytical Laboratories of Phoenix, Arizona, analyzed select samples. EMC is accredited under the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program (NVLAP), and the State of Arizona and California Department of Health Services Environmental Laboratory Accreditation Program (ELAP) for the analysis of asbestos in bulk building material samples.

All samples were analyzed using PLM techniques in accordance with methodology approved by the US EPA. According to the US EPA, ACM is defined as material containing more than one percent asbestos. The lower limit of reliable detection for asbestos using the PLM method is approximately one percent by volume; however, Cal-OSHA defines ACMs as those materials having an asbestos content greater than one-tenth of one percent (>0.1%).

When “None Detected” (ND) appears in this report, it should be interpreted as meaning no asbestos was observed in the sample material above the reliable limit of detection for the PLM method which is material dependent and is something less than one percent.

5.0 LEAD-BASED PAINT SURVEY

5.1 BACKGROUND

Lead is a pliable, soft metal that is used in the construction of pipes, rods, and containers. Before 1978, lead was a common ingredient in paint because it added strength, shine and extended the life of the paint. Lead-based paint is recognized as a potential health risk due to the known toxic effects of lead exposure (primarily through ingestion) on the central nervous system, kidneys, and blood stream. Concern for lead-based paint is primarily related to residential structures, which in addition, may apply to commercial structures. The risk of lead toxicity of lead-based paint varies based upon the condition of the paint and the year of its application. The Department of Housing and Urban Development (HUD) has identified the following risk factors, based on the age of the structure:

- The maximum risk is from paint applied before 1950.
- There is severe risk from paint applied before 1960.
- There is moderate risk from deteriorated paint applied before 1970.
- There is a slight risk from paint that is intact but applied before 1977.
- Paint applied in 1977 or later is not expected to contain lead at elevated levels.

5.2 CURRENT REGULATIONS

The following is a summary of current state and federal regulations which contain requirements regarding lead-based paint. These summaries are not intended to be all inclusive and do not contain every aspect of the regulations discussed. Regulations pertaining to the removal and disposal of lead-based paint are not included.

5.2.1 Department of Housing and Urban Development

The *Guidelines for the Evaluation and Control of Lead-based Paint Hazards in Housing,* HUD, 1995 (revised September 1997) *Lead Requirements for Lead-based Paint Activities in Target Housing and Child-Occupied Facilities: Final Rule*, (40 CFR Part 745), US EPA, 29 August 1996, define Lead-Based Paint as: paint, varnish, shellac, or other coating on surfaces that contain 1.0 mg/cm^{2,} 5,000 ppm, or more of lead or 0.5 percent or more lead by weight.

5.2.2 California Occupational Safety and Health Administration

Cal-OSHA governs all construction work where an employee may be occupationally exposed to lead (Construction Lead Standard, CCR Title 8, Section 1432.1). The Cal-OSHA Construction Lead Standard was effective as of November 4, 1993.

The Lead Standard states that work which involves the disturbance of materials containing more than 0.50 percent lead by weight must be conducted in accordance with the standard. In addition, Cal-OSHA regulations (Standards – 29CFR 1926.62 App A) would apply to workers exposed to lead through inhalation. The permissible exposure limit (PEL) set by the standard is 50 micrograms of lead per cubic meter of air, averaged over an 8-hour workday.

As outlined in the Cal-OSHA Construction Lead Standard, construction work (of lead-containing material) includes, but is not limited to the following:

- Demolition or salvage of structures
- Removal or encapsulation
- New construction, alteration, repair or renovation
- Installation of products
- Lead contamination/emergency cleanup
- Transportation, disposal, storage or containment
- Maintenance operations.

Painted surfaces which are in good condition do not require any action. However, if the painted surfaces are disturbed so as the paint delaminates or becomes flaking or peeling, the above Standard applies.

5.2.3 State of California Department of Health Services

California regulation; Title 17, CCR, Division 1, Chapter 8, requires notification to the Cal-DHS when a lead hazard evaluation survey is conducted at a Site. A copy of the Lead Hazard Evaluation Report for the Site is included in Appendix C.

5.2.4 Hazardous Waste Regulations

Waste materials containing lead may be subject to regulations controlling the transportation and disposal of such materials. In California, the Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage and disposal of lead containing wastes that qualify as hazardous waste. Lead containing wastes may be classified as a hazardous waste based on toxicity characteristic by any one of the following Federal (RCRA) or State thresholds (California Code of Regulations, Title 22, Section 66261.24),

- Federal:
  - Toxicity Threshold = 5 mg/L (Toxicity Leaching Characteristic Procedure [TCLP])
- California:
  - Total Threshold Limit Concentration = 1,000 mg/kg
  - Soluble Threshold Limit Concentration = 5 milligrams per liter (mg/L) (California Waste Extraction Test)

In general, bulk demolition wastes do not exhibit sufficient lead concentration to be classified as a hazardous waste based on the above criteria as result of the bulk weight of the waste in comparison to the weight of lead in the painted surface. However, if the paint is stripped, the paint and stripping media may be classified as a hazardous waste and regulations controlling the generation, storage, treatment, transportation and disposal of lead containing hazardous waste will need to be implemented and observed. Additional health and safety requirements and protocols may also be required to prevent exposure and spreading of the waste material.

Where possible, materials containing lead over 50 mg/kg should be disposed of as a bulk waste to avoid the generation of hazardous waste.

5.3 LEAD PAINT REMOVAL REQUIREMENTS

The Cal-OSHA Lead Standard states that work which involves the disturbance of materials containing more than 0.5 percent lead by weight, or if the permissible exposure limit of airborne lead particulate of 50 micrograms per cubic meter of air is exceeded, then the work must be conducted in accordance with the standard. HUD and Cal-OSHA have defined lead-based paint as any paint which contains more than 0.5 percent lead by weight.

LBP noted to be in a good, non-flaky condition that would be removed with the paint intact, would require no special handling of the painted surface prior to renovations or demolition. However, it would be recommended that identified LBP in good condition be encapsulated by a paint film stabilizer prior to renovations or demolition. If the LBP paint would be disturbed and rendered in a flaky condition during renovations or demolition, removal of the paint prior to demolition would be required.

5.4 LBP SURVEY METHODOLOGY

5.4.1 Visual Inspection

Building materials were visually inspected for evidence of blistered or peeling paint. Painted surfaces exhibiting evidence of peeling or blistering were documented in the field notes along with a description of the structural member and approximate area observed to be peeling or blistered.

5.4.2 Bulk Sampling for LBP

Representative bulk samples of paint were collected from the various types of paint and painted surfaces. Where possible, a sample approximately one-half square inch in size was collected from each painted surface. The sample was collected by removing the paint using a chisel or other sharp instrument to cut a representative piece away. No attempt was made to replace or repair these materials. However, the removal of small pieces of building materials does not typically compromise structural integrity.

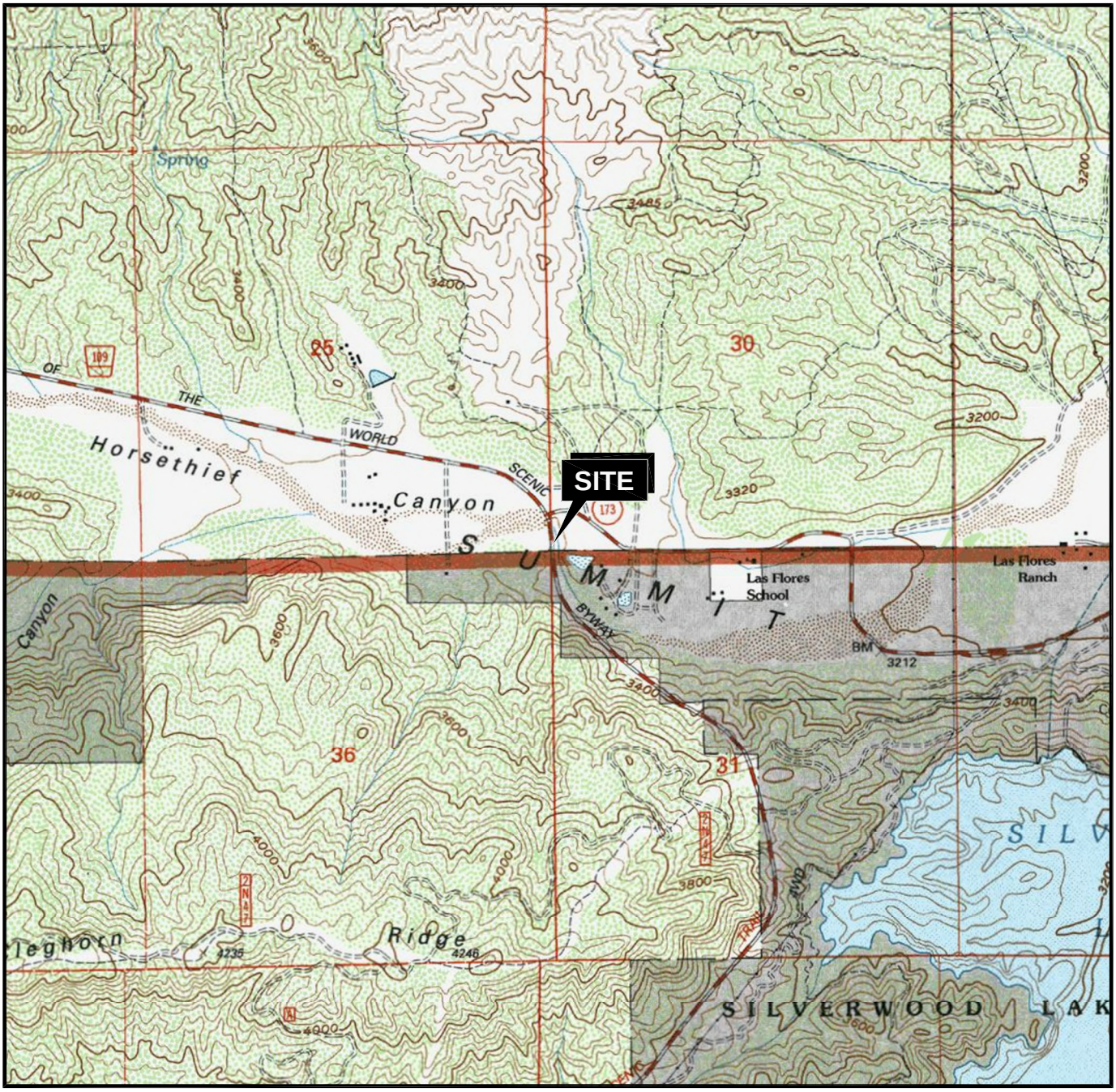
Each sample was placed in a Ziploc® plastic resealable bag and labeled (sample date, unique identifying number, sampler name, and job site), recorded on a chain of custody sheet and securely packaged for delivery to the laboratory. The sample number, location, material type, etc. were also recorded on field logs.

5.4.3 LBP Laboratory Testing

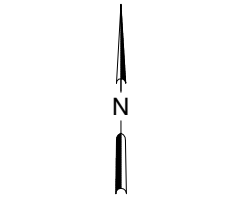
EMC Analytical Laboratories of Phoenix, Arizona, analyzed select samples. EMC is accredited under the National Institute of Standards and Technology's NVLAP, and the State of Arizona and California Department of Health Services ELAP for the analysis of LBP.

Samples were analyzed by EMC SOP Method #L01/1, after US EPA SW-846 Method 7420. US EPA, defines Lead-Based Paint as: paint, varnish, shellac, or other coating on surfaces that contains 0.5 percent or more lead by weight.

6.0 FIGURES



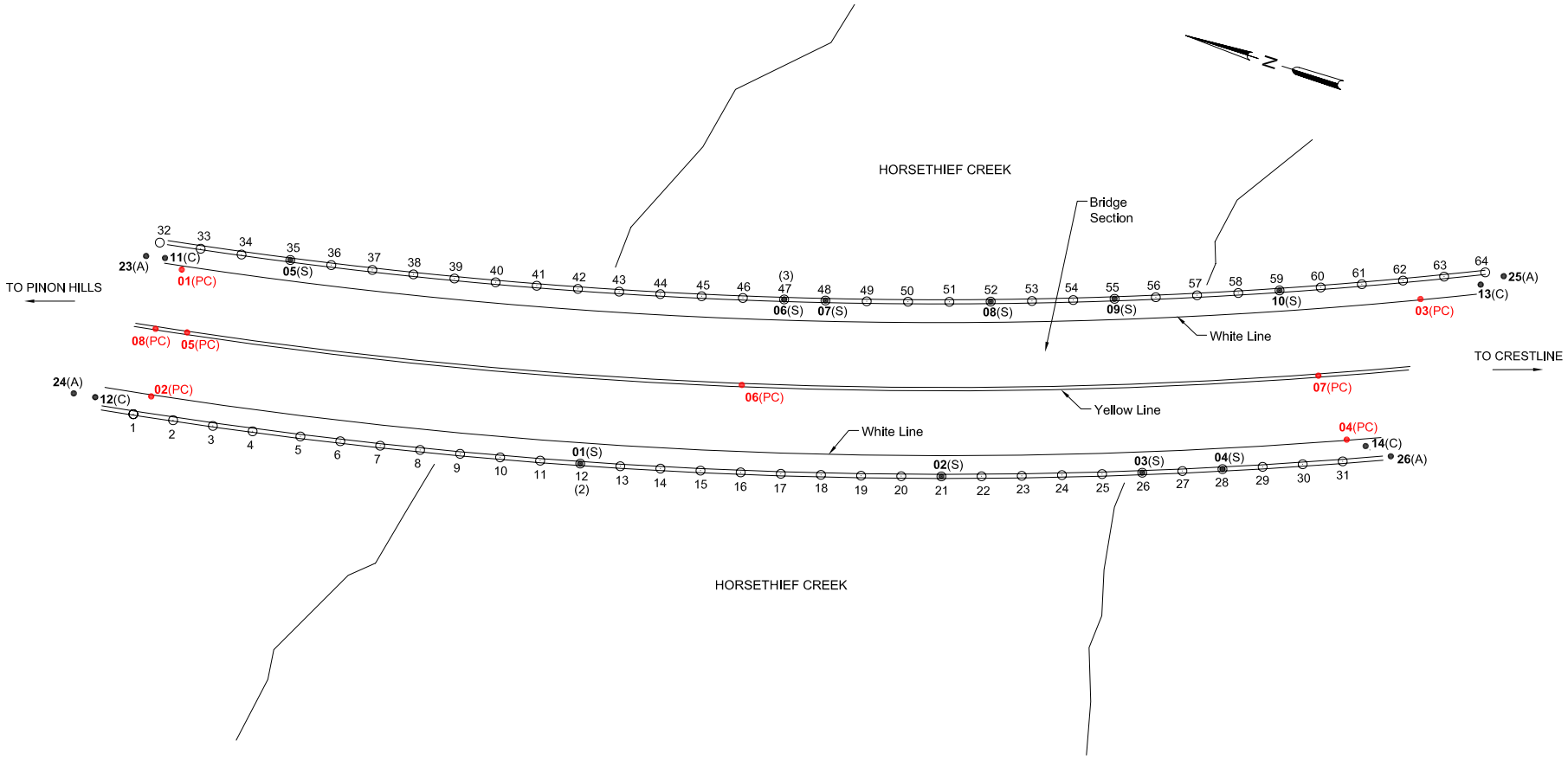
QUADRANGLE LOCATION



APPROXIMATE SCALE IN FEET

Reference:
Terrain Navigator—U.S.G.S., 1996, Silverwood Lake, California Quadrangle. 7.5—Minute Topographic Map.

CALTRANS TASK ORDER NO. 27 ROUTE 138 NEAR HESPERIA, CA HORSETHIEF CREEK BRIDGE #54-0816 IN SAN BERNARDINO COUNTY		SITE LOCATION MAP		FIGURE: 1
JOB NUMBER: 185802029	DRAWN BY: RO	CHECKED BY: DM	APPROVED BY:	DATE: 06/03/09



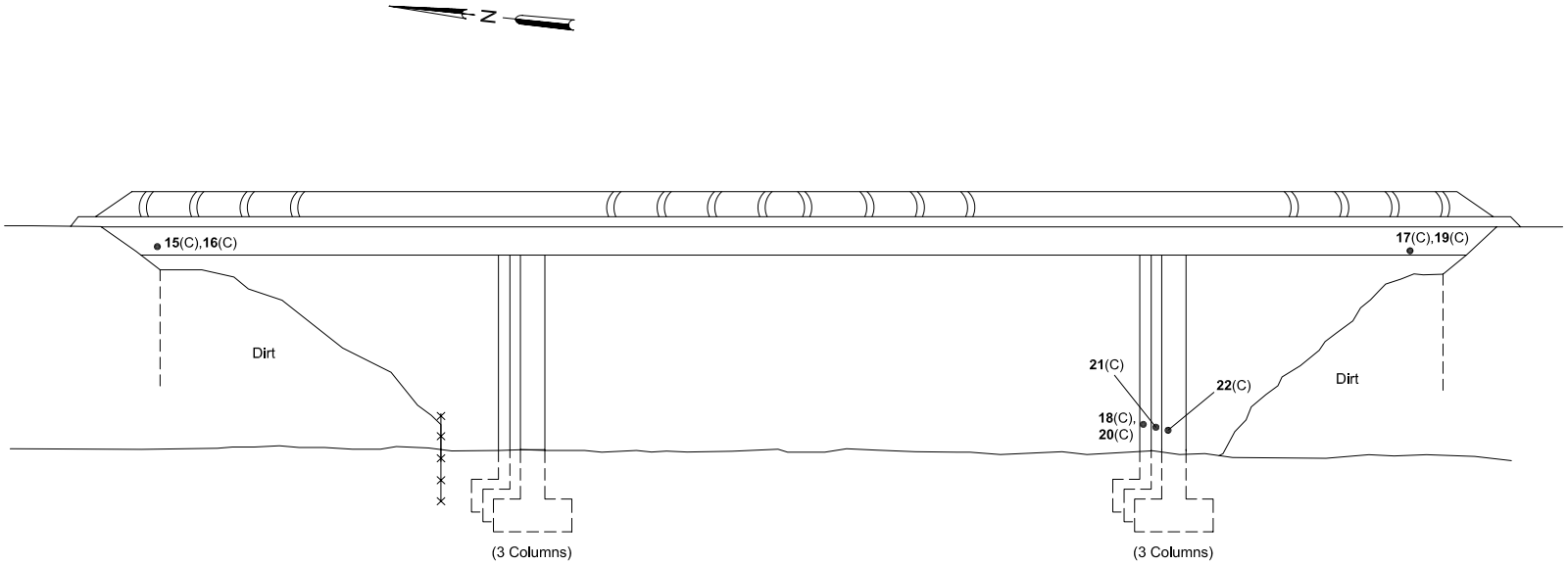
LEGEND:

- • APPROXIMATE SAMPLE LOCATION
- 01(PC) LEAD-BASED PAINT CHIP SAMPLE
- 02 ASBESTOS SAMPLE
  - (A) - ASPHALT
  - (C) - CONCRETE
  - (S) - SHIM

0 40 80

APPROXIMATE SCALE IN FEET

CALTRANS TASK ORDER NO. 27 ROUTE 138 NEAR HESPERIA, CA HORSETHIEF CREEK BRIDGE #54-0816 IN SAN BERNARDINO COUNTY		SAMPLE LOCATION MAP		FIGURE: 2
JOB NUMBER: 185802029	DRAWN BY: RO	CHECKED BY: AP	APPROVED BY:	DATE: 06/03/09



LEGEND:

- GUARDRAIL POSTS
- BARBED WIRE FENCE
- APPROXIMATE SAMPLE LOCATION
- **02** ASBESTOS SAMPLE
  (C) - CONCRETE

NOT TO SCALE

CALTRANS TASK ORDER NO. 27 ROUTE 138 NEAR HESPERIA, CA HORSETHIEF CREEK BRIDGE #54-0816 IN SAN BERNARDINO COUNTY		SAMPLE LOCATION MAP - SECTION VIEW		FIGURE: 3
JOB NUMBER: 185802029	DRAWN BY: RO	CHECKED BY: AP	APPROVED BY:	DATE: 06/03/09

7.0 PHOTOGRAPHIC LOG

PHOTOGRAPHIC LOG FOR:
The Horsethief Creek Bridge No. 54-0816

Photograph No. 1
View of the Horsethief Creek Bridge, facing north.

Photograph No. 2
View of top side of bridge, facing south.

PHOTOGRAPHIC LOG FOR:
The Horsethief Creek Bridge No. 54-0816

Photograph No. 3
View of guardrail and leveling shims (rail post shown has two shims: top and side).

Photograph No. 4
View of guardrail and leveling shim.

PHOTOGRAPHIC LOG FOR:
The Horsethief Creek Bridge No. 54-0816

Photograph No. 5
View of east side of bridge structure.

Photograph No. 6
View bridge deck and concrete column support beneath bridge (north end).

PHOTOGRAPHIC LOG FOR:
The Horsethief Creek Bridge No. 54-0816

Photograph No. 7
View of bridge deck and abutment beneath (north end).

Photograph No. 8
View of bridge deck and column support system (south end).

PHOTOGRAPHIC LOG FOR:
The Horsethief Creek Bridge No. 54-0816

Photograph No. 9
View of yellow and white road striping. Both were tested for lead content.

8.0 ASSESSMENT RESULTS

8.1 ASBESTOS SURVEY

An inspection of the accessible portions of the bridge structure was conducted to evaluate whether suspect ACMs were present. As part of the asbestos survey, representative bulk material samples were collected of suspect ACM containing materials.

Collected building material samples were submitted to EMC Analytical Laboratories. EMC is accredited under the National Institute of Standards and Technology's NVLAP, and the States of Arizona and California Department of Health Services ELAP for the analysis of asbestos in bulk building material samples.

All samples were analyzed using PLM techniques in accordance with methodology approved by the US EPA. According to the US EPA, ACM is defined as material containing more than one percent asbestos. According to Cal-OSHA, ACBM is identified as 0.1 percent asbestos. The lower limit of reliable detection for asbestos using the PLM method is approximately 1 percent by volume. However, the PLM technique can identify Cal-OSHA ACBMs. Although PLM methodology cannot quantify the exact percentage of asbestos detected below 1 percent, if a sample had any quantity of asbestos above 0.1 percent, the laboratory, using PLM techniques, would identify these materials as “Trace” amounts of asbestos (< 1 percent). Only materials containing no fibers are identified as “None Detected”.

As part of the asbestos survey, bulk material samples were collected from representative homogeneous building materials on the structure. The sample locations and laboratory results are provided in the table section (Table 1). The sample locations are shown on the attached Figure 2 in Section 6.0.

The following is a description of materials that contain greater than one-percent asbestos (US Environmental Protection Agency (USEPA), Regulated Asbestos Containing Materials (RACM), Category 1), that may become friable if disturbed (such as demolition activities).

Guardrail Post Shims –Sixty-four guardrail posts were observed on the Horsethief Creek Bridge. Fibrous shims were used beneath selected guardrail posts for leveling purposes. Of the sixty-four guardrail posts, fourteen were observed to have shims. The shims measure approximately 8-inches x 8-inches. One layer of the shims was observed at the base of each guardrail, and one shim was observed on the side of one guardrail. The shims are estimated to be about 1/8 inch in thickness. There is an estimated total area of approximately 6.7 square feet of asbestos containing shim material. The material was observed to be in good condition, but due to its fibrous nature, is considered a friable ACM.

The following materials were sampled and no asbestos was detected. (This list should not be construed as being a complete listing of all building materials observed within the structures.)

- Structural Concrete (Structural and Columns)
- Roadway Asphalt

8.2 ASBESTOS HAZARD ASSESSMENT

The hazard assessment is based upon the physical assessment of ACMs for condition of the material and potential disturbance. The physical assessment usually includes the following considerations:

- Location and amount of material.
- Condition of the material which includes damage; the severity of the damage; the extent of the damage over large areas.
- Whether the material is accessible.
- Potential for future disturbance or future damage (air erosion, vibration, water).

The following table includes identified ACMs at the Site and the hazard ranking for each material.

ACM Hazard Assessment						
Material Description Quantity	***S/T/M****	***Material Location***	***F/NF*****	***Condition Code******	***Accessibility***	***Potential for Disturbance***
Leveling Shims	M	Beneath Guardrail Posts	F	Good (no damage noted)	Low (Located Beneath Guardrails)	Low (Removal, Demolition, Maintenance)

* **S** = Surface Material **T** = Thermal System Insulation **M** = Miscellaneous Material

** **F** = Friable **NF** = Non-Friable

***Good = < 5% Damage **D**amage = 5-25% local or 10% General Damage

Significant **D**amage = 25% local or 10% General Damage

Because the identified ACM materials were observed to be in good condition (no noted damage) and have low potential for disturbance, there appears to be no urgent health hazards that would require immediate action. However, any signs of damage should be immediately reported and the material should be repaired or removed by a licensed asbestos abatement contractor.

8.3 ASBESTOS RECOMMENDATIONS

Any action that disturbs ACMs is subject to Federal, State, and local regulations. "Disturbance" means activities that disrupt the matrix of ACM or presumed ACM (PACM), or generate visible debris from ACM or PACM. Therefore, prior to demolition activities, a licensed asbestos abatement firm be contracted to remove the identified ACM leveling shim materials from the structure. The identified ACMs will require removal in accordance with the USEPA NESHAP and the local South Coast Air Quality Management District (SCAQMD) Rule 1403. The asbestos abatement contractor should comply with Rule 1403 and provide at least a 10-day notification prior to asbestos removal.

Asbestos is not listed as a Resource Conservation and Recovery Act (RCRA) hazardous waste. However, asbestos is listed as a hazardous waste under the Toxic Substances Control Act. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or "Superfund") also includes asbestos in its list. Some wastes are not considered "hazardous", but are regulated. In general, California regulations are more stringent than federal regulations regarding the handling of asbestos. Therefore, the asbestos abatement contractor should dispose of ACMs in accordance with all state and federal applicable laws.

If identified ACM leveling shim materials are to remain in place, it is recommended that an Asbestos O&M Program be prepared and implemented. The primary objective of an O&M Program is to control and minimize the exposure of maintenance workers, subcontractors, and the general public to asbestos fiber releases. This program is also designed to prevent contamination of the environment through proper handling and disposal of asbestos-containing materials. The O&M Program includes specific practices and procedures as they apply to maintenance, renovation, and general operations.

8.4 LEAD-BASED PAINT SURVEY

The Cal-OSHA Lead Standard (the "Standard") states that work which involves the disturbance of materials containing more than 0.5 percent lead by weight, or 5,000 ppm, or if the permissible exposure limit of airborne lead particulate of 50 micrograms per cubic meter of air is exceeded, then the work must be conducted in accordance with the Standard.

An inspection of the bridge components was conducted to evaluate the location, and condition of painted surfaces and random surfaces suitable for lead-based paint sampling. No surfaces on the bridge structure were observed to be painted. Samples of both yellow and white roadway striping were collected at random locations for lead analysis. Table 2 and the attached Figures identify the areas where lead-based paint samples were collected.

Paint chips were removed to the substrate. EMC Analytical Laboratories of Phoenix, Arizona, analyzed the samples. All samples were analyzed by EMC SOP Method #L01/1, after US EPA SW-846 Method 7420.

With the exception of one sample, lead was reported below laboratory reporting limits (<200 mg/kg). Lead was reported in one paint chip sample at a concentration of 3,460 mg/kg. However, none of the representative paint chip samples collected from the Horsethief Creek Bridge exceeded HUD/Cal-OSHA action levels of 0.5 percent lead by weight, or 5,000 ppm.

8.5 LEAD-BASED PAINT RECOMMENDATIONS

Because representative roadway striping paint chip samples collected and analyzed from the Horsethief Creek Bridge were below 0.5 percent lead by weight (5,000 ppm), no special requirements pertaining to lead-based paint apply during future demolition or construction/improvements to the bridge. However, if Caltrans intends to strip the paint, the waste may be considered a hazardous waste and additional sampling and analysis are recommended for characterization and disposal. Of the samples collected, only one showed detectable concentrations of lead at 3,460 mg/kg, which is above the California total threshold concentrations limit of 1,000 mg/kg, it is likely that waste paint chips would qualify as a

hazardous waste. If structural components are disposed with paint coating intact it is unlikely that such wastes will qualify as a hazardous waste.

9.0 CLOSURE

The conclusions and recommendations contained in this report/assessment are based upon professional opinions with regard to the subject matter. These opinions have been arrived at in accordance with currently accepted engineering standards and practices applicable to this location and are subject to the following inherent limitations:

The data and findings presented in this report are valid as of the dates when the investigations were performed. The passage of time, manifestation of latent conditions or occurrence of future events may require further exploration at the site, analysis of the data, and reevaluation of the findings, observations, and conclusions expressed in the report.

The data reported and the findings, observations, and conclusions expressed in the report are limited by the Scope of Work outlined in the Work Plan dated May 22, 2009.

Unless otherwise stated in the report, because of the limitations stated above, the findings observations, and conclusions expressed in this report are not, and should not be, considered an opinion concerning the compliance of any past or present owner or operator of the site with any federal, state or local law or regulation.

No warranty or guarantee, whether express or implied, is made with respect to the data or the reported findings, observations, and conclusions, all of which, however, accurately reflect site conditions in existence at the time of investigation.

This report presents professional opinions and findings of a scientific and technical nature. While attempts were made to relate the data and findings to applicable environmental laws and regulations, the report shall not be construed to offer legal opinion as to the requirements of, nor compliance with, environmental laws, rules, regulations or policies of federal, state or local governmental agencies. Any use constitutes acceptance of the limits of liability. The report preparer's liability extends only to those parties contracted to complete this project and not to any other parties who may obtain the Report. Issues raised by the report should be reviewed by appropriate legal counsel.

This report is based, in part, on unverified information supplied to the report preparer by third-party sources. While efforts have been made to substantiate this third-party information, the report preparer cannot guarantee its completeness or accuracy.

APPENDIX A
QUALIFICATIONS

CERTIFICATIONS
TAMMY H. LAPP

State of California
California Environmental Protection Agency
Department of Toxic Substances Control
REGISTERED ENVIRONMENTAL ASSESSOR I

Issued to: Tammy Lapp REA I 05825

Annual Expires on: 6/30/2010

Signature:

State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Tammy Helen Lapp
Name

Certification No. **01-2969**

Expires on **07/20/09**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code

State of California Department of Public Health

Lead-Related Construction Certificate	Certificate Type	Expiration Date
	Inspector/Assessor	10/12/2009

Tammy H. Lapp

ID #: 12810

Certificate of Completion

Stantec *Consulting Corporation*
is pleased to present this certificate to

Tammy Lapp

Who has successfully completed a course entitled

8-Hour Refresher Course, OSHA HAZWOPER Standard, 29 CFR 1910.120

held at Stantec Consulting Corporation,

Redlands, California on May 07, 2009

Stantec

Philip A. Plaxton, CIH
Director of Industrial Hygiene
And Health & Safety Services

American Heart Association
Learn and Live.

Heartsaver® First Aid

Tammy Lapp

This card certifies that the above individual has successfully completed the objectives and skills evaluations in accordance with the curriculum of the AHA for Heartsaver First Aid Program.
Modules Completed: (A) (B) (C) (D) (E)

November 2007 Issue Date

November 2009 Recommended Renewal Date

Medical Certificate

Tammy Lapp
Name (Please print)

Has been examined and found to be qualified in accordance with OSHA regulations to wear respirator protective equipment. A complete examination form for this person is on file at CONCENTRA, 5080 Spectrum Drive, Suite 1200W • Addison • TX • 75001

12-26-07 Dr. L. Ramphal
Date of examination Name of provider

L. Ramphal MD
Signature of provider

API WorkSafe

Safety Key

Name Tammy Lapp

Company SECOR International, Inc.

Completed 03-Jan-08 06:26

Expires 23-Jan-09

APPENDIX B
ANALYTICAL LABORATORY REPORTS AND CHAIN-OF-CUSTODY RECORDS

EMC LABS, INC.

9830 S. 51st Street, Suite B109, Phoenix, AZ 85044
Phone: 800-362-3373 or 480-940-5294 - Fax: (480) 893-1726

Laboratory Report
0075330

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client:	STANTEC	Job# / P.O. #:	
Address:	25864-F BUSINESS CENTER DRIVE REDLANDS CA 92374	Date Received:	06/02/2009
		Date Analyzed:	06/05/2009
Collected:	06/01/2009	Date Reported:	06/05/2009
Project Name/	CAL TRANS TO 27	EPA Method:	EPA 600/M4-82-020
Address:	HORSE THIEF CREEK BRIDGE	Submitted By:	TAMMY LAPP
		Collected By:	Customer

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type (%)		Non-Asbestos Constituents	
0075330-001 01S	12	Shim, Gray/ Black	Yes	Chrysotile	75%	Gypsum Binder/Filler	25%
0075330-002 02S	21	Shim, Gray/ Black	Yes	Chrysotile	75%	Gypsum Binder/Filler	25%
0075330-003 03S	26	Shim, Gray/ Black	Yes	Chrysotile	75%	Gypsum Binder/Filler	25%
0075330-004 04S	28	Shim, Gray/ Black	Yes	Chrysotile	75%	Gypsum Binder/Filler	25%
0075330-005 05S	35	Shim, Gray/ Black	Yes	Chrysotile	75%	Gypsum Binder/Filler	25%
0075330-006 06S	47	Shim, Gray/ Black	Yes	Chrysotile	65%	Gypsum Binder/Filler	35%
0075330-007 07S	48	Shim, Gray/ Black	Yes	Chrysotile	65%	Gypsum Binder/Filler	35%
0075330-008 08S	52	Shim, Gray/ Black	Yes	Chrysotile	65%	Gypsum Binder/Filler	35%
0075330-009 09S	55 SIDE SHIM	Shim, Gray/ Black	Yes	Chrysotile	75%	Gypsum Binder/Filler	25%
0075330-010 10S	59	Shim, Gray/ Black	Yes	Chrysotile	75%	Gypsum Binder/Filler	25%

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Laboratory Report
0075330

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client:	STANTEC	Job# / P.O. #:	
Address:	25864-F BUSINESS CENTER DRIVE	Date Received:	06/02/2009
	REDLANDS CA 92374	Date Analyzed:	06/05/2009
Collected:	06/01/2009	Date Reported:	06/05/2009
Project Name/	CAL TRANS TO 27	EPA Method:	EPA 600/M4-82-020
Address:	HORSE THIEF CREEK BRIDGE	Submitted By:	TAMMY LAPP
		Collected By:	Customer

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type (%)	Non-Asbestos Constituents	
0075330-011 11C	NE END	Concrete, Gray	No		Gypsum Quartz Carbonates Binder/Filler	100%
0075330-012 12C	NW END	Concrete, Gray	No		Gypsum Quartz Carbonates Binder/Filler	100%
0075330-013 13C	SE END	Concrete, Gray	No		Gypsum Quartz Carbonates Binder/Filler	100%
0075330-014 14C	SW END	Concrete, Gray	No		Gypsum Quartz Carbonates Binder/Filler	100%
0075330-015 15C	BENEATH NE END	Concrete, Gray	No		Gypsum Quartz Carbonates Binder/Filler	100%
0075330-016 16C	BENEATH NW END	Concrete, Gray	No		Gypsum Quartz Carbonates Binder/Filler	100%

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0075330

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Collected:	06/01/2009	Date Reported:	06/05/2009
Project Name/	CAL TRANS TO 27	EPA Method:	EPA 600/M4-82-020
Address:	HORSE THIEF CREEK BRIDGE	Submitted By:	TAMMY LAPP
		Collected By:	Customer

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type (%)	Non-Asbestos Constituents	
0075330-017 17C	BENEATH SE END	Concrete, Gray	No		Gypsum Quartz Carbonates Binder/Filler	 100%
0075330-018 18C	SE COLUMN	Concrete, Gray	No		Gypsum Quartz Carbonates Binder/Filler	 100%
0075330-019 19C	BENEATH SW END	Concrete, Gray	No		Gypsum Quartz Carbonates Binder/Filler	 100%
0075330-020 20C	SE COLUMN	Concrete, Gray	No		Gypsum Quartz Carbonates Binder/Filler	 100%
0075330-021 21C	S-CENTER COLUMN	Concrete, Gray	No		Gypsum Quartz Carbonates Binder/Filler	 100%
0075330-022 22C	SW COLUMN	Concrete, Gray	No		Gypsum Quartz Carbonates Binder/Filler	 100%

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Laboratory Report
0075330

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client:	STANTEC	Job# / P.O. #:	
Address:	25864-F BUSINESS CENTER DRIVE	Date Received:	06/02/2009
	REDLANDS CA 92374	Date Analyzed:	06/05/2009
Collected:	06/01/2009	Date Reported:	06/05/2009
Project Name/	CAL TRANS TO 27	EPA Method:	EPA 600/M4-82-020
Address:	HORSE THIEF CREEK BRIDGE	Submitted By:	TAMMY LAPP
		Collected By:	Customer

Lab ID / Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type (%)	Non-Asbestos Constituents	
0075330-023 / 23A	NE END	Asphalt, Black/Gray	No		Cellulose Fiber	<1%
					Gypsum	
					Quartz	
					Carbonates	
					Binder/Filler	99%
0075330-024 / 24A	NW END	Asphalt, Black/Gray	No			
					Gypsum	
					Quartz	
					Carbonates	
					Binder/Filler	100%
0075330-025 / 25A	SE END	Asphalt, Black/Gray	No			
					Gypsum	
					Quartz	
					Carbonates	
					Binder/Filler	100%
0075330-026 / 26A	SW END	Asphalt, Black/Gray	No			
					Gypsum	
					Quartz	
					Carbonates	
					Binder/Filler	100%

Analyst - Kurt Kettler

Signatory - Lab Director - Kurt Kettler

EMC LABS, INC.

9830 South 51st Street, Suite B-109 / PHOENIX, ARIZONA 85044 / 480-940-5294 or 800-362-3373 / FAX 480-893-1726
emclab@emclabs.com

LEAD (Pb) IN PAINT CHIP SAMPLES
EMC SOP METHOD #L01/1 EPA SW-846 METHOD 7420

EMC LAB #:	L35836	**DATE RECEIVED:**	06/02/09
CLIENT:	Stantec	**REPORT DATE:**	06/05/09
		DATE OF ANALYSIS:	06/05/09
CLIENT ADDRESS:	25864-F Business Center Drive Redland, CA 92374	**P.O. NO.:**	
PROJECT NAME:	Caltrans TO 27 – Horse Thief Creek Bridge	**PROJECT NO.:**	

EMC # L35836-	SAMPLE DATE /09	CLIENT SAMPLE #	DESCRIPTION	REPORTING LIMIT IN PPM	Pb IN PPM	REPORTING LIMIT (%Pb by weight)	%Pb BY WEIGHT
1	06/01	01 PC	PC White NE	100	BRL	0.010	BRL
2	06/01	02 PC	PC White NW	150	BRL	0.015	BRL
3	06/01	03 PC	PC White SE	110	BRL	0.011	BRL
4	06/01	04 PC	PC White SW	100	BRL	0.010	BRL
5	06/01	05 PC	PC Yellow N	100	BRL	0.010	BRL
6	06/01	06 PC	PC Yellow Center	100	BRL	0.010	BRL
7	06/01	07 PC	PC Yellow S	100	3460	0.010	0.346
8	06/01	08 PC	PC Black Center Line N End	210	BRL	0.021	BRL

^ = Dilution Factor Changed * = Excessive Substrate May Bias Sample Results BRL = Below Reportable Limits # = Very Small Amount Of Sample Submitted, May Affect Result

This report applies to the standards or procedures identified and to the samples tested only. The test results are not necessarily indicative or representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products, nor do they represent an ongoing quality assurance program unless so noted. Unless otherwise noted, all quality control analyses for the samples noted above were within acceptable limits.
Where it is noted that a sample with excessive substrate was submitted for laboratory analysis, such analysis may be biased. The lead content of such sample may, in actuality, be greater than reported. EMC makes no warranty, express or implied, as to the accuracy of the analysis of samples noted to have been submitted with excessive substrate. Resampling is recommended in such situations to verify original laboratory results.
These reports are for the exclusive use of the addressed client and are rendered upon the condition that they will not be reproduced wholly or in part for advertising or other purposes over our signature or in connection with our name without special written permission. Samples not destroyed in testing are retained a maximum of sixty (60) days.

ANALYST: Jason Thompson

QA COORDINATOR: Kurt Kettler

Page 1 of 2

CHAIN OF CUSTODY

EMC Laboratories
9830 S. 51ST St., Ste B-109
Phoenix, AZ 85044
(800) 362-3373 Fax (480) 893-1726

LAB#:
TAT:
Rec'd:

COMPANY NAME: STANTEC
25864-F Business Center Drive
Redland, CA 92374
CONTACT: Tammy Lapp
Phone/Fax: (909) 335-6116 x 2249/ (909) 335-6120
Email: tammy.lapp@stantec.com

BILL TO: (If Different Location)

Now Accepting: VISA – MASTERCARD

Price Quoted: $_____ / Sample $____ / Layers

COMPLETE ITEMS 1-4: (Failure to complete any items may cause a delay in processing or analyzing your samples)

1. **TURNAROUND TIME:** [4hr rush} [8hr rush} [1-Day] [2-Day] X [3-Day] [5-Day] [6-10 Day]

****Prior confirmation of turnaround time is required
****Additional charges for rush analysis (please call marketing department for pricing details)
****Laboratory analysis may be subject to delay if credit terms are not met

2. **TYPE OF ANALYSIS:** X [Bulk-PLM] [Air-PCM] [Lead] [Point Count] [Fungi: AOC, W-C, Bulk, Swab, Tape]
3. **DISPOSAL INSTRUCTIONS:** X [Dispose of samples at EMC] / [Return samples to me at my expense]

(If you do not indicate preference, EMC will dispose of samples 60 days from analysis.)

4. **Project Name:** Caltrans TO 27 – Horse Thief Creek Bridge

P.O. Number: _____ **Project Number:** _____

EMC SAMPLE #	CLIENT SAMPLE #	DATE & TIME SAMPLED	LOCATION/MATERIAL TYPE	Samples Accepted Yes / No	AIR SAMPLE INFO / COMMENTS ON	OFF	FLOW RATE
	01 S	06-01-09	Shim – #12	Y N			
	02 S		#21	Y N			
	03 S		#26	Y N			
	04 S		#28	Y N			
	05 S		#35	Y N			
	06 S		#47	Y N			
	07 S		#48	Y N			
	08 S		#52	Y N			
	09 S		#55 Side Shim	Y N			
	10 S		#59	Y N			
	11 C		Concrete – NE END	Y N			
	12 C		NW END	Y N			
	13 C		SE END	Y N			
	14 C		SW END	Y N			
	15 C		Beneath NE END	Y N			

SPECIAL INSTRUCTIONS: _____

Sample Collector: (Print) Tammy Lapp (Signature) T Lapp

Relinquished by: T. Lapp Date/Time: 06-01-09 Received by: _____ Date/Time: _____

Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____

Relinquished by: _____ Date/Time _____ Received by: _____ Date/Time: _____

** In the event of any dispute between the above parties for these services or otherwise, parties agree that jurisdiction and venue will be in Phoenix Arizona and prevailing party will be entitled to attorney's fees and court costs.

Rev. 09/01/08

CHAIN OF CUSTODY

EMC Laboratories
9830 S. 51ST St., Ste B-109
Phoenix, AZ 85044
(800) 362-3373 Fax (480) 893-1726

LAB#:

TAT:

Rec'd:

COMPANY NAME: STANTEC
25864-F Business Center Drive
Redland, CA 92374

CONTACT: Tammy Lapp
Phone/Fax: (909) 335-6116 x 2249/ (909) 335-6120
Email: tammy.lapp@stantec.com

BILL TO: (If Different Location)

Now Accepting: VISA – MASTERCARD

Price Quoted: $_____ / Sample $____ / Layers

COMPLETE ITEMS 1-4: (Failure to complete any items may cause a delay in processing or analyzing your samples)

1. **TURNAROUND TIME:** [4hr rush] [8hr rush] [1-Day] [2-Day] X [3-Day] [5-Day] [6-10 Day]

****Prior confirmation of turnaround time is required
****Additional charges for rush analysis (please call marketing department for pricing details)
****Laboratory analysis may be subject to delay if credit terms are not met

2. **TYPE OF ANALYSIS:** X [Bulk-PLM] [Air-PCM] [Lead] [Point Count] [Fungi: AOC, W-C, Bulk, Swab, Tape]
3. **DISPOSAL INSTRUCTIONS:** X [Dispose of samples at EMC] / [Return samples to me at my expense]

(If you do not indicate preference, EMC will dispose of samples 60 days from analysis.)

4. **Project Name:** Caltrans TO 27

P.O. Number: _____ **Project Number:** _____

EMC SAMPLE #	CLIENT SAMPLE #	DATE & TIME SAMPLED	LOCATION/MATERIAL TYPE	Samples Accepted Yes / No	AIR SAMPLE INFO / COMMENTS ON	OFF	FLOW RATE
	16C	06-01-09	Concrete - Beneath NW end	Y N			
	17C		Beneath SE END	Y N			
	18C		SE COLUMN	Y N			
	19C		Beneath SW end	Y N			
	20C		SE COLUMN	Y N			
	21C		S-Center Column	Y N			
	22C		SW-COLUMN	Y N			
	23A		Asphalt – NE END	Y N			
	24A		NW END	Y N			
	25A		SE END	Y N			
	26A		SW END	Y N			
				Y N			
				Y N			
				Y N			
				Y N			

SPECIAL INSTRUCTIONS: _____

Sample Collector: (Print) Tammy Lapp (Signature) _____

Relinquished by: T. Lapp Date/Time: 06-01-09 Received by: _____ Date/Time: _____

Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____

Relinquished by: _____ Date/Time _____ Received by: _____ Date/Time: _____

** In the event of any dispute between the above parties for these services or otherwise, parties agree that jurisdiction and venue will be in Phoenix, Arizona and prevailing party will be entitled to attorney's fees and court costs.

Page 1 of 1

CHAIN OF CUSTODY

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Rec'd:

COMPANY NAME: STANTEC
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Redland, CA 92374
CONTACT: Tammy Lapp
Phone/Fax: (909) 335-6116 x 2249/ (909) 335-6120
Email: tammy.lapp@stantec.com

BILL TO: (If Different Location)

Now Accepting: VISA – MASTERCARD

Price Quoted: $_____ / Sample $____ / Layers

COMPLETE ITEMS 1-4: (Failure to complete any items may cause a delay in processing or analyzing your samples)

1. TURNAROUND TIME: [4hr rush} [8hr rush} [1-Day] [2-Day] X [3-Day] [5-Day] [6-10 Day]

****Prior confirmation of turnaround time is required**
****Additional charges for rush analysis (please call marketing department for pricing details)**
****Laboratory analysis may be subject to delay if credit terms are not met.**

2. TYPE OF ANALYSIS: [Bulk-PLM] [Air-PCM] X [Lead] [Point Count] [Fungi: AOC, W-C, Bulk, Swab, Tape]

3. DISPOSAL INSTRUCTIONS: X [Dispose of samples at EMC] / [Return samples to me at my expense]
(If you do not indicate preference, EMC will dispose of samples 60 days from analysis.)

4. Project Name: Caltrans TO 27

P.O. Number: _____ **Project Number:** Horse Thief Creek Bridge

EMC SAMPLE #	CLIENT SAMPLE #	DATE & TIME SAMPLED	LOCATION/MATERIAL TYPE	Samples Accepted Yes / No	AIR SAMPLE INFO / COMMENTS ON	OFF	FLOW RATE
	01 PC	06-01-09	PC White NE	Y N			
	02 PC		PC White NW	Y N			
	03 PC		PC white SE	Y N			
	04 PC		PC white SW	Y N			
	05 PC		PC Yellow N	Y N			
	06 PC		PC yellow Center	Y N			
	07 PC		PC yellow S	Y N			
	08 PC		PC Black center line N end	Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			

SPECIAL INSTRUCTIONS: _____

Sample Collector: (Print) Tammy Lapp (Signature) Tammy Lapp

Relinquished by: T. Lapp Date/Time: 06-01-09 3:00pm Received by: _____ Date/Time: _____

Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____

Relinquished by: _____ Date/Time _____ Received by: _____ Date/Time: _____

** In the event of any dispute between the above parties for these services or otherwise, parties agree that jurisdiction and venue will be in Phoenix, Arizona and prevailing party will be entitled to attorney's fees and court costs.

Rev. 09/01/08

APPENDIX C
LEAD HAZARD EVALUATION FORM

State of California - Health and Human Services Agency

California Department of Health Services

LEAD HAZARD EVALUATION REPORT

Section 1-Date of Lead Hazard Evaluation June 1, 2009

Section 2-Type of Lead Hazard Evaluation (Check one box only)

☐ Lead inspection ☐ Risk assessment ☐ Clearance inspection ☑ Other (specify) Pre Demolition Testing

Section 3-Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	ZIP code
Horsethief Creek Bridge, State Rt. 138	Phelan	San Bernardino	92401

Construction date (year) of structure: Circa 1960's

Type of structure (check one box only): ☐ Multi-unit building ☐ Child-occupied facility ☐ Single family dwelling ☑ Other (specify) Yellow Roadway Striping

Section 4-Owner of Structure (if business/agency, list contact person)

Name	Telephone number
Dept. of Transportation/CalTrans District 8	(909) 383-6472

Address [number, street, apartment (if applicable)]	City	State	ZIP code
464 W. Fourth Street, 6th Floor	San Bernardino	CA	92401

Section 5-Results of Lead Hazard Evaluation (Check one box only)

☑ **No lead-based paint detected.**

A lead inspection was conducted following the procedures outlined in Title 17, California Code of Regulations, Division 1 Chapter 8. No lead-based paint was detected during this lead inspection. This structure is found to be lead-based paint free.

☐ **No lead hazards detected**

Lead hazard evaluation was conducted following the procedures outlined in Title 17, California Code of Regulations Division 1, Chapter 8. No lead hazards were detected.

☐ **Lead-based paint and/or lead hazards detected.**

Lead hazard evaluation was conducted following the procedures outlined in Title 17, California Code of Regulations Division 1, Chapter 8. Lead-based paint and/or lead hazards were detected.

Section 6-Individual Conducting Lead Hazard Evaluation

Name	Telephone Number
MS. Tammy Lapp for Stantec Consulting Inc.	(909) 335-6116

Address [number, street, apartment (if applicable)]	City	State	ZIP code
25864-F Business Center Drive	Redlands	CA	92374

Brand name and serial number of any portable x-ray fluorescence (XRF) instrument used (if applicable)
N/A

DHS certification number	Signature	Date
01-12810	X Tammy Lapp	June 15, 2009

Section 7-Attachments

A. A foundation diagram or sketch of the structure indicating the specific locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

Childhood Lead Poisoning Prevention Branch
Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

DHS 8552 (12/97)

TABLES

TABLE 1

Asbestos Sample Log and Analysis Results

Horsethief Creek Bridge No. 54-0816

SAMPLE NUMBER	SAMPLE LOCATION	MATERIAL DESCRIPTION	ANALYSIS RESULTS	CONDITION FRIABLE YES/NO	IF ACM, ESTIMATED SQUARE FOOTAGE	HAZARD RATING
01S	Shim #12	Leveling Shim	75% Chrysotile	Good/ Friable	6.7 sq. ft.	Low
02S	Shim #21	Leveling Shim	75% Chrysotile	Good/ Not Friable		
03S	Shim #26	Leveling Shim	75% Chrysotile	Good/ Not Friable		
04S	Shim #28	Leveling Shim	75% Chrysotile	Good/ Not Friable		
05S	Shim #35	Leveling Shim	75% Chrysotile	Good/ Not Friable		
06S	Shim #47	Leveling Shim	65% Chrysotile	Good/ Not Friable		
07S	Shim #48	Leveling Shim	65% Chrysotile	Good/ Not Friable		
08S	Shim #52	Leveling Shim	65% Chrysotile	Good/ Not Friable		
09S	Shim #52 Side Shim	Leveling Shim	75% Chrysotile	Good/ Not Friable		
10S	Shim #59	Leveling Shim	75% Chrysotile	Good/ Not Friable		
11C	NE End	Concrete	ND	Good/ Not Friable	-------	-------
12C	NW End	Concrete	ND	Good/ Not Friable	-------	-------
13C	SE End	Concrete	ND	Good/ Not Friable	-------	-------
14C	SW End	Concrete	ND	Good/ Not Friable	-------	-------
15C	NE End Beneath	Concrete	ND	Good/ Not Friable	-------	-------
16C	NW End Beneath	Concrete	ND	Good/ Not Friable	-------	-------
17C	SE End Beneath	Concrete	ND	Good/ Not Friable	-------	-------
18C	SE End Beneath	Concrete Column	ND	Good/ Not Friable	-------	-------
19C	SW End Beneath	Concrete	ND	Good/ Not Friable	-------	-------
20C	SE End Beneath	Concrete Column	ND	Good/ Not Friable	-------	-------
21C	South, Center Beneath	Concrete Column	ND	Good/ Not Friable	-------	-------

TABLE 1 (Continued)
Asbestos Sample Log and Analysis Results

SAMPLE NUMBER	SAMPLE LOCATION	MATERIAL DESCRIPTION	ANALYSIS RESULTS	CONDITION FRIABLE YES/NO	IF ACM, ESTIMATED SQUARE FOOTAGE	HAZARD RATING
22C	SW Center Beneath	Concrete Column	ND	Good/ Not Friable	-------	-------
23A	NE End	Asphalt	ND	Good/ Not Friable	-------	-------
24A	NW End	Asphalt	ND	Good/ Not Friable	-------	-------
25A	SE End	Asphalt	ND	Good/ Not Friable	-------	-------
26A	SW End	Asphalt	ND	Good/ Not Friable	-------	-------

ND = No asbestos detected.
Analytical documentation is in Appendix B. Asbestos sample locations are depicted on the attached Figure.
Bulk sample analyses completed by polarized light microscopy (PLM)

TABLE 2

Lead-Based Paint Sample Log and Analysis Results

Horsethief Creek Bridge No. 54-0816

SAMPLE NUMBER	SAMPLE LOCATION	MG Pb/KG	% Pb/BY WEIGHT
01PC	Roadway Stripe White, NE Side	100	0.010
02PC	Roadway Stripe White, NW Side	150	0.015
03PC	Roadway Stripe White, SE Side	110	0.011
04PC	Roadway Stripe White, SW Side	100	0.010
05PC	Roadway Stripe Yellow, North End	100	0.010
06PC	Roadway Stripe Yellow, Center	100	0.010
07PC	Roadway Stripe Yellow, South End	3460	0.346
08PC	Roadway Stripe Black, Center Line, South End	210	0.021

Mg/Kg = Milligrams per Kilogram
Pb = Lead
Analytical documentation is in Appendix B. Paint Chip sample locations are depicted on the attached Figure.
Sample analyses completed by EMC SOP Method #L01/1, US EPA SW-846 Method 7420