

INFORMATION HANDOUT

WATER QUALITY

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION**

**PERMIT NO.: WDID 5A32CR00070
WATER QUALITY ORDER NO.: 2003-0017 DWQ**

PERMITS

**UNITED STATES ARMY CORPS OF ENGINEERS
IDENTIFICATION NO.: SPK-2007-00379**

**U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
SPECIAL USE PERMIT**

AUTHORIZATION ID: MOU0104

AGREEMENTS

**CALIFORNIA DEPARTMENT OF FISH AND GAME
NOTIFICATION NO. 1600-2009-0059-R2**

MATERIALS INFORMATION

FOUNDATION REPORT (BRIGDE NO. 09-0077) (SEPTEMBER 17, 2009)

**FINAL REPORT (HYDROLOGY & HYDRAULICS) FOR SPANISH CREEK BRIDGE
REPLACEMENT (OCTOBER 18, 2005)**

SPANISH CREEK SHOTCRETE WALL – GRAPHICS PACKAGE (OCTOBER 20, 2009)

**CONCEPTUAL DESIGN OF TEMPORARY STREAM CROSSING AND WORK
PLATFORM**

**SAND-BLAST WASTE SITE INVESTIGATION REPORT (OCTOBER 2005) & ASBESTOS
AND LEAD-CONTAINING PAINT SURVEY REPORT**

OPTIONAL DISPOSAL SITE

ROUTE: 02-PLU-70-KP 56.5/57.2

Permit / Certification

(401: Water Quality Certification for Discharge of Dredged and / or fill Materials for the Spanish Creek Bridge Replacement Project, WDID No. 5A32CR00070, Quincy Plumas County and Water Quality Order No. 2003-0017 DWQ)



California Regional Water Quality Control Board

Central Valley Region

Karl E. Longley, ScD, P.E., Chair.



Linda S. Adams
Secretary for
Environmental Protection

415 Knollcrest Drive, Suite 100, Redding, California 96002
(530) 224-4845 • Fax (530) 224-4857
<http://www.waterboards.ca.gov/centralvalley>

Arnold Schwarzenegger
Governor

10 August 2009

Mr. Eric Orr
California Department of Transportation, District 2
PO Box 496073
Redding, CA 96049-6073

ACTION ON REQUEST FOR CLEAN WATER ACT §401 WATER QUALITY CERTIFICATION FOR DISCHARGE OF DREDGED AND/OR FILL MATERIALS FOR THE SPANISH CREEK BRIDGE REPLACEMENT PROJECT, WDID NO. 5A32CR00070, QUINCY, PLUMAS COUNTY

ACTION:

1. Order for Standard Certification
2. Order for Technically-conditioned Certification
3. Order for Denial of Certification

WATER QUALITY CERTIFICATION STANDARD CONDITIONS:

1. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to §13330 of the California Water Code and §3867 of Title 23 of the California Code of Regulations (23 CCR).
2. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 CCR subsection 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 shall be conditioned upon total payment of the full fee required under 23 CCR §3833, unless otherwise stated in writing by the certifying agency.
4. Certification is valid for the duration of the described project. The Discharger shall notify the Regional Water Board in writing within 7 days of project completion.



ADDITIONAL CONDITIONS (for Certification Action 2):

In addition to the four standard conditions, the applicant shall satisfy the following:

1. Discharger shall notify the Central Valley Regional Water Quality Control Board (Regional Water Board) in writing of the start of any in-water activities.
2. Except for activities permitted by the U.S. Army Corps of Engineers (Corps) under §404 of the Clean Water Act, soil, silt, or other organic materials shall not be placed where such materials could pass into surface water or surface water drainage courses.
3. The discharge of petroleum products or other excavated materials to surface waters is prohibited.
4. Activities shall not cause turbidity increases in surface waters to exceed:
 - a. Where natural turbidity is less than 1 Nephelometric Turbidity Units (NTUs), controllable factors shall not cause downstream turbidity to exceed 2 NTUs;
 - b. where natural turbidity is between 1 and 5 NTUs, increases shall not exceed 1 NTU;
 - c. where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent;
 - d. where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs;
 - e. where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.

Except that these limits will be eased during in-water working periods to allow a turbidity increase of 15 NTU over background turbidity as measured in surface waters 300 feet downstream from the working area. In determining compliance with the above limits, appropriate averaging periods may be applied provided that beneficial uses will be fully protected.

5. Activities shall not cause settleable matter to exceed 0.1 mL/l in surface waters as measured in surface waters 300 feet downstream from the project work.
6. Activities shall not cause visible oil, grease, or foam in the work area or downstream.
7. All areas disturbed by project activities shall be protected from washout or erosion.
8. In the event that project activities result in the deposition of soil materials or creation of a visible plume in surface waters, the following monitoring shall be conducted immediately upstream and 300 feet downstream of the work site and the results reported to this office within two weeks:

Parameter	Unit	Type of Sample	Frequency of Sample
Turbidity	NTU	Grab	Every 4 hours during in water work
Settleable Material	mL/l	Grab	Same as above.

9. Discharger shall notify the Regional Water Board immediately if the above criteria for turbidity, settleable matter, oil/grease, or foam are exceeded.
10. Discharger shall ensure all equipment has been inspected and is free of leaks (fuel, hydraulic and oil) before use in channel areas.
11. Discharger shall notify the Regional Water Board immediately of any spill of petroleum products or other organic or earthen materials.
12. In the event of any violation or threatened violation of the conditions of this certification, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under state law. For purposes §401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process 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 certification.
13. In response to a suspected violation of any condition of this certification, the Regional Water Board may require the holder of any permit or license subject to this certification to furnish, under penalty of perjury, any technical or monitoring reports the Regional Water Board deems appropriate, provided that the burden, including costs, of the reports shall be a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.
14. In response to any violation of the conditions of this certification, the Regional Water Board may add to or modify the conditions of this certification as appropriate to ensure compliance.
15. Discharger complies with all Department of Fish and Game 1600 requirements for the project as required in Lake & Streambed Alteration Agreement No. 1600-2009-0059-R2. Discharger shall comply with all requirements of Corps §404 permit reference No. SPK-2007-00379.
16. The California Department of Transportation shall comply with their General NPDES Permit Order No 99-06-DWQ (NPDES No. CAS 000003) issued by the State Water Resources Control Board.

REGIONAL WATER BOARD CONTACT PERSON:

Scott A. Zaitz, R.E.H.S., Redding Branch Office, 415 Knollcrest Drive, Suite 100, Redding, California 96002, (530) 224-4784, szaitz@waterboards.ca.gov

WATER QUALITY CERTIFICATION:

I hereby issue an order certifying that any discharge from the Spanish Creek Bridge Replacement Project (WDID No. 5A32CR00070) will comply with the applicable provisions of §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") of the Clean Water Act. This discharge is also regulated under State Water Resources Control Board Water Quality Order No. 2003-0017 DWQ "Statewide General Waste Discharge Requirements For Dredged Or Fill Discharges that have received State Water Quality Certification (General WDRs)".

Except insofar as may be modified by any preceding conditions, all certification 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 attached Project Information Sheet, and (b) compliance with all applicable requirements of the Regional Water Board, Water Quality Control Plan (Basin Plan).



(for) PAMELA C. CREEDON
Executive Officer

SAZ: clg/knr

Enclosure: Project Information

cc: Mr. Matt Kelley, U.S. Army Corp of Engineers, Redding
U.S. Fish and Wildlife Service, Sacramento
Department of Fish and Game, Region 2, Rancho Cordova
Mr. Bill Jennings, CALSPA, Stockton

cc by email: Mr. Dave Smith, U.S. EPA, Region 9, San Francisco
Mr. Bill Orme, SWRCB, Certification Unit, Sacramento

PROJECT INFORMATION

Application Date: 24 March 2009

Applicant: Eric Orr, California Department of Transportation, District 2

Applicant Representatives: Not Applicable

Project Name: Spanish Creek Bridge Replacement Project

Regional Board: Central Valley Regional Water Quality Control Board-Redding Office

Regional Board Application Number: WDID No. 5A32CR00070

U.S. Corps Application Number: Nationwide Permit No. 33 (Temporary Construction, Access, and Dewatering)

Type of Project: Replace existing 1932 SR 70 Bridge 09-00151 Spanish Creek Bridge. Construction is to start in March 2010 and end December 2013.

Project Location: State Route 70, Spanish Creek Bridge (Bridge No. 09-00151), 7.3 miles north of Quincy, Section 15, Township 25N, Range 9E, M.D.B.&M., Latitude: 40°01'33"N and Longitude: 120°57'44"W

County: Plumas County

Receiving Water (hydrologic unit): Spanish Creek, which is tributary to the North Fork of the Feather River. Feather River Hydrologic Unit-Quincy Hydrologic Area No. 518.52

Water Body Type: unvegetated streambed

Designated Beneficial Uses: The Basin Plan for the Central Valley Regional Water Quality Control Board has designated beneficial uses for surface and ground waters within the region. Beneficial uses that could be impacted by the project include: Municipal and Domestic Water Supply (MUN); Hydropower Generation (POW); Water Contact Recreation (REC-1); Non-contact Water Recreation (REC-2); Cold Freshwater Habitat (COLD); Spawning, Reproduction, and /or Early Development (SPWN); and Wildlife Habitat (WILD).

Project Description (purpose/goal): The proposed project entails construction of a new concrete arch bridge immediately west of the existing bridge. A short segment of State Route 70 north and south of the bridge will be realigned to match the new bridge alignment. The foundations of the new bridge will be located above the base floodplain elevation of Spanish Creek. Temporary stream crossing structures and work platforms will be used. The piers of the existing bridge are located above the banks of Spanish Creek. Construction within the stream channel is scheduled to begin in spring 2010 and end during fall 2012.

Preliminary Water Quality Concerns: Turbidity, suspended matter, settleable matter, and various pollutants associated with construction activities.

Proposed Mitigation to Address Concerns: Discharger will implement Best Management Practices (BMPs) to control sedimentation and erosion. All disturbed areas must have an effective combination of erosion and sediment control BMP's in place during the rainy season. All temporary affected areas will be restored to pre-construction contours and conditions upon completion of construction activities. Discharger will conduct turbidity and settleable matter testing during water work, stopping work if Basin Plan criteria are exceeded and/or observed.

Fill/Excavation Area: The Project will temporarily impact 0.16 acres (304 linear feet) of unvegetated streambed.

Dredge Volume: Not applicable

U.S. Army Corps of Engineers Permit Number: The applicant proposes to utilize Nationwide Permit No. 33 (Temporary Construction, Access, and Dewatering) for this project. The applicant must comply with all of the conditions of the U.S. Army Corps of Engineers Permit reference No. SPK-2007-00379.

Regional Water Board Public Notice: Information regarding this project was noticed on the Central Valley Water Board's website from 27 March 2009 to 17 April 2009. No comments were received.

Department of Fish & Game Streambed Alteration Agreement: Discharger applied for a Streambed Alteration Agreement with the Department of Fish and Game on 17 March 2009. The applicant must comply with all conditions in Lake or Streambed Alteration Agreement No. 1600-2009-0059-R2.

Possible Listed Species: Not applicable

Status of CEQA Compliance: California Department of Transportation signed a Notice of Exemption on 30 December 2008 approving a Categorical Exception pursuant to Class 1 or General Rule Exemption stating the project will not have a significant effect on the environment. (SCH No 2004092030)

Compensatory Mitigation: The applicant must comply with the U.S. Army Corps of Engineers' requirements for compensatory mitigation for the impacts to jurisdictional waters. The applicant proposes to mitigate for impacts by replanting all riparian plants in a 1:1 ratio.

Application Fee Provided: A certification fee of \$640.00 was submitted on 24 March 2009 as required by 23 CCR §3833b(2)(A) and by 23 CCR § 2200(e). A remaining certification fee of \$1,946.00 was received on 15 May 2009.

STATE WATER RESOURCES CONTROL BOARD

WATER QUALITY ORDER NO. 2003 - 0017 - DWQ

STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR DREDGED OR FILL DISCHARGES THAT HAVE RECEIVED STATE WATER QUALITY CERTIFICATION (GENERAL WDRs)

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

1. Discharges eligible for coverage under these General WDRs are discharges of dredged or fill material that have received State Water Quality Certification (Certification) pursuant to federal Clean Water Act (CWA) section 401.
2. Discharges of dredged or fill material are commonly associated with port development, stream channelization, utility crossing land development, transportation water resource, and flood control projects. Other activities, such as land clearing, may also involve discharges of dredged or fill materials (e.g., soil) into waters of the United States.
3. CWA section 404 establishes a permit program under which the U.S. Army Corps of Engineers (ACOE) regulates the discharge of dredged or fill material into waters of the United States.
4. CWA section 401 requires every applicant for a federal permit or license for an activity that may result in a discharge of pollutants to a water of the United States (including permits under section 404) to obtain Certification that the proposed activity will comply with State water quality standards. In California, Certifications are issued by the Regional Water Quality Control Boards (RWQCB) or for multi-Region discharges, the SWRCB, in accordance with the requirements of California Code of Regulations (CCR) section 3830 et seq. The SWRCB's water quality regulations do not authorize the SWRCB or RWQCBs to waive certification, and therefore, these General WDRs do not apply to any discharge authorized by federal license or permit that was issued based on a determination by the issuing agency that certification has been waived. Certifications are issued by the RWQCB or SWRCB before the ACOE may issue CWA section 404 permits. Any conditions set forth in a Certification become conditions of the federal permit or license if and when it is ultimately issued.
5. Article 4, of Chapter 4 of Division 7 of the California Water Code (CWC), commencing with section 13260(a), requires that any person discharging or proposing to discharge waste, other than to a community sewer system, that could affect the quality of the waters of the State,¹ file a report of waste discharge (ROWD). Pursuant to Article 4, the RWQCBs are required to prescribe waste discharge requirements (WDRs) for any proposed or existing discharge unless WDRs are waived pursuant to CWC section 13269. These General WDRs fulfill the requirements of Article 4 for proposed dredge or fill discharges to waters of the United States that are regulated under the State's CWA section 401 authority.

¹ "Waters of the State" as defined in CWC Section 13050(e)

6. These General WDRs require compliance with all conditions of Certification orders to ensure that water quality standards are met.
7. The U.S. Supreme Court decision of *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159 (2001) (the SWANCC decision) called into question the extent to which certain “isolated” waters are subject to federal jurisdiction. The SWRCB believes that a Certification is a valid and enforceable order of the SWRCB or RWQCBs irrespective of whether the water body in question is subsequently determined not to be federally jurisdictional. Nonetheless, it is the intent of the SWRCB that all Certification conditions be incorporated into these General WDRs and enforceable hereunder even if the federal permit is subsequently deemed invalid because the water is not deemed subject to federal jurisdiction.
8. The beneficial uses for the waters of the State include, but are not limited to, domestic and municipal supply, agricultural and industrial supply, power generation, recreation, aesthetic enjoyment, navigation, and preservation and enhancement of fish, wildlife, and other aquatic resources.
9. Projects covered by these General WDRs shall be assessed a fee pursuant to Title 23, CCR section 3833.
10. These General WDRs are exempt from the California Environmental Quality Act (CEQA) because (a) they are not a “project” within the meaning of CEQA, since a “project” results in a direct or indirect physical change in the environment (Title 14, CCR section 15378); and (b) the term “project” does not mean each separate governmental approval (Title 14, CCR section 15378(c)). These WDRs do not authorize any specific project. They recognize that dredge and fill discharges that need a federal license or permit must be regulated under CWA section 401 Certification, pursuant to CWA section 401 and Title 23, CCR section 3855, et seq. Certification and issuance of waste discharge requirements are overlapping regulatory processes, which are both administered by the SWRCB and RWQCBs. Each project subject to Certification requires independent compliance with CEQA and is regulated through the Certification process in the context of its specific characteristics. Any effects on the environment will therefore be as a result of the certification process, not from these General WDRs. (Title 14, CCR section 15061(b)(3)).
11. Potential dischargers and other known interested parties have been notified of the intent to adopt these General WDRs by public hearing notice.
12. All comments pertaining to the proposed discharges have been heard and considered at the November 4, 2003 SWRCB Workshop Session.
13. The RWQCBs retain discretion to impose individual or general WDRs or waivers of WDRs in lieu of these General WDRs whenever they deem it appropriate. Furthermore, these General WDRs are not intended to supersede any existing WDRs or waivers of WDRs issued by a RWQCB.

IT IS HEREBY ORDERED that WDRs are issued to all persons proposing to discharge dredged or fill material to waters of the United States where such discharge is also subject to the water quality certification requirements of CWA section 401 of the federal Clean Water Act (Title 33 United States Code section 1341), and such certification has been issued by the applicable RWQCB or the SWRCB, unless the applicable RWQCB notifies the applicant that its discharge will be regulated through WDRs or waivers of WDRs issued by the RWQCB. In order to meet the provisions contained in Division 7 of CWC and regulations adopted thereunder, dischargers shall comply with the following:

1. Dischargers shall implement all the terms and conditions of the applicable CWA section 401 Certification issued for the discharge. This provision shall apply irrespective of whether the federal license or permit for which the Certification was obtained is subsequently deemed invalid because the water body subject to the discharge has been deemed outside of federal jurisdiction.
2. Dischargers are prohibited from discharging dredged or fill material to waters of the United States without first obtaining Certification from the applicable RWQCB or SWRCB.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on November 19, 2003.

AYE: Arthur G. Baggett, Jr.
Peter S. Silva
Richard Katz
Gary M. Carlton
Nancy H. Sutley

NO: None.

ABSENT: None.

ABSTAIN: None.


Debbie Irvin
Clerk to the Board

Permit / Certification

(404: U.S. Army Corps of Engineer Permit 33 and permit project-specific Special Conditions file No. SPK-2007-00379)



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

RECEIVED
JUL 01 2009
CALTRANS
DISTRICT 2 OFFICE

June 22, 2009

Regulatory Division (SPK-2007-00379)

Mr. Chris Quiney
P.O. Box 496073
Redding, California 96049-6073

Dear Mr. Quiney:

We are responding to your April 17, 2009 request for a Department of the Army permit for the Spanish Creek Bridge Replacement project. This approximately 47-acre project involves activities, including discharges of dredged or fill material, in waters of the United States to construct a new bridge to replace the Spanish Creek Bridge. The site is located on or near Spanish Creek in Section 22, Township 25 North, Range 9 East, MDB&M Survey, Plumas County, California.

Based on the information you provided, the proposed activity in approximately 0.287-acre of waters of the United States is authorized by Nationwide Permit Number 33. However, until Section 401 Water Quality Certification for the activity has been issued or waived, our authorization is denied without prejudice. Once you have provided us evidence of water quality certification, the activity is authorized and the work may proceed subject to the conditions of certification and the Nationwide Permit 33. Your work must comply with the general terms and conditions listed on the enclosed Nationwide Permit 33 information sheets and the following special conditions:

1. To mitigate for the temporary loss of 0.29-acres of waters of the U.S. and their associated riparian areas, you shall restore 0.29-acres of waters of the U.S., including associated riparian areas, back to their pre-existing condition. Upon completion of construction, you shall return the disturbed areas back to their pre-construction elevation and grade. The temporarily affected areas shall be revegetated according to the document entitled *Spanish Creek Bridge Replacement Project, Revegetation and Monitoring Plan*, dated March 2009.
2. To insure riparian restoration compliance, the document entitled *Spanish Creek Bridge Replacement Project, Revegetation and Monitoring Plan*, dated March 2009, is incorporated by reference as a condition of this authorization except as modified by the following special conditions:
3. Upon completion of restoration activities, you shall submit numbered and dated post-restoration photographs of the affected water features to adequately determine that the temporarily impacted areas have been restored to their pre-existing condition.

4. Your responsibility to complete the required compensatory mitigation as set forth in Special Condition 1 will not be considered fulfilled until you have demonstrated mitigation success and have received written verification from the U.S. Army Corps of Engineers.

5. You shall design and construct all crossings of waters of the United States to retain a natural substrate and to accommodate all reasonably foreseeable wildlife passage, and expected high flows.

6. To prevent unauthorized fills and unforeseen impacts, you shall, prior to proceeding with any activity otherwise authorized by this permit, install fencing and appropriate signage surrounding the avoided waters of the U.S. and other Environmentally Sensitive Areas (ESA's) within the project area. All fencing surrounding avoidance areas shall allow unrestricted visibility of these areas to discourage vandalism, destruction or disturbance. An example of fencing includes chain link or similar type.

7. You shall employ Best Management Practices (BMP's) to avoid and minimize environmental impacts. Heavy equipment shall be required to operate on mats in the wet meadows. Temporary fills must be removed in their entirety and the affected areas returned to pre-existing conditions and elevations.

8. All equipment staging, including Temporary Construction Areas (TCA's), shall take place within Caltrans approved areas within the project boundary. Prior to construction implementation, you shall ensure all equipment staging, TCA's, demolition and excavation, off pavement detours, borrow and fill areas, and upland disposal areas have been evaluated under National Environmental Policy Act (NEPA), Section 401 and 404 of the Clean Water Act, Section 7 of the Endangered Species Act and Section 106 of the National Historical Preservation Act and all required permits have been obtained.

9. We understand the Federal Highway Administration is the lead federal agency for this project, and as such, will ensure the work complies with the National Environmental Policy Act, the Endangered Species Act, the National Historical Preservation Act and any other applicable federal laws. This authorization is contingent upon the permittee implementing all actions necessary to comply with these requirements.

10. You must allow representatives from the Corps of Engineers to inspect the authorized activity, staging areas, sediment disposal areas and any mitigation, avoidance or preservation areas at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

This verification is valid for two years from the date of this letter or until the Nationwide Permit is modified, reissued, or revoked, whichever comes first. Failure to comply with the General

Conditions of this Nationwide Permit, or the project-specific Special Conditions of this authorization, may result in the suspension or revocation of your authorization.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website at: <http://per2.nwp.usace.army.mil/survey.html>.

Please refer to identification number SPK-2007-00379 in any correspondence concerning this project. If you have any questions, please contact Ms. Leah Fisher at our California North Branch Office, 1325 J Street, Room 1480, Sacramento, California 95814-2922 email leah.m.fisher@usace.army.mil, or telephone 916-557-6639. You may also use our website: www.spk.usace.army.mil/regulatory.html.

Sincerely,



Nancy A. Haley
Chief, California North Branch

Enclosures

Copy Furnished without enclosures:

Mr. Keith Pelfrey, Department of Transportation, District 2, North Region Environmental Management R1, 1657 Riverside Drive, Redding, California 96001

Ms. Sandy Morey, California Department of Fish and Game, 1701 Nimbus Road, Rancho Cordova, California, 95670-4503

Mr. Bill Orme, Chief, Water Quality Certification Unit, State Water Resources Control Board, 1001 I Street, Sacramento California 95814-2828

Ms. Eva Begley, California Department of Transportation, Environmental Planning/Resources Liaison, North Region, 2800 Gateway Oaks Drive, Suite 100, MS #19, Sacramento, California 95833-4246

Mr. Ken Sanchez, Forest-Foothill Branch, 2800 Cottage Way, W-2605, Sacramento, California 95825

COMPLIANCE CERTIFICATION

Permit File Number: SPK-2007-00379

Nationwide Permit Number: 33

Permittee: Chris Quiney
P.O. Box 496073
Redding, California 96049-6073

County: Plumas

Date of Verification: June 22, 2009

Within 30 days after completion of the activity authorized by this permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers
Regulatory Division
1325 J Street Room 1480
Sacramento, California 95814-2922

FAX : 916-557-6877

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with the terms and conditions of the permit your authorization may be suspended, modified, or revoked. If you have any questions about this certification, please contact the Corps of Engineers.

* * * * *

I hereby certify that the work authorized by the above-referenced permit, including all the required mitigation, was completed in accordance with the terms and conditions of the permit verification.

Signature of Permittee

Date



U S Army Corps of
Engineers
Sacramento District

Nationwide Permit Summary

33 CFR Part 330; Issuance of Nationwide Permits - March 19, 2007 includes corrections of May 8, 2007 and addition of regional conditions December 2007

33. Temporary Construction, Access, and Dewatering..

Temporary structures, work, and discharges, including cofferdams, necessary for construction activities or access fills or dewatering of construction sites, provided that the associated primary activity is authorized by the Corps of Engineers or the U.S. Coast Guard. This NWP also authorizes temporary structures, work, and discharges, including cofferdams, necessary for construction activities not otherwise subject to the Corps or U.S. Coast Guard permit requirements. Appropriate measures must be taken to maintain near normal downstream flows and to minimize flooding. Fill must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. The use of dredged material may be allowed if the district engineer determines that it will not cause more than minimal adverse effects on aquatic resources. Following completion of construction, temporary fill must be entirely removed to upland areas, dredged material must be returned to its original location, and the affected areas must be restored to pre-construction elevations. The affected areas must also be revegetated, as appropriate. This permit does not authorize the use of cofferdams to dewater wetlands or other aquatic areas to change their use. Structures left in place after construction is completed require a section 10 permit if located in navigable waters of the United States. (See 33 CFR part 322.)

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 27). The pre-construction notification must include a restoration plan showing how all temporary fills and structures will be removed and the area restored to pre-project conditions. (Sections 10 and 404)

A. Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as appropriate, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP.

1. Navigation.

- (a) No activity may cause more than a minimal adverse effect on navigation.
- (b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

3 Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety.

15. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

16. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

17. Endangered Species.

(a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

(c) Non-federal permittees shall notify the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until

notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have “no effect” on listed species or critical habitat, or until Section 7 consultation has been completed.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the U.S. FWS or the NMFS, both lethal and non-lethal “takes” of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide Web pages at <http://www.fws.gov/> and <http://www.noaa.gov/fisheries.html> respectively.

18. Historic Properties.

(a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic

properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, explaining the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

19. Designated Critical Resource Waters. Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, state natural heritage sites, and outstanding national resource waters or other waters

officially designated by a state as having particular environmental or ecological significance and identified by the district engineer after notice and opportunity for public comment. The district engineer may also designate additional critical resource waters after notice and opportunity for comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWP 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, and 50 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWP 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 27, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

20 Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10 acre and require pre-construction notification, unless the district engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement. For wetland losses of 1/10 acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream restoration, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2 acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2 acre of waters of

the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

21. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

22. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

23. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been

added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

24. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

25. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

(Transferee)

(Date)

26. Compliance Certification. Each permittee who received an NWP verification from the Corps must submit a signed certification regarding the completed work and any required mitigation. The certification form must be forwarded by the Corps with the NWP verification letter and will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general or specific conditions;

(b) A statement that any required mitigation was completed in accordance with the permit conditions; and

(c) The signature of the permittee certifying the completion of the work and mitigation.

27. Pre-Construction Notification.

(a) **Timing.** Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, as a general rule, will request

additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) Forty-five calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 17 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 18 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) is completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee cannot begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will

be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided result in a quicker decision.);

(4) The PCN must include a delineation of special aquatic sites and other waters of the United States on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters of the United States, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, where appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10 acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination:

(1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with

the terms and conditions of the NWP and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP 48 activities requiring pre-construction notification and for other NWP activities requiring pre-construction notification to the district engineer that result in the loss of greater than 1/2-acre of waters of the United States, the district engineer will immediately provide (e.g., via facsimile transmission, overnight mail, or other expeditious manner) a copy of the PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps multiple copies of pre-construction notifications to expedite agency coordination.

(5) For NWP 48 activities that require reporting, the district engineer will provide a copy of each report within 10 calendar days of receipt to the appropriate regional office of the NMFS.

(e) In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If the proposed activity requires a PCN and will result in a loss of greater than 1/10 acre of wetlands, the prospective permittee should submit a mitigation proposal with the

PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any conditions the district engineer deems necessary. The district engineer must approve any compensatory mitigation proposal before the permittee commences work. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP.

If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (1) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (3) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period. The authorization will include the necessary conceptual or specific mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan.

(a) **28. Single and Complete Project.** The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

B. Regional Conditions:

I. Sacramento District (All States, except Colorado)

1. When pre-construction notification (PCN) is required, the prospective permittee shall notify the Sacramento District in accordance with General Condition 27 using either the South Pacific Division Preconstruction Notification (PCN) Checklist or

a completed application form (ENG Form 4345). In addition, the PCN shall include:

- a. A written statement explaining how the activity has been designed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States;
 - b. Drawings, including plan and cross-section views, clearly depicting the location, size and dimensions of the proposed activity. The drawings shall contain a title block, legend and scale, amount (in cubic yards) and size (in acreage) of fill in Corps jurisdiction, including both permanent and temporary fills/structures. The ordinary high water mark or, if tidal waters, the high tide line should be shown (in feet), based on National Geodetic Vertical Datum (NGVD) or other appropriate referenced elevation; and
 - c. Pre-project color photographs of the project site taken from designated locations documented on the plan drawing.
2. The permittee shall complete compensatory mitigation required by special conditions of the NWP verification before or concurrent with construction of the authorized activity, except when specifically determined to be impracticable by the Sacramento District. When project mitigation involves use of a mitigation bank or in-lieu fee program, payment shall be made before commencing construction.
 3. The permittee shall record the NWP verification with the Registrar of Deeds or other appropriate official charged with the responsibility for maintaining records of title to or interest in real property against areas (1) designated to be preserved as part of mitigation for authorized impacts, including any associated covenants or restrictions, or (2) where structures such as boat ramps or docks, marinas, piers, and permanently moored vessels will be constructed in or adjacent to navigable waters (Section 10 and Section 404). The recordation shall also include a map showing the surveyed location of the authorized structure and any associated areas preserved to minimize or compensate for project impacts.
 4. The permittee shall place wetlands, other aquatic areas, and any vegetative buffers preserved as part of mitigation for impacts into a separate "preserve" parcel prior to discharging dredged or fill material into waters of the United States, except where specifically determined to be impracticable by the Sacramento District. Permanent legal protection shall be established for all preserve parcels, following Sacramento District approval of the legal instrument.
 5. The permittee shall allow Corps representatives to inspect the authorized activity and any mitigation areas at any time deemed necessary to determine compliance with the terms and conditions of the NWP verification. The permittee will be notified in advance of an inspection.
 6. For NWPs 29, 39, 40, 42, 43, 44, and 46, requests to waive the 300 linear foot limitation for intermittent or ephemeral waters of the U.S. shall include an evaluation of functions and services provided by the waterbody taking into account the watershed, measures to be implemented to avoid and minimize impacts, other measures to avoid and minimize that were found to be impracticable, and a mitigation plan for offsetting impacts.
 7. Road crossings shall be designed to ensure fish passage, especially for anadromous fisheries. Permittees shall employ bridge designs that span the stream or river, utilize pier or pile supported structures, or involve large bottomless culverts with a natural streambed, where the substrate and streamflow conditions approximate existing channel conditions. Approach fills in waters of the United States below the ordinary high water mark are not authorized under the NWPs, except where avoidance has specifically been determined to be impracticable by the Sacramento District.
 8. For NWP 12, clay blocks, bentonite, or other suitable material shall be used to seal the trench to prevent the utility line from draining waters of the United States, including wetlands.
 9. For NWP 13, bank stabilization shall include the use of vegetation or other biotechnical design to the maximum extent practicable. Activities involving hard-armoring of the bank toe or slope requires submission of a PCN per General Condition 27.
 10. For NWP 23, the PCN shall include a copy of the signed Categorical Exclusion document and final agency determinations regarding compliance with Section 7 of the Endangered Species Act, Essential Fish Habitat under the Magnusson-Stevens Act, and Section 106 of the National Historic Preservation Act.
 11. For NWP 44, the discharge shall not cause the loss of more than 300 linear feet of streambed. For intermittent and ephemeral streams, the 300 linear foot limit may be waived in writing by the Sacramento District. This NWP does not authorize discharges in waters of the United States supporting anadromous fisheries.
 12. For NWPs 29 and 39, channelization or relocation of intermittent or perennial drainage, is not authorized, except when, as determined by the Sacramento District, the relocation would result in a net increase in functions of the aquatic ecosystem within the watershed.
 13. For NWP 33, temporary fills for construction access in waters of the United States supporting fisheries shall be accomplished with clean, washed spawning quality gravels where practicable as determined by the Sacramento District, in consultation with appropriate federal and state wildlife agencies.
 14. For NWP 46, the discharge shall not cause the loss of greater than 0.5 acres of waters of the United States or the loss of more than 300 linear feet of ditch, unless this 300 foot linear foot limit is waived in writing by the Sacramento District.
 15. For NWPs 29, 39, 40, 42, and 43, upland vegetated buffers shall be established and maintained in perpetuity, to the maximum extent practicable, next to all preserved open waters, streams and wetlands including created, restored, enhanced or preserved waters of the U.S., consistent with General Condition 20. Except in unusual circumstances, vegetated buffers shall be at least 50 feet in width.
 16. All NWPs except 3, 6, 20, 27, 32, 38, and 47, are revoked for activities in histosols and fens and in wetlands contiguous with fens. Fens are defined as slope wetlands with a histic epipedon that are hydrologically supported by groundwater. Fens are normally saturated throughout the growing season,

although they may not be during drought conditions. For NWP 3, 6, 20, 27, 32, and 38, prospective permittees shall submit a PCN to the Sacramento District in accordance with General Condition 27.

17. For all NWPs, when activities are proposed within 100 feet of the point of groundwater discharge of a natural spring, prospective permittees shall submit a PCN to the Sacramento District in accordance with General Condition 27. A spring source is defined as any location where ground water emanates from a point in the ground. For purposes of this condition, springs do not include seeps or other discharges which lack a defined channel.

II. California Only

1. In the Lake Tahoe Basin, all NWPs are revoked. Activities in this area shall be authorized under Regional General Permit 16 or through an individual permit.
2. In the Primary and Secondary Zones of the Legal Delta, NWPs 29 and 39 are revoked. New development activities in the Legal Delta will be reviewed through the Corps' standard permit process.

III. Nevada Only

1. In the Lake Tahoe Basin, all NWPs are revoked. Activities in this area shall be authorized under Regional General Permit 16 or through an individual permit.

IV. Utah Only

1. For all NWPs, except NWP 47, prospective permittees shall submit a PCN in accordance with General Condition 27 for any activity, in waters of the United States, below 4217 feet mean sea level (msl) adjacent to the Great Salt Lake and below 4500 feet msl adjacent to Utah Lake.
2. A PCN is required for all bank stabilization activities in a perennial stream that would affect more than 100 linear feet of stream
3. For NWP 27, facilities for controlling stormwater runoff, construction of water parks such as kayak courses, and use of grout or concrete to construct in-stream structures are not authorized. A PCN is required for all projects exceeding 1500 linear feet as measured on the stream thalweg, using in stream structures exceeding 50 cubic yards per structure and/or incorporating grade control structures exceeding 1 foot vertical drop. For any stream restoration project, the post project stream sinuosity shall be appropriate to the geomorphology of the surrounding area and shall be equal to, or greater than, pre project sinuosity. Sinuosity is defined as the ratio of stream length to project reach length. Structures shall allow the passage of aquatic organisms, recreational water craft or other navigational activities unless specifically waived in writing by the District Engineer.

V. Colorado Only

1. Final Regional Conditions Applicable to Specific Nationwide Permits within Colorado.
 - a. Nationwide Permit Nos. 12 and 14, Utility Line Activities and Linear Transportation Projects. In the Colorado River Basin, utility line and road activities crossing perennial water or special aquatic sites require

notification to the District Engineer in accordance with General Condition 27 (Pre-Construction Notification).

b. Nationwide Permit No. 13 Bank Stabilization. In Colorado, bank stabilization activities necessary for erosion prevention in streams that average less than 20 feet in width (measured between the ordinary high water marks) are limited to the placement of no more than 1/4 cubic yard of suitable fill* material per running foot below the plane of the ordinary high water mark. Activities greater than 1/4 cubic yard may be authorized if the permittee notifies the District Engineer in accordance with General Condition 27 (Pre-Construction Notification) and the Corps determines the adverse environmental effects are minimal. [* See (g) for definition of Suitable Fill]

c. Nationwide Permit No. 27 Aquatic Habitat Restoration, Establishment, and Enhancement Activities.

(1) For activities that include a fishery enhancement component, the Corps will send the Pre-Construction Notification to the Colorado Division of Wildlife (CDOW) for review. In accordance with General Condition 27 (Pre-Construction Notification), CDOW will have 10 days from the receipt of Corps notification to indicate that they will be commenting on the proposed project. CDOW will then have an additional 15 days after the initial 10-day period to provide those comments. If CDOW raises concerns, the applicant may either modify their plan, in coordination with CDOW, or apply for a standard individual permit.

(2) For activities involving the length of a stream, the post-project stream sinuosity will not be significantly reduced, unless it is demonstrated that the reduction in sinuosity is consistent with the natural morphological evolution of the stream (sinuosity is the ratio of stream length to project reach length).

(3) Structures will allow the upstream and downstream passage of aquatic organisms, including fish native to the reach, as well as recreational water craft or other navigational activities, unless specifically waived in writing by the District Engineer. The use of grout and/or concrete in building structures is not authorized by this nationwide permit.

(4) The construction of water parks (i.e., kayak courses) and flood control projects are not authorized by this nationwide permit.

d. Nationwide Permits Nos. 29 and 39; Residential Developments and Commercial and Institutional Developments. A copy of the existing FEMA/locally-approved floodplain map must be submitted with the Pre-Construction Notification. When reviewing proposed developments, the Corps will utilize the most accurate and reliable FEMA/locally-approved pre-project floodplain mapping, not post-project floodplain mapping based on a CLOMR or LOMR. However, the Corps will accept revisions to existing floodplain mapping if the

revisions resolve inaccuracies in the original floodplain mapping and if the revisions accurately reflect pre-project conditions.

2. Final Regional Conditions Applicable to All Nationwide Permits within Colorado

e. **Removal of Temporary Fills.** General Condition 13 (Removal of Temporary Fills) is amended by adding the following: When temporary fills are placed in wetlands in Colorado, a horizontal marker (i.e. fabric, certified weed-free straw, etc.) must be used to delineate the existing ground elevation of wetlands that will be temporarily filled during construction.

f. **Spawning Areas.** General Condition 3 (Spawning Areas) is amended by adding the following: In Colorado, all Designated Critical Resource Waters (see enclosure 1) are considered important spawning areas. Therefore, In accordance with General Condition 19 (Designated Critical Resource Waters), the discharge of dredged or fill material is not authorized by the following nationwide permits in these waters: NWP 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, and 50. In addition, in accordance with General Condition 27 (Pre-Construction Notification), notification to the District Engineer is required for use of the following nationwide permits in these waters: NWP 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37 and 38”.

g. **Suitable Fill.** In Colorado, use of broken concrete as fill material requires notification to the District Engineer in accordance with General Condition 27 (Pre-Construction Notification). Permittees must demonstrate that soft engineering methods utilizing native or non-manmade materials are not practicable (with respect to cost, existing technology, and logistics), before broken concrete is allowed as suitable fill. Use of broken concrete with exposed rebar is prohibited in perennial waters and special aquatic sites.

h. **Invasive Aquatic Species.** General Condition 11 is amended by adding the following condition for work in perennial or intermittent waters of the United States: If heavy equipment is used for the subject project that was previously working in another stream, river, lake, pond, or wetland within 10 days of initiating work, one the following procedures is necessary to prevent the spread of New Zealand Mud Snails and other aquatic hitchhikers:

- (1) Remove all mud and debris from equipment (tracks, turrets, buckets, drags, teeth, etc.) and keep the equipment dry for 10 days. OR
- (2) Remove all mud and debris from Equipment (tracks, turrets, buckets, drags, teeth, etc.) and spray/soak equipment with either a 1:1 solution of Formula 409 Household Cleaner and water, or a solution of Sparquat 256 (5 ounces Sparquat per gallon of water). Treated equipment must be kept moist for at least 10 minutes. OR
- (3) Remove all mud and debris from equipment (tracks, turrets, buckets, drags, teeth, etc.) and spray/soak equipment with water greater than 120 degrees F for at least 10 minutes.

3. Final Regional Conditions for Revocation/Special Notification Specific to Certain Geographic Areas

i. **Fens:** All Nationwide permits, except permit Nos. 3, 6, 20, 27, 32, 38 and 47, are revoked in fens and wetlands adjacent to fens. Use of nationwide permit Nos. 3, 20, 27 and 38, requires notification to the District Engineer, in accordance with General Condition 27 (Pre-Construction Notification), and the permittee may not begin the activity until the Corps determines the adverse environmental effects are minimal. The following defines a fen:

Fen soils (histosols) are normally saturated throughout the growing season, although they may not be during drought conditions. The primary source of hydrology for fens is groundwater. Histosols are defined in accordance with the U.S. Department of Agriculture, Natural Resources Conservation Service publications on Keys to Soil Taxonomy and Field Indicators of Hydric Soils in the United States (<http://soils.usda.gov/technical/classification/taxonomy>).

j. **Springs:** Within the state of Colorado, all NWP, except permit 47 (original ‘C’), require preconstruction notification pursuant to General Condition 27 for discharges of dredged or fill material within 100 feet of the point of groundwater discharge of natural springs. A spring source is defined as any location where groundwater emanates from a point in the ground. For purposes of this regional condition, springs do not include seeps or other discharges which do not have a defined channel.

4. Additional Information

The following provides additional information regarding minimization of impacts and compliance with existing general Conditions:

a. Permittees are reminded of the existing General Condition No. 6 which prohibits the use of unsuitable material. Organic debris, building waste, asphalt, car bodies, and trash are not suitable material. Also, General Condition 12 requires appropriate erosion and sediment controls (i.e. all fills must be permanently stabilized to prevent erosion and siltation into waters and wetlands at the earliest practicable date). Streambed material or other small aggregate material placed along a bank as stabilization will not meet General Condition 12. Also, use of erosion control mats that contain plastic netting may not meet General Condition 12 if deemed harmful to wildlife.

b. **Designated Critical Resource Waters in Colorado.** In Colorado, a list of designated Critical Resource Waters has been published in accordance with General Condition 19 (Designated Critical Resource Waters). This list will be published on the Albuquerque District Regulatory home page (<http://www.spa.usace.army.mil/reg/>)

c. **Federally-Listed Threatened and Endangered Species.** General condition 17 requires that non-federal permittees notify the District Engineer if any listed species or designated critical habitat might be affected or

is in the vicinity of the project. Information on such species, to include occurrence by county in Colorado, may be found at the following U.S. Fish and Wildlife Service website:

http://www.fws.gov/mountain%2Dprairie/endspp/name_county_search.htm

C. Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project.

D. Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration, establishment (creation), enhancement, or preservation of aquatic resources for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Discharge: The term “discharge” means any discharge of dredged or fill material.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that

are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the

stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects waterbodies with their adjacent uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 20.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete project: The term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete project must have independent utility (see definition). For linear projects, a “single and complete project” is all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream’s course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located

channelward of the high tide line, which is defined at 33 CFR 328.3(d).

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWP, a waterbody is a jurisdictional water of the United States that, during a year with normal patterns of precipitation, has water flowing or standing above ground to the extent that an ordinary high water mark (OHWM) or other indicators of jurisdiction can be determined, as well as any wetland area (see 33 CFR 328.3(b)). If a jurisdictional wetland is adjacent--meaning bordering, contiguous, or neighboring--to a jurisdictional waterbody displaying an OHWM or other indicators of jurisdiction, that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.

Permit / Certification

(U.S. Department of Agriculture, Forest Service, Special Use Permit)

Authorization ID: MOU0104
Contact ID: CALTRANS
Expiration Date: 12/31/2017
Use Code: 522, 753, 532, 366, 521

FS-2700-4 (03/06)
OMB 0596-0082

**U.S. DEPARTMENT OF AGRICULTURE
Forest Service
SPECIAL USE PERMIT
AUTHORITY:**

**OCCUPANCY PERMITS, AS AMENDED March 4, 1915, ORGANIC ADMINISTRATION ACT
June 4, 1897, FEDERAL LAND POLICY AND MGMT ACT, AS AMENDED October 21, 1976**

State of California Department of Transportation, 4300 Caterpillar Road, REDDING, CA 96003 (hereinafter called the Holder) is hereby authorized to use or occupy National Forest System lands, to use subject to the conditions set out below, on the Plumas National Forest or Mt. Hough Ranger District unit of the National Forest System.

This permit covers 13.42 acres, and/or .02 miles and is described as: Sec. 15, T. 25 N., R. 9 E., MT. DIABLO MERIDIAN, as shown on the location map attached to and made a part of this permit, and is issued for the purpose of:

Construction of the new Highway 70 Spanish Creek Bridge; realignment of the highway approach, demolition and removal of the existing bridge; restoration and revegetation of all construction areas and staging areas. The construction work includes use of the Spanish Creek Campground for access and staging, placing two temporary bridges across Spanish Creek, constructing a temporary access road on the south side of the creek from the campground to the construction site. The campground is expected to be closed to the public for three years (until 2012) while the entire project is expected to take until approximately 2017 to include monitoring and revegetation. The following exhibits are attached to and made part of this permit.

- Exhibit A - Map/Site Plan
- Exhibit B - Operating Plan/Mitigations and Requirements
- Exhibit C - Site development Schedule
- Exhibit D - Fire Control Plan

The above described or defined area shall be referred to herein as the "permit area".

TERMS AND CONDITIONS

I. AUTHORITY AND GENERAL TERMS OF THE PERMIT

A. Authority. This permit is issued pursuant to the authorities enumerated at Title 36, Code of Federal Regulations, Section 251 Subpart B, as amended. This permit, and the activities or use authorized, shall be subject to the terms and conditions of the Secretary's regulations and any subsequent amendment to them.

B. Authorized Officer. The authorized officer is the Forest Supervisor or a delegated subordinate officer.

C. License. This permit is a license for the use of federally owned land and does not grant any permanent, possessory interest in real property, nor shall this permit constitute a contract for purposes of the Contract Disputes Act of 1978 (41 U.S.C. 611). Loss of the privileges granted by this permit by revocation, termination, or suspension is not compensable to the holder.

D. Amendment. This permit may be amended in whole or in part by the Forest Service when, at the discretion of the authorized officer, such action is deemed necessary or desirable to incorporate new terms, conditions, and stipulations as may be required by law, regulation, land management plans, or other management decisions.

E. Existing Rights. This permit is subject to all valid rights and claims of third parties. The United States is not liable to the holder for the exercise of any such right or claim.

F. Nonexclusive Use and Public Access. Unless expressly provided for in additional terms, use of the permit area is not exclusive. The Forest Service reserves the right to use or allow others to use any part of the permit area, including roads, for any purpose, provided, such use does not materially interfere with the holder's authorized use. A final determination of conflicting uses is reserved to the Forest Service.

G. Forest Service Right of Entry and Inspection. The Forest Service has the right of unrestricted access of the permitted area or facility to ensure compliance with laws, regulations, and ordinances and the terms and conditions of this permit.

H. Assignability. This permit is not assignable or transferable. If the holder through death, voluntary sale or transfer, enforcement of contract, foreclosure, or other valid legal proceeding ceases to be the owner of the improvements, this permit shall terminate.

I. Permit Limitations. Nothing in this permit allows or implies permission to build or maintain any structure or facility, or to conduct any activity unless specifically provided for in this permit. Any use not specifically identified in this permit must be approved by the authorized officer in the form of a new permit or permit amendment.

II. TENURE AND ISSUANCE OF A NEW PERMIT

A. Expiration at the End of the Authorized Period. This permit will expire at midnight on 12/31/2017. Expiration shall occur by operation of law and shall not require notice, any decision document, or any environmental analysis or other documentation.

B. Minimum Use or Occupancy of the Permit Area. Use or occupancy of the permit area shall be exercised at least 365 days each year, unless otherwise authorized in writing under additional terms of this permit.

C. Notification to Authorized Officer. If the holder desires issuance of a new permit after expiration, the holder shall notify the authorized officer in writing not less than six (6) months prior to the expiration date of this permit.

D. Conditions for Issuance of a New Permit. At the expiration or termination of an existing permit, a new permit may be issued to the holder of the previous permit or to a new holder subject to the following conditions:

1. The authorized use is compatible with the land use allocation in the Forest Land and Resource Management Plan.
2. The permit area is being used for the purposes previously authorized.
3. The permit area is being operated and maintained in accordance with the provisions of the permit.
4. The holder has shown previous good faith compliance with the terms and conditions of all prior or other existing permits, and has not engaged in any activity or transaction contrary to Federal contracts, permits laws, or regulations.

E. Discretion of Forest Service. Notwithstanding any provisions of any prior or other permit, the authorized officer may prescribe new terms, conditions, and stipulations when a new permit is

issued. The decision whether to issue a new permit to a holder or successor in interest is at the absolute discretion of the Forest Service.

F. Construction. Any construction authorized by this permit may commence by October 15, 2009 and shall be completed by December 31, 2017. If construction is not completed within the prescribed time, this permit may be revoked or suspended.

III. RESPONSIBILITIES OF THE HOLDER

A. Compliance with Laws, Regulations, and other Legal Requirements. The holder shall comply with all applicable Federal, State, and local laws, regulations, and standards, including but not limited to, the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., the Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq., the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S. C. 9601 et seq., and other relevant environmental laws, as well as public health and safety laws and other laws relating to the siting, construction, operation, and maintenance of any facility, improvement, or equipment on the property.

B. Plans. Plans for development, layout, construction, reconstruction, or alteration of improvements on the permit area, as well as revisions of such plans, must be prepared by a qualified individual acceptable to the authorized officer and shall be approved in writing prior to commencement of work. The holder may be required to furnish as-built plans, maps, or surveys, or other similar information, upon completion of construction.

C. Maintenance. The holder shall maintain the improvements and permit area to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the authorized officer and consistent with other provisions of this authorization. If requested, the holder shall comply with inspection requirements deemed appropriate by the authorized officer.

D. Hazard Analysis. The holder has a continuing responsibility to identify all hazardous conditions on the permit area which would affect the improvements, resources, or pose a risk of injury to individuals. Any non-emergency actions to abate such hazards shall be performed after consultation with the authorized officer. In emergency situations, the holder shall notify the authorized officer of its actions as soon as possible, but not more than 48 hours, after such actions have been taken.

E. Change of Address. The holder shall immediately notify the authorized officer of a change in address.

F. Change in Ownership. This permit is not assignable and terminates upon change of ownership of the improvements or control of the business entity. The holder shall immediately notify the authorized officer when a change in ownership or control of business entity is pending. Notification by the present holder and potential owner shall be executed using Form SF-299 Application for Transportation and Utility Systems and Facilities of Federal Lands, or Form FS-2700-3a, Holder Initiated Revocation of Existing Authorization, Request for a Special Use Permit. Upon receipt of the proper documentation, the authorized officer may issue a permit to the party who acquires ownership of, or a controlling interest in, the improvements or business entity.

IV. LIABILITY

For purposes of this section, "holder" includes the holder's heirs, assigns, agents, employees, and contractors.

A. The holder assumes all risk of loss to the authorized improvements.

B. The holder shall indemnify, defend, and hold the United States harmless for any violations incurred under any such laws and regulations or for judgments, claims, or demands assessed against the United States in connection with the holder's use or occupancy of the property. The holder's indemnification of the United States shall include any loss by personal injury, loss of life or damage to property in connection with the occupancy or use of the property during the term of this permit. Indemnification shall include, but is not limited to, the value of resources damaged or destroyed; the costs of restoration, cleanup, or other mitigation; fire suppression or other types of abatement costs; third party claims and judgments; and all administrative, interest, and other legal costs. This paragraph shall survive the termination or revocation of this authorization, regardless of cause.

C. The holder has an affirmative duty to protect from damage the land, property, and interests of the United States.

The holder shall maintain \$2,000,000 worth of insurance coverage, naming the United States additionally insured on the policy(ies), to partially fund the indemnification obligations of the holder for any and all losses due to personal injury, loss of life, or property damage, including fire suppression and hazardous waste costs. The holder shall furnish proof of insurance (such as a surety bond, or certificate of insurance) to the authorized officer prior to execution of this permit and verify annually, and in writing, the insurance obligation to the authorized officer. The authorized officer may allow the holder to replace, repair, restore, or otherwise undertake necessary curative actions, to the satisfaction of the authorized officer, in order to mitigate damages in addition to or as an alternative to monetary indemnification.

D. In the event of any breach of the conditions of this authorization by the holder, the authorized officer may, on reasonable notice, cure the breach for the account at the expense of the holder. If the Forest Service at any time pays any sum of money or does any act which will require payment of money, or incurs any expense, including reasonable attorney's fees, in instituting, prosecuting, and/or defending any action or proceeding to enforce the United States rights hereunder, the sum or sums so paid by the United States, with all interests, costs and damages shall, at the election of the Forest Service, be deemed to be additional fees hereunder and shall be due from the holder to the Forest Service on the first day of the month following such election.

E. With respect to roads, the holder shall be proportionally liable for damages to all roads and trails of the United States open to public use caused by the holder's use to the same extent as provided above, except that liability shall not include reasonable and ordinary wear and tear.

F. The Forest Service has no duty to inspect the permit area or to warn of hazards and, if the Forest Service does inspect the permit area, it shall incur no additional duty nor liability for identified or non-identified hazards. This covenant may be enforced by the United States in a court of competent jurisdiction.

V. TERMINATION, REVOCATION, AND SUSPENSION

A. General. For purposes of this permit, "termination", "revocation", and "suspension" refer to the cessation of uses and privileges under the permit.

"Termination" refers to the cessation of the permit under its own terms without the necessity for any decision or action by the authorized officer. Termination occurs automatically when, by the terms of the permit, a fixed or agreed upon condition, event, or time occurs. For example, the permit terminates at expiration. Terminations are not appealable.

"Revocation" refers to an action by the authorized officer to end the permit because of noncompliance with any of the prescribed terms, or for reasons in the public interest. Revocations are appealable.

"Suspension" refers to a revocation which is temporary and the privileges may be restored upon the occurrence of prescribed actions or conditions. Suspensions are appealable.

B. Revocation or Suspension. The Forest Service may suspend or revoke this permit in whole or part for:

1. Noncompliance with Federal, State, or local laws and regulations.
2. Noncompliance with the terms and conditions of this permit.
3. Reasons in the public interest.
4. Abandonment or other failure of the holder to otherwise exercise the privileges granted.

C. Opportunity to Take Corrective Action. Prior to revocation or suspension for cause pursuant to Section V (B), the authorized officer shall give the holder written notice of the grounds for each action and a reasonable time, not to exceed 90 days, to complete the corrective action prescribed by the authorized officer.

D. Removal of Improvements. Prior to abandonment of the improvements or within a reasonable time following revocation or termination of this authorization, the holder shall prepare, for approval by the authorized officer, an abandonment plan for the permit area. The abandonment plan shall address removal of improvements and restoration of the permit area and prescribed time frames for these actions. If the holder fails to remove the improvements or restore the site within the prescribed time period, they become the property of the United States and may be sold, destroyed or otherwise disposed of without any liability to the United States. However, the holder shall remain liable for all cost associated with their removal, including costs of sale and impoundment, cleanup, and restoration of the site.

VI. FEES

A. Termination for Nonpayment. This permit shall automatically terminate without the necessity of prior notice when land use rental fees are 90 calendar days from the due date in arrears.

B. Fees for this use have been exempted or waived in full pursuant to 36 CFR 251.57, or revisions thereto, and direction in FSH 2709.11, chapter 30.

VII. OTHER PROVISIONS

A. Members of Congress. No Member of or Delegate to Congress or Resident Commissioner shall benefit from this permit either directly or indirectly, except when the authorized use provides a general benefit to a corporation.

B. Appeals and Remedies. Any discretionary decisions or determinations by the authorized officer are subject to the appeal regulations at 36 CFR 251, Subpart C, or revisions thereto.

C. Superior Clauses. In the event of any conflict between any of the preceding printed clauses or any provision thereof and any of the following clauses or any provision thereof, the preceding printed clauses shall control.

D. R5-D-9. Noxious Weeds.

The permit holder shall prepare, in cooperation with the Forest Service, a noxious weed plan for surveying, preventing, reporting, controlling and monitoring noxious weed populations on the authorized areas and within the holder's area of responsibility. These measures may include, where appropriate, equipment inspection for soil, seeds, and vegetative matter, equipment cleaning, and use of weed-free materials (soil, gravel, straw, mulch) and seed

mixes. A current list of noxious weeds of concern is available at the Forest Supervisor's Office.

E. Nondiscrimination (B-1).

1. The holder and its employees shall not discriminate against any person on the basis of race, color, sex (in educational activities), national origin, age, or disability or by curtailing or refusing to furnish accommodations, facilities, services, or use privileges offered to the public generally. In addition, the holder and its employees shall comply with the provisions of Title VI of the Civil Rights Act of 1964 as amended, Section 504 of the Rehabilitation Act of 1973, as amended, Title IX of the Education Amendments of 1972, as amended, and the Age Discrimination Act of 1975, as amended.
2. The holder shall include and require compliance with the above nondiscrimination provisions in any third-party agreement made with respect to the operations authorized under this permit.
3. The Forest Service shall furnish signs setting forth this policy of nondiscrimination. These signs shall be conspicuously displayed at the public entrance to the premises and at other exterior or interior locations, as directed by the Forest Service.
4. The Forest Service shall have the right to enforce the foregoing nondiscrimination provisions by suit for specific performance or by any other available remedy under the laws of the United States or the State in which the violation occurs.

F. Equal Access to Federal Programs (B-2).

In addition to the above nondiscrimination policy, the holder agrees to insure that its programs and activities are open to the general public on an equal basis and without regard to any non-merit factor.

G. Explosives (B29).

1. Only exploding bridgewire (EBWs) shall be used for blasting except for hand charging of snow release zones.
2. In the use of explosives, the holder shall exercise the utmost care not to endanger life or property and shall comply with the requirements of the Forest Service. The holder shall be responsible for any and all damages resulting from the use of explosives and shall adopt precautions that will prevent damage to surrounding objects. The holder shall furnish and erect special signs to warn the public of blasting operations. Such signs shall be placed and maintained so as to be clearly evident to the public during all critical periods of the blasting operations, and shall include a warning statement to have radio transmitters turned off.
3. All storage places for explosives shall be marked "DANGEROUS-EXPLOSIVES." The method of storing and handling explosives shall conform to procedures contained in the "Blasters Guide EM-7100-14," and Title 27, Code of Federal Regulations, parts 1 to 199, Alcohol, Tobacco Products, and Firearms (Bureau of Alcohol, Tobacco and Firearms (BATF)).
4. When using explosives, the holder shall adopt precautions which will prevent damage to landscape features and other surrounding objects. When directed by the Forest officer in charge, trees within an area designated to be cleared shall be left as a protective screen for surrounding vegetation during blasting operations. Trees so left shall be removed and

disposed of after blasting has been completed. When necessary, and at any point of special danger, the holder shall use suitable mats or some other approved method to smother blasts.

H. Site Development Schedule (C1). The holder shall prepare by December 31, 2009, a schedule for the progressive development and installation of facilities on the permitted site. This schedule shall be made a part of this authorization. The holder may accelerate the scheduled date for installation of any improvement authorized, provided the other scheduled priorities are met and that all priority installations authorized are completed to the satisfaction of the Forest Service and ready for public use prior to the scheduled due date.

All required plans and specifications for site improvements, and structures included in the development schedule shall be properly certified and submitted to the Forest Service at least forty-five (45) days before the construction date stipulated in the development schedule.

I. Site Plan (C2). The holder shall prepare site plans to show the location of all buildings, service areas, roads, and structures. Such plans shall be on a scale agreed to and agreed to foot contour intervals. The holder is encouraged to consult with the authorized officer during the preparation of the site plan to ensure that it is adequate. No construction shall be undertaken by the holder prior to site plan approval.

J. Operating Plan (C8). The holder shall provide an Operating Plan and revise the plan every year by October 31. The plan shall be prepared in consultation with the authorized officer or designated representative and cover operation and maintenance of facilities, dates or season of operations, and other information required by the authorized officer to manage and evaluate the occupation and/or use of National Forest System lands. The provisions of the Operating Plan and the annual revisions shall become a part of this authorization and shall be submitted by the holder and approved by the authorized officer or their designated representative(s). This Operating Plan is hereby made a part of the authorization.

K. Surveys, Land Corners (D4). The holder shall protect, in place, all public land survey monuments, private property corners, and Forest boundary markers. In the event that any such land markers or monuments are destroyed in the exercise of the privileges permitted by this authorization, depending on the type of monument destroyed, the holder shall see that they are reestablished or referenced in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the county surveyor, or (3) the specifications of the Forest Service.

Further, the holder shall cause such official survey records as are affected to be amended as provided by law. Nothing in this clause shall relieve the holder's liability for the willful destruction or modification of any Government survey marker as provided at 18 U.S.C. 1858.

L. Removal and Planting of Vegetation and Other Resources (D5). The holder shall obtain prior written approval from the authorized officer before removing or altering vegetation or other resources. The holder shall obtain prior written approval from the authorized officer before planting trees, shrubs, or other vegetation within the authorized area.

M. Revegetation of Ground Cover and Surface Restoration (D9). The holder shall be responsible for prevention and control of soil erosion and gulying on lands covered by this authorization and adjacent thereto, resulting from construction, operation, maintenance, and termination of the authorized use. The holder shall so construct permitted improvements to avoid the accumulation of excessive heads of water and to avoid encroachment on streams. The holder shall revegetate or otherwise stabilize all ground where the soil has been exposed as a result of the holder's construction, maintenance, operation, or termination of the authorized use and shall construct and maintain necessary preventive measures to supplement the vegetation.

N. Timber Payment (D17). All National Forest timber cut or destroyed in the construction of the permitted improvements shall be paid for at current stumpage rates for similar timber in the National Forest. Young-growth timber below merchantable size will be paid for at current damage-appraisal value; and all slash and debris resulting from the cutting or destruction of such timber shall be disposed of as necessary or as the Forest Service may direct.

O. Pesticide Use (D23). Pesticides may not be used to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, trash fish, etc., without the prior written approval of the Forest Service. A request for approval of planned uses of pesticides will be submitted annually by the holder on the due date established by the authorized officer. The report will cover a 12-month period of planned use beginning 3 months after the reporting date. Information essential for review will be provided in the form specified. Exceptions to this schedule may be allowed, subject to emergency request and approval, only when unexpected outbreaks of pests require control measures which were not anticipated at the time an annual report was submitted.

Only those materials registered by the U.S. Environmental Protection Agency for the specific purpose planned will be considered for use on National Forest System lands. Label instructions will be strictly followed in the application of pesticides and disposal of excess materials and containers.

P. Fire-Control Plan (F20). The holder shall prepare a fire plan for approval by the authorized officer which shall set forth in detail the plan for prevention, reporting, control, and extinguishing of fires on the authorized areas and within the holder's area of responsibility defined on an attached map. Such plans shall be reviewed and revised at intervals of not more than three (3) years.

Q. Protection of Habitat of Endangered, Threatened, and Sensitive Species (X8). Location of areas needing special measures for protection of plants or animals listed as threatened or endangered under the Endangered Species Act of 1973, as amended, or as sensitive by the Regional Forester under authority of FSM 2670, derived from ESA Section 7 consultation, may be shown on a separate map, hereby made a part of this authorization, or identified on the ground. Protective and mitigative measures specified by the authorized officer shall be the responsibility of the authorization holder.

If protection measures prove inadequate, if other such areas are discovered, or if new species are listed as Federally threatened or endangered or as sensitive by the Regional Forester, the authorized officer may specify additional protection regardless of when such facts become known. Discovery of such areas by either party shall be promptly reported to the other party.

R. Archaeological-Paleontological Discoveries (X17). The holder shall immediately notify the authorized officer of any and all antiquities or other objects of historic or scientific interest. These include, but are not limited to, historic or prehistoric ruins, fossils, or artifacts discovered as the result of operations under this authorization, and shall leave such discoveries intact until authorized to proceed by the authorized officer. Protective and mitigative measures specified by the authorized officer shall be the responsibility of the holder.

S. Damage Restoration (X21). Caltrans will reimburse the Forest Service for wages, salaries, travel, material, equipment use, and other expenses incurred by the Forest Service in performing work for Spanish Creek Bridge as provided by this authorization. Such repayment will be under the authority of section 601, Economy Act, June 30, 1932, and the expenses itemized and identified by project and will be billed quarterly by Form SF-1081, Voucher and Schedule of Withdrawals and Credits. It is understood and agreed that Forest Service reimbursements will include an amount for general expense and for general supervision of project work by members of the regular organization not paid directly from project funds. It is also understood and agreed

that the Forest Service will be reimbursed for annual and sick leave earned by project employees while employed on these projects.

T. Improvement Relocation (X33). This authorization is granted with the express understanding that should future location of United States Government-owned improvements or road rights-of-way require the relocation of the holder's improvements, such relocation will be done by, and at the expense of, the holder within a reasonable time as specified by the authorized officer.

U. Performance by Holder, Successors, or Assigns (X68). Notwithstanding the expiration or any renewal of this authorization or its earlier relinquishment, abandonment, or other termination, the provisions of this authorization, to the extent applicable, shall continue in effect and shall be binding on the holder, successors, or assigns, until they have fully performed their respective obligations and liabilities accruing before or on account of the expiration, or prior termination, of the authorization.

V. Performance by Other Than Holder (X69). The acquisition or assumption by another party under an agreement with the holder of any right or obligation of the holder under this authorization shall be ineffective as to the Forest Service unless and until approved by the authorized Forest officer. A subsequent acquisition or assumption shall not:

1. Operate to relieve the holder of the responsibilities or liabilities they have assumed hereunder, or
2. Be given unless such other party (1) is acceptable to the Forest Service as a holder, and assumes in writing all of the obligations to the Forest Service under the terms of this authorization as to the incomplete portion thereof, or (2) acquires the rights in trust as security and subject to such conditions as may be necessary for the protection of the public interests.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082. The time required to complete this information collection is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

This permit is accepted subject to the conditions set out above.

HOLDER NAME: Calif Dept Transportation

U.S. DEPARTMENT OF AGRICULTURE
Forest Service

By: *Karen Hawkins*
Karen Hawkins
Senior R/W Agent

By: *[Signature]*
ALICE B. CARLTON

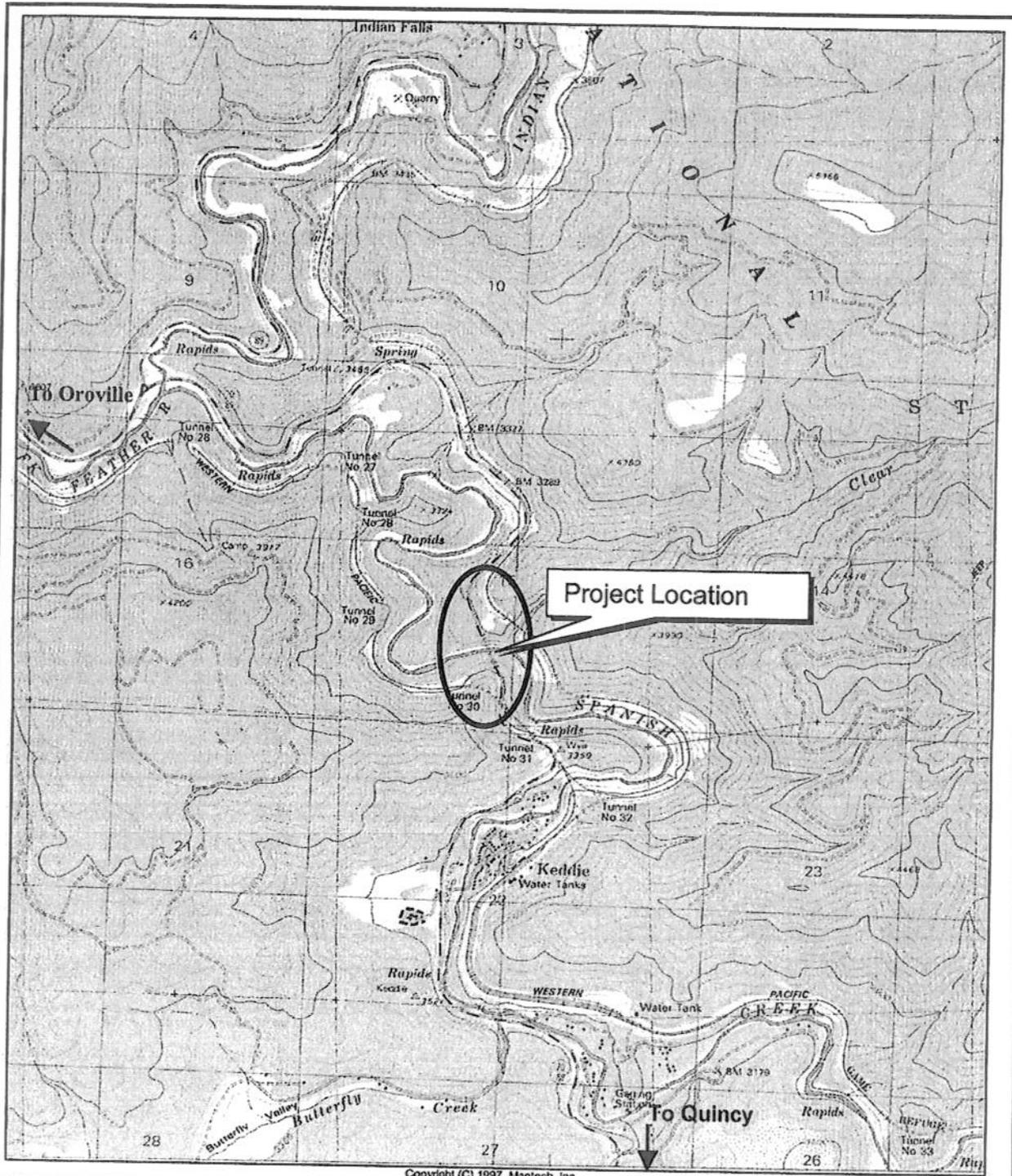
Title: Forest Supervisor
Acting for

Date: 6/1/09

Date: 6/19/2009

EXHIBIT A

Maps/Site Plan



Copyright (C) 1997, Maptech, Inc.

Project Location Map

	State of California Department of Transportation	Base map: Crescent Mills Quad, Township 25N, Range 9E, Section 15
	PLU-70-PM35.1/35.5 02-373100	

EXHIBIT B

Operating Plan/Mitigations and Requirements

Exhibit B

Operating Plan Mitigations and Requirements 2009

These mitigations are in addition to the requirements of the following permits and Plans:

- Streambed Alteration Agreement from California Department of Fish and Game
- Section 404 permit from the Army Corps of Engineers
- Water Quality Certification from California Regional Water Quality Control Board
- Storm Water Pollution Prevention Plan from CALTRANS
- Spill Prevention Plan from CALTRANS
- Fire Control Plan from Plumas National Forest
- Bridge Removal Plan from CALTRANS
- Soil Management Plan from CALTRANS
- Re-vegetation and Monitoring Plan from CALTRANS

Cultural/Archaeological

The holder will prepare a permanent record of the Spanish Creek Bridge in accordance with Historic American Engineering Record (HAER) procedures and guidelines. Interpretive panels will be installed within the entrance to the Spanish Creek Campground adjacent to HSR 70 depicting the history of the Feather River Highway Historic District and the Spanish Creek Bridge and other historic properties.

Land Use and Recreation

If excavations or placement of a permanent structure are required within a mining claim, Caltrans will obtain a Quit Claim Deed for the area needed from the claim holder.

The Spanish Creek Campground will be closed during construction to protect the safety of the public.

Within the limits of the campground, construction vehicles and equipment will be confined to the paved roadway unless otherwise directed by the project plans or Caltrans Resident Engineer.

Construction storage and staging will occur only within those areas designated on the project plans.

Mature trees near the campground entrance, as delineated on the project plans, will be preserved.

Following construction, all disturbed areas within the recreation area will be stabilized with Erosion Control Type D and Erosion Control Type BFM (steep slopes only) utilizing a native seed mix of species indigenous to the area. Pavement and infrastructure damaged as a result of the project will be repaired.

Boaters will be notified of any stream closures through press releases and signage on the creek, upstream of the work area. A designated portage detour will be provided for boaters passing through the work area. Contractor personnel will guide boaters through the detour.

The Spanish Creek Campground water supply well head will be delineated on the plans and protected during construction.

Visuals/Aesthetics

Large conifers will be removed from the area southwest of the bridge to make a temporary construction access road parallel to Spanish Creek. Additional conifers and oaks will be removed adjacent to the west side of highway 70 due to the necessary shift in the highway alignment.

Selected trees within the proposed temporary staging areas will be marked for preservation by avoidance. A new road connection will be constructed and the campground signage will be relocated with new posts at the entrance to the Spanish Creek Campground.

Abandoned sections of highway will be obliterated, graded, and restored with native vegetation. Planting of woody vegetation would not occur within the clear recovery zone of the highway, which is 20 feet from the edge of the traveled way.

Water Quality

The project will include design features, special provisions, and best management practices to avoid and minimize water quality impacts.

The Holder will obtain a Stream Alteration Agreement (1602) from California Department of Fish and Game; a Section 404 Permit from the Army Corp of Engineers; a Water Quality Certification (Section 401) permit and de-watering permit from the Regional Water Quality Control Board.

The Holder shall prepare a Storm Water Pollution Prevention Plan (SWPPP) identifying potential sources of pollution, and Best Management Practices (BMPs) to protect water quality. The project includes BMPs which are identified during the planning and design phase of the project to address soil stabilization, sediment control, wind erosion control, tracking control, non-storm water management, and waste management.

The holder shall require adherence to Caltrans' standard specifications and special provisions pertaining to water quality including dust control, clearing and grubbing, earthwork, erosion control, and water pollution. In addition the holder will comply with terms and conditions of regulatory permits issued by the Department of Fish and Game, the Regional Water Quality Control Board, and the Army Corps of Engineers. Appropriate regulatory guidelines would be followed for any dewatering, and if required, siphoning operations within live streams.

Hazardous Waste

All paints on the bridge will be treated as lead-containing for purposes of determining the applicability of the Cal/OSHA lead standard during any bridge maintenance, renovation or demolition activity.

Holder shall require the preparation of a project specific lead compliance plan in accordance with California Occupational Safety and Health Administration (Cal/OSHA) regulations.

Air Quality

The holder shall require compliance with Caltrans Standard Specifications, which include Section 7-1.0 1F "Air Pollution Control" and Section 10 "Dust Control." In addition, the U.S. Environmental Protection Agency's National Emissions Standards for Hazardous Air Pollutants (NESHAP) and the California Air Resources Control Board (CARB) rules required the contractor to notify the CARB in writing prior to the demolition or renovation of a bridge.

Wetlands and Other Waters

All wetlands identified within the limits of the project will be avoided. The proposed temporary stream crossing trestle will be strategically designed and placed to avoid direct or indirect effects to wetlands. Temporary ESA fencing will be installed at each location where wetlands are present to avoid inadvertent impacts during construction.

Fish and Wildlife

Any stream diversion, dewatering, or siphoning operation would be performed in accordance with all regulatory permit conditions and applicable resource agency guidelines. During work within the creek channel, aquatic passage and stream continuity would be maintained at all time. The removal of trees and riparian vegetation would be restricted to the period of September 15 through March 15 to avoid impacts to nesting migratory birds. If vegetation removal were required outside of this period, a qualified biologist will conduct a nesting survey prior to the removal.

Vegetation

The removal of vegetation will be limited to the minimum necessary to accomplish the work. Temporary **ESA** fencing will be installed at strategic locations to protect upland and riparian vegetation immediately adjacent to the work area from inadvertent impacts. This includes upland trees within staging areas and trees near access roads marked for preservation for aesthetic purposes. Where practicable, riparian vegetation that must be removed temporarily for construction purposes would be trimmed to ground level and covered with gravel to preserve the root system. The root system would provide soil stability and enable the plants to regenerate when they are uncovered following construction. Following construction, willow cuttings and alder seedlings would be replanted within the riparian zone.

Woody vegetation would be replaced on PNF lands by PNF. Planting of woody vegetation would not occur within the clear recovery zone of the highway, which is approximately 20 feet from the edge of the traveled way.

All disturbed areas would be hydro-seeded with an appropriate erosion control seed mixture upon completion of final grading.

Rehabilitation of the site

Upon completion of construction, the contractor will be required to return the topography of the site to its pre-construction state.

The temporary construction access road, from the south side of Spanish Creek opposite the campground to approximately 650 feet east towards the new bridge shall be converted to an accessible pedestrian path. The path shall meander slightly within the footprint of temporary construction access road. The trail surface shall be approximately 6 feet in width with a surface that the PNF may pave in the future. Boulders that are removed during the temporary access road construction shall be set aside for later strategic placement along the trail to provide habitat and points of visual interest. Approximately six to ten boulders ranging in size from three feet to six feet or more in diameter shall be set aside for this purpose. The exposed surfaces of the boulders shall be free of severe equipment handling scars.

EXHIBIT C

Site Development Schedule

The Site Development Schedule shall be prepared by the Holder before December 31, 2009, and be approved by the Authorized Officer before start of construction.

EXHIBIT D

Fire Control Plan

The Fire Control Plan shall be prepared by the Holder before December 31, 2009, and be approved by the Authorized Officer before start of construction.

CALIFORNIA PUBLIC RESOURCES CODE

SECTION 4421-4446

4421. A person shall not set fire or cause fire to be set to any forest, brush, or other flammable material which is on any land that is not his own, or under his legal control, without the permission of the owner, lessee, or agent of the owner or lessee of the land.

4422. A person shall not do any of the following:

(a) Willfully or knowingly allow fire to burn uncontrolled on land which he owns or controls, or to escape to the lands of any person other than that of the owner.

(b) Allow any fire kindled or attended by him to escape from his control or to spread to the land of any person other than from the land from which the fire originated.

4423. A person shall not burn any brush, stumps, logs, fallen timber, fallows, slash, grass-covered land, brush-covered land, forest-covered land, or other flammable material, in any state responsibility area, area receiving fire protection by the department by contract, or upon federal lands administered by the United States Department of Agriculture or Department of the Interior, unless the person has a written permit from the department or its duly authorized representative or the authorized federal officer on federal lands administered by the United States Department of Agriculture or of the Interior and in strict accordance with the terms of the permit:

(a) At any time in Zone A.

(b) At any time in Zone B between May 1st and the date the director declares, by proclamation, that the hazardous fire conditions have abated for that year, or at any other time in Zone B during any year when the director has declared, by proclamation, that unusual fire hazard conditions exist in the area.

The issuing agency may require the permittee to contact the agency to determine permit suspension status prior to burning.

4423.1. Burning under permit by any person on public or private lands, except within incorporated cities, may be suspended, restricted, or otherwise prohibited by proclamation. Any of the following public officers may issue a proclamation, which shall be applicable within their respective jurisdictions:

(a) The director or his or her designee.

(b) Any county fire warden with the approval of the director.

(c) The federal officers directing activities within California of the United States Bureau of Land Management, the National Park Service, and the United States Forest Service.

The proclamation may be issued when, in the judgment of the

issuing public official, the menace of destruction by fire to life, improved property, or natural resources is, or is forecast to become, extreme due to critical fire weather, fire suppression forces being heavily committed to control fires already burning, acute dryness of the vegetation, or other factors that may cause the rapid spread of fire. A proclamation is effective on issuance or at a time specified therein and shall remain in effect until a proclamation removing the suspension, restriction, or prohibition is issued. The proclamation may be effective for a single day or longer. The proclamation shall declare the conditions that necessitate its issuance, designate the geographic area to which it applies, require that all or specified burning under permit be suspended, restricted, or prohibited until the conditions necessitating the proclamation abate, and identify the public official issuing the proclamation. The proclamation may be in the form of a verbal or tape-recorded telephone message, a press release, or a posted order.

The proclamation may be issued without complying with Chapter 3.5 (commencing with Section 11340) and Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code.

4423.2. (a) Whenever the burning under permit has been suspended, restricted, or prohibited by proclamation pursuant to Section 4423.1, the officer having jurisdiction may issue a restricted temporary burning permit in instances in which the continuation of burning may be essential for reasons of public health, safety, or welfare. The permit may stipulate any special precautions that are required to be followed to reduce the risk of uncontrolled fire originating from the operation.

(b) Violation of the terms of a restricted temporary burning permit is a misdemeanor, and any person upon conviction thereof shall be punished by a fine of not less than two hundred fifty dollars (\$250). No part of the fine shall be suspended. The court may permit the fine prescribed by this section to be paid in installments if the court determines that the defendant is unable to pay the fine in one lump sum.

4423.3. The use of a campfire is not restricted or prohibited by a proclamation issued pursuant to Section 4423.1, unless specifically restricted or prohibited in that or a subsequent proclamation. If restricted by proclamation, campfires shall be confined to facilities constructed for that purpose within the confines of a campground established, maintained, and open for public use, whether publicly or privately owned.

4423.4. Outdoor smoking is not restricted or prohibited by a proclamation issued pursuant to Section 4423.1, unless specifically restricted or prohibited in that or a subsequent proclamation. If restricted by proclamation, smoking shall be confined to the following:

(a) Within motor vehicles while operating or parked on established

roads, rest stops, or parking areas cleared of flammable vegetation.

(b) Within established campgrounds open to the public.

(c) Within an area that is at least three feet or approximately one meter in diameter which has been cleared to mineral soil by removal of all flammable vegetation and duff.

The exempted locations may be included within the smoking ban if specifically noticed in the proclamation.

4423.5. Use of open fire or burning under permit within an area closed by proclamation pursuant to the provisions of Section 4423.1, except as provided in Sections 4423.2, 4423.3, and 4423.4, is a misdemeanor and any person upon conviction thereof shall be punished by a fine of not less than one hundred dollars (\$100). No part of such fine shall be suspended. The court may permit the fine prescribed by this section to be paid in installments if the court determines that the defendant is unable to pay the fine in one lump sum.

4425. Any violation of the terms of a burning permit issued pursuant to Section 4423, a restricted temporary burning permit issued pursuant to Section 4423.2, or a campfire permit issued pursuant to Section 4433 renders the permit null and void.

4426. A person shall not set a backfire, or cause a backfire to be set, except under the direct supervision or permission of a state or federal forest officer, unless it can be established that the setting of such backfire was necessary for the purpose of saving life or valuable property.

4427. During any time of the year when burning permits are required in an area pursuant to this article, no person shall use or operate any motor, engine, boiler, stationary equipment, welding equipment, cutting torches, tarpots, or grinding devices from which a spark, fire, or flame may originate, which is located on or near any forest-covered land, brush-covered land, or grass-covered land, without doing both of the following:

(a) First clearing away all flammable material, including snags, from the area around such operation for a distance of 10 feet.

(b) Maintain one serviceable round point shovel with an overall length of not less than forty-six (46) inches and one backpack pump water-type fire extinguisher fully equipped and ready for use at the immediate area during the operation.

This section does not apply to portable powersaws and other portable tools powered by a gasoline-fueled internal combustion engine.

4428. No person, except any member of an emergency crew or except the driver or owner of any service vehicle owned or operated by or for, or operated under contract with, a publicly or privately owned utility, which is used in the construction, operation, removal, or repair of the property or facilities of such utility when engaged in emergency operations, shall use or operate any vehicle, machine, tool or equipment powered by an internal combustion engine operated on hydrocarbon fuels, in any industrial operation located on or near any forest, brush, or grass-covered land between April 1 and December 1 of any year, or at any other time when ground litter and vegetation will sustain combustion permitting the spread of fire, without providing and maintaining, for firefighting purposes only, suitable and serviceable tools in the amounts, manner and location prescribed in this section.

(a) On any such operation a sealed box of tools shall be located, within the operating area, at a point accessible in the event of fire. This fire toolbox shall contain: one backpack pump-type fire extinguisher filled with water, two axes, two McLeod fire tools, and a sufficient number of shovels so that each employee at the operation can be equipped to fight fire.

(b) One or more serviceable chainsaws of three and one-half or more horsepower with a cutting bar 20 inches in length or longer shall be immediately available within the operating area, or, in the alternative, a full set of timber-felling tools shall be located in the fire toolbox, including one crosscut falling saw six feet in length, one double-bit ax with a 36-inch handle, one sledge hammer or maul with a head weight of six, or more, pounds and handle length of 32 inches, or more, and not less than two falling wedges.

(c) Each rail speeder and passenger vehicle, used on such operation shall be equipped with one shovel and one ax, and any other vehicle used on the operation shall be equipped with one shovel. Each tractor used in such operation shall be equipped with one shovel.

(d) As used in this section:

(1) "Vehicle" means a device by which any person or property may be propelled, moved, or drawn over any land surface, excepting a device moved by human power or used exclusively upon stationary rails or tracks.

(2) "Passenger vehicle" means a vehicle which is self-propelled and which is designed for carrying not more than 10 persons including the driver, and which is used or maintained for the transportation of persons, but does not include any motortruck or truck tractor.

4429. During any time of the year when burning permits are required in an area pursuant to this article, at any camp maintained in such area for the residence of employees, or at any local headquarters in such area of any industrial, agricultural, or other operations on or near any forest-covered land or brush-covered land, there shall be provided and maintained at all times, in a specific location, for firefighting purposes only, a sufficient supply of serviceable tools to equip 50 percent of the able-bodied, personnel, resident of such camp, or working out of such headquarters, for fighting fires. Among these tools shall be included shovels, axes, saws, backpack pumps, and scraping tools. With such tools there shall also be one serviceable headlight adaptable for attachment to at least one-half

of the tractor-bulldozers used on the operation, and a sufficient number of canteens and flashlights to equip a third of the able-bodied personnel.

4430. During any time of the year when burning permits are required in an area pursuant to this article, a person, copartnership, firm, corporation or company, shall not use or operate in such area any steam-operated engine, machine equipment, mill or industrial plant, located on or near forest-covered land or brush-covered land, without providing one adequate force pump or water under pressure equivalent to a pump, and not less than 200 feet of hose not less than one inch in diameter for each steam-operated engine or equipment. The pump or water pressure required in this section shall be capable of applying a minimum of 40 pounds pressure at the nozzle on 200 feet of hose, such nozzle to be one-fourth inch or larger in diameter. If two steam-operated engines or steam equipment are customarily operated within 100 feet of each other, only one engine or piece of equipment need be equipped with pump and hose.

This section does not apply to any internal combustion engine or to any steam or other locomotive which is being used in the business of a common carrier by railroad.

4431. During any time of the year when burning permits are required in an area pursuant to this article, no person shall use or operate or cause to be operated in the area any portable saw, auger, drill, tamper, or other portable tool powered by a gasoline-fueled internal combustion engine on or near any forest-covered land, brush-covered land, or grass-covered land, within 25 feet of any flammable material, without providing and maintaining at the immediate locations of use or operation of the saw or tool, for firefighting purposes one serviceable round point shovel, with an overall length of not less than 46 inches, or one serviceable fire extinguisher. The Director of Forestry and Fire Protection shall by administrative regulation specify the type and size of fire extinguisher necessary to provide at least minimum assurance of controlling fire caused by use of portable power tools under various climatic and fuel conditions.

The required fire tools shall at no time be farther from the point of operation of the power saw or tool than 25 feet with unrestricted access for the operator from the point of operation.

4432. A person shall not leave a campfire, kindled or attended by him, burning or unextinguished unless one of the following requirements is satisfied:

(a) He leaves some person in attendance.

(b) The fire is enclosed within a stove, oven, drum, or other nonflammable container, in such manner that the fire cannot escape from the container.

No person shall allow a campfire, kindled or attended by him, to spread after it is built.

4433. A person shall not light, maintain, or use a campfire upon any brush-covered land, grass-covered land, or forest-covered land which is the property of another person unless he first obtains a written permit from the owner, lessee, or agent of the owner or lessee of the property.

If, however, campsites and special areas have been established by the property owner and posted as areas for camping, a permit is not necessary.

A written campfire permit duly issued by or under the authority of the United States Forest Service is necessary for use on land under the jurisdiction and control of the United States Forest Service.

4434. The escape of any campfire from the control of any person who is maintaining the campfire is prima facie evidence that such person was negligent in maintaining the campfire.

4435. If any fire originates from the operation or use of any engine, machine, barbecue, incinerator, railroad rolling stock, chimney, or any other device which may kindle a fire, the occurrence of the fire is prima facie evidence of negligence in the maintenance, operation, or use of such engine, machine, barbecue, incinerator, railroad rolling stock, chimney, or other device. If such fire escapes from the place where it originated and it can be determined which person's negligence caused such fire, such person is guilty of a misdemeanor.

4436. A person shall not refuse or fail to render assistance in combating a forest, brush, or grass fire at the summons of the department, or its authorized agent who is charged with the prevention or suppression of fire or the enforcement of the state fire laws, or any county firewarden, fireman, or county officer who is charged with the duty of preventing or combating forest, brush, or grass fires, or any officer of a county fire protection district, unless prevented from so doing by sickness or physical disability.

4437. (a) Outside the exterior boundaries of cities, every processor of forest products shall exercise due diligence in the disposal of flammable material incident to the processing, so that the material does not cause the inception or spread of uncontrolled fire.

(b) Every person, copartnership, firm, corporation, or company that operates a sawmill or plant engaged in the processing or converting of forest products into lumber, shook, ties, poles, posts, veneer, shakes, shingles, and planed or milled products, shall dispose of flammable material incident to that operation. If such flammable material is not to be used as fuel, or as a byproduct, within the operation, it shall be disposed of by burning or by other

alternative methods which effectively prevent the flammable material from constituting a fire hazard. The disposal or storage of flammable waste material or residue shall be made in any of the ways which are prescribed in Section 4438, 4439, or 4440.

(c) The director may establish regulations for the storage, disposal, or use of forest product waste or residue on land as a soil amendment or soil protection measure or for its disposal by fire. Regulations shall be adopted by the director in accordance with the provisions of Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code for the purpose of eliminating the potential of fire resulting from spontaneous combustion, other ignition sources, or wildfire escaping the forest product waste or residue storage, use, or disposal areas.

4438. Flammable forest product waste material may be disposed of by means of fire in an enclosed device effective in preventing the spread of sparks or fire, situated in an area cleared of grass, grain, brush, slash, litter, and snags for a distance of 30.5 meters (100 feet) surrounding the device or by landfill or other methods which meet applicable state and local fire safety, air, and water quality standards.

A burning permit shall be obtained for the use of the device pursuant to Section 4423 and all other provisions of law.

4439. (a) Flammable forest product waste material may be disposed of by means of fire in an area which is cleared of grass, grain, brush, slash, litter, snags and forest cover for a distance of 121.9 meters (400 feet) from the periphery of the fire and for any greater distance necessary to provide 30.5 meters (100 feet) of cleared area around any lumber pile or structure which may be situated within 121.9 meters (400 feet) of the fire.

(b) Sound and living trees beyond 30.5 meters (100 feet) from the periphery of the fire may be left standing within the area required to be cleared, provided the following requirements are met:

(1) Wildfire cannot travel into the canopy of any tree left standing.

(2) Any tree left standing does not pose a fire safety threat or prevent fire equipment access to and near the flammable forest waste material.

(3) All dead limbs, and all limbs within 3 meters (10 feet) of the ground are removed from any tree left standing.

(c) The disposal by fire in the cleared area is the responsibility of the operator or landowner, or of the operator and landowner, jointly, and shall be in conformance with Section 4423 and all other provisions of law.

4440. (a) Flammable forest product residue may be accumulated in piles, within any state responsibility area, within any area receiving fire protection by the director by contract, or upon federal lands administered by the United States Department of Agriculture or the Department of Interior, when the area surrounding

the piles is cleared and kept clear of all flammable vegetation and debris, including trees, snags, brush, grass, slash, and litter in accordance with one of the following procedures:

(1) Clearing to a distance of 45.7 meters (150 feet) from the periphery of the piles of flammable residue and all structures and lumber piles which are situated within 15.2 meters (50 feet) of the residue piles.

(2) Clearing to a distance of 30.5 meters (100 feet) from the periphery of the piles of flammable residue and all structures and lumber piles which are situated within 15.2 meters (50 feet) of the residue piles, and maintaining at all times a firebreak three meters (10 feet) or more in width cleared of all flammable material and constructed in a continuous line surrounding the accumulation at a distance of not less than 15.2 meters (50 feet) nor more than 91.4 meters (300 feet) from the periphery of the clearing surrounding the accumulation. All snags and dead trees between the firebreak and the periphery of the clearing shall be felled.

(3) Sound and living trees may be left standing within the areas required to be cleared of flammable residue, provided the following requirements are met:

(A) Wildfire cannot travel into the canopy of any tree left standing.

(B) Any tree left standing does not pose a fire safety threat or prevent fire equipment access to and near the flammable forest waste material.

(C) All dead limbs, and all limbs within 3 meters (10 feet) of the ground are removed from any tree left standing.

(D) Diseased or dead trees are removed entirely.

(b) Disposal by fire, if contemplated, is a responsibility of the operator or landowner or the operator and landowner, jointly, and shall be accomplished in conformance with Section 4423 and all other applicable provisions of law.

4441. Any person who permits or allows accumulation of waste material or residue in violation of the provisions of Sections 4437 to 4440, inclusive, is guilty of a misdemeanor and shall be punished for a first conviction, by a fine not to exceed two hundred fifty dollars (\$250), and, for a second or subsequent conviction within five years of a prior conviction of a violation of one of those provisions, by a fine not less than two hundred fifty dollars (\$250) or more than one thousand dollars (\$1,000) or imprisonment in the county jail for a period not to exceed 30 days, or both that fine and imprisonment. Each and every day of violation is a separate and distinct offense.

4442. (a) Except as otherwise provided in this section, no person shall use, operate, or allow to be used or operated, any internal combustion engine which uses hydrocarbon fuels on any forest-covered land, brush-covered land, or grass-covered land unless the engine is equipped with a spark arrester, as defined in subdivision (c), maintained in effective working order or the engine is constructed, equipped, and maintained for the prevention of fire pursuant to Section 4443.

(b) Spark arresters affixed to the exhaust system of engines or vehicles subject to this section shall not be placed or mounted in such a manner as to allow flames or heat from the exhaust system to ignite any flammable material.

(c) A spark arrester is a device constructed of nonflammable materials specifically for the purpose of removing and retaining carbon and other flammable particles over 0.0232 of an inch in size from the exhaust flow of an internal combustion engine that uses hydrocarbon fuels or which is qualified and rated by the United States Forest Service.

(d) Engines used to provide motive power for trucks, truck tractors, buses, and passenger vehicles, except motorcycles, are not subject to this section if the exhaust system is equipped with a muffler as defined in the Vehicle Code.

(e) Turbocharged engines are not subject to this section if all exhausted gases pass through the rotating turbine wheel, there is no exhaust bypass to the atmosphere, and the turbocharger is in effective mechanical condition.

(f) Motor vehicles when being operated in an organized racing or competitive event upon a closed course are not subject to this section if the event is conducted under the auspices of a recognized sanctioning body and by permit issued by the fire protection authority having jurisdiction.

4442.5. No person shall sell, offer for sale, lease, or rent to any person any internal combustion engine subject to Section 4442 or 4443, and not subject to Section 13005 of the Health and Safety Code, unless the person provides a written notice to the purchaser or bailee, at the time of sale or at the time of entering into the lease or rental contract, stating that it is a violation of Section 4442 or 4443 to use or operate the engine on any forest-covered, brush-covered, or grass-covered land unless the engine is equipped with a spark arrester, as defined in Section 4442, maintained in effective working order or the engine is constructed, equipped, and maintained for the prevention of fire pursuant to Section 4443.

4442.6. (a) A person shall not sell, offer for sale, lease, or rent to a person any equipment that is powered by an internal combustion engine subject to Section 4442 or 4443, and not subject to Section 13005 of the Health and Safety Code, unless that equipment has a permanent warning label attached that is in plain view to the operator that states, "WARNING--Operation of This Equipment May Create Sparks That Can Start Fires Around Dry Vegetation. A Spark Arrester May be Required. The Operator Should Contact Local Fire Agencies For Laws or Regulations Relating to Fire Prevention Requirements."

(b) A person who manufacturers equipment that is powered by an internal combustion engine described in subdivision (a) shall attach to that equipment a permanent warning label that is in plain view to the operator and that complies with subdivision (a).

(c) Notwithstanding Section 4021, a violation of subdivision (a) or (b) is an infraction punishable by a fine of not more than one hundred dollars (\$100).

4443. No person shall use, operate, or cause to be operated on any forest-covered land, brush-covered land, or grass-covered land any handheld portable, multiposition, internal-combustion engine manufactured after June 30, 1978, which is operated on hydrocarbon fuels, unless it is constructed and equipped and maintained for the prevention of fire.

The board shall, by regulation, specify standards for construction, equipment, and maintenance of such engines for the prevention of fire and shall specify a uniform method of testing to be used by engine and equipment manufacturers, governmental agencies, and equipment users. The regulations shall include specification of exhaust system standards for carbon particle retention or destruction, exposed surface temperature, gas temperature, flammable debris accumulation, durability, and serviceability.

Portable power saw and other portable equipment described in this section which were manufactured prior to July 1, 1978, shall be subject to fire safety design specifications as prescribed by the board.

4445. A person shall not fire or cause to be fired from any rifle or other device capable of discharging ammunition, any bullet, projectile, or other ammunition which contains the components of thermite, magnesium, or aluminum, or any other component capable of causing a fire and commonly known as tracer or incendiary ammunition within any forest-covered area, brush-covered area, grass-covered area or grain-covered area.

4446. Every person shall exercise reasonable care in the disposal of flammable material so that the material does not cause the inception of or spread of uncontrolled fire. A person shall not burn any flammable material in any incinerator within any state responsibility area, within any area receiving fire protection by the director by contract, or upon federal lands administered by the United States Department of Agriculture or Department of the Interior, unless all of the following minimum requirements are complied with:

(a) The area within 10 feet of the exterior of the incinerator is maintained free and clear of all flammable material and vegetation.

(b) A screen constructed of a nonflammable material, with no greater than 1/4-inch mesh, or metal doors, close or cover each opening in the exterior of an incinerator to prevent the escape of flames, sparks, ashes, or other burning material which might cause an uncontrolled fire.

(c) A permit is obtained prior to burning for the use of the incinerator pursuant to Section 4423 and all other applicable provisions of law.

This section does not apply to the disposal of flammable material incident to the processing of forest products.

Sale Name: Spanish Creek Bridge Replacement Project

1# - PRODUCT DESIGNATION (07/1998)

The Forest Service designated timber or forest products for cutting or harvesting prior to award of this contract. The designated timber or forest products is confined to the sale area and has been designated in the following manner: All timber and vegetation within the orange tracer paint sale area boundary will be felled and removed. Boundaries are intervisible designated with three horizontal stripes facing the unit and two stripes facing the next tree and previous tree at 4.5 feet DBH. Trees within boundaries will have two blue dots. One at stump height and one at 4.5 feet DBH. Boundary trees for this project may be removed to meet the needs of the project but must be paid for and designated prior to selling.

4 - PRODUCT IDENTIFICATION (11/1999)

Before removal from the sale area, unless the Contracting Officer determines that circumstances warrant a written waiver or adjustment, (a) all products 8 feet or more in length and 1/3 or more sound shall be hammer branded on each end that is 7 inches or more in diameter and (b) all domestic processing products 8 feet or more in length and 1/3 or more sound shall be painted with a spot of highway-yellow paint on each end that is 7 inches or more in diameter. Each paint spot must be not less than 3 square inches in size.

The Contracting Officer shall assign brands and brands shall be registered with the State, if the sale area is within a State that maintains a log brand register. The Purchaser will furnish and apply highway-yellow paint of a lasting quality (oil-base or equivalent).

All hammer brands and/or highway-yellow paint must remain on logs until they are domestically processed. If the identifying marks are lost, removed, or become unreadable, they shall be replaced. The Purchaser may remanufacture products into different log lengths. Except for logs remanufactured as part of the mill in-feed process immediately before processing, remanufactured products must be re-branded with the assigned sale brand and repainted with highway-yellow paint, unless otherwise agreed to in writing by the Contracting Officer. For such remanufactured products, the Contracting Officer may approve use of a brand to be used exclusively as a catch brand, in lieu of the assigned sale brand.

5 - USE OF TIMBER (07/1998)

This contract is subject to the Forest Resources Conservation and Shortage Relief Act of 1990 (16 USC 620, et seq.). Except for species determined to be surplus, unprocessed logs originating from federal lands west of the 100th meridian, shall not be exported from the United States nor used in direct or indirect substitution for unprocessed logs exported from private lands by the Purchaser or any person as defined in the act. Prior to delivering such unprocessed federal logs to another party, the Purchaser shall require each buyer, exchangee, or recipient to execute an acceptable agreement, that shall: (a) identify the federal origin of the logs, (b) specify domestic processing for the logs involved, (c) require the execution of such agreements between the parties to any subsequent transactions involving said logs, (d) require that all hammer brands and/or yellow paint must remain on logs until they are either legally exported or domestically processed, whichever is applicable, and (e) otherwise comply with the requirements of the act.

6 - EROSION CONTROL (07/1998)

The Purchaser shall: (1) not operate equipment when soil conditions are such that excessive damage will result, as determined by the Contracting Officer or designee; (2) construct erosion control structures, as needed to control erosion as determined by the Contracting Officer or designee; (3) repair promptly any existing erosion control structures damaged by the Purchaser's operations; (4) complete seasonal erosion control work prior to suspending operations; and (5) perform other soil erosion control work that may be required under this contract.

7 - STREAMCOURSE PROTECTION (07/1998)

Streamcourses that are subject to these requirements are shown on the sale area map. Unless the Contracting Officer or designee agrees in writing otherwise, the Purchaser shall use the following measures to protect streamcourses: (a) Purchaser's operations shall be conducted to prevent debris from entering streamcourses; (b) Purchaser shall not otherwise haul or yard trees or products across streamcourses unless fully suspended and; (c) Purchaser shall not operate wheeled or track-laying equipment in streamcourses, except at crossings designated by the Contracting Officer or designee. In event the Purchaser's operations cause debris to enter streamcourses, the Purchaser shall remove such debris as soon as practicable, but not to exceed 48 hours, and in a manner that the Contracting Officer or designee agrees to in writing that will cause the least disturbance to streamcourses.

8 - TEMPORARY FACILITIES (07/1998)

The Contracting Officer or designee shall approve the location and clearing limits for all landings and skid trails prior to their construction. The cleared or excavated size of such construction shall not exceed that needed for the Purchaser's safe and efficient operations. After landings have served the Purchaser's purpose, the Purchaser shall ditch or slope them to permit water to drain or spread. Unless the Contracting Officer or designee agrees otherwise, the Purchaser shall slope cut and fill banks around landings to remove overhangs and otherwise minimize erosion. After a skid trail has served the Purchaser's purpose, the Purchaser shall effectively block the skid trail to normal vehicular traffic where feasible under existing terrain conditions and build cross ditches and water bars, as staked or otherwise marked on the ground by the Contracting Officer or designee.

13A# - SLASH DISPOSAL (11/2001)

Purchaser shall dispose of slash, which is limbs, tops, and unutilized portions of trees designated for cutting, resulting from their activities. Slash disposal consists of the following treatments: Slash will be removed from the sale area or will be lopped and scattered no greater than 18 inches from the ground.

14 - EQUIPMENT CLEANING (07/2000)

Unless the entire sale area is already infected with noxious weeds, the Purchaser shall ensure that, prior to moving on to the sale area, all off-road equipment, which last operated in areas known by the Forest Service to be infected with noxious weeds, is free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds. The Purchaser shall certify in writing that off-road equipment is free of noxious weeds prior to each start-up of timber sale operations and for subsequent moves of equipment to sale area. Measures taken to ensure that off-road equipment is free of noxious weeds will be identified. Off-road equipment includes all logging and construction machinery, except for log trucks, chip vans, service vehicles, water trucks, pickup trucks, cars, and similar vehicles. A current list of noxious weeds of concern to the Forest Service is available at the Forest Supervisor's Office.

The Purchaser must clean off-road equipment prior to moving between cutting units on this timber sale that are known to be infested with noxious weeds and other units, if any, that are free of such weeds. Sale area map shows areas, known by the Forest Service prior to timber sale advertisement, that are free of specific noxious weeds species of concern.

The Purchaser shall employ whatever cleaning methods are necessary to ensure that off-road equipment is free of noxious weeds. Equipment shall be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools are not required.

The Purchaser shall notify the Forest Service at least 5 working days prior to moving each piece of off-road equipment on to the sale area, unless otherwise agreed. Notification will include identifying the location of the equipment's most recent operations. If the prior location of the off-road equipment cannot be identified, the Forest Service may assume that it was infested with noxious weed seeds. Upon request of the Forest Service, the Purchaser must arrange for the Forest Service to inspect each piece of off-road equipment prior to it being placed in service.

If the Purchaser desires to clean off-road equipment on National Forest land, such as at the end of a project or prior to moving to a new unit that is free of noxious weeds, the Purchaser and the Forest Service shall agree on methods of cleaning, locations for the cleaning, and control of off-site impacts, if any.

New infestations of noxious weeds, of concern to the Forest Service and identified by either the Purchaser or the Forest Service, on the sale area or on the haul route, shall be promptly reported to the other party. The Purchaser and the Forest Service shall agree on treatment methods to reduce or stop the spread of noxious weeds when new infestations are found.

Sale Name: Spanish Creek Bridge Replacement Project

14A# - FIRE PRECAUTIONS (12/2005)

Purchaser and their employees shall take immediate and independent action to prevent and suppress forest fires on the Sale Area.

Purchaser shall follow all applicable state fire regulations. Listed below are specific fire precautionary measures which shall be applicable and are included or in addition to state fire regulations. Unless otherwise agreed in writing by the Contracting Officer or designee, Purchaser shall:

- a) maintain effective muffler systems or approved spark arresters on exhausts of all internal combustion engines used in Purchaser's operations;
- b) furnish and maintain in quantities and at locations to be determined by the Contracting Officer or designee, tool boxes, fire extinguishers and fire tools to be used only for suppressing forest fires. Contracting Officer or designee shall approve tools and fires extinguishers to be used;
- c) remain on the sale area for a least 2 hours after cutting to be sure that a fire has not started.
- d) conduct operations according to the Project Activity Level for that day. Purchaser shall obtain activity level information daily from the Mt. Hough District Ranger's Office. Operations permitted by Project Activity Levels are:

Project Activity Level	A	- Cutting and hauling allowed
Project Activity Level	B	- Cutting and hauling allowed
Project Activity Level	C	- Cutting and hauling allowed
Project Activity Level	D	- Hauling allowed, no cutting after 1:00 PM (Hoot Owl)
Project Activity Level	Ev	- No cutting, hauling allowed, unless a variance is agreed upon
Project Activity Level	E	- No cutting, hauling allowed

16A - USE OF STATE OF CALIFORNIA CERTIFIED WEED FREE HAY, STRAW, AND MULCH USED IN THIS CONTRACT (05/2003)

Notwithstanding other provisions in this contract and unless otherwise agreed in writing, any hay, straw, or mulch used in this contract shall be State of California certified weed free.

**INSTRUCTIONS FOR:
Subcontractor Certification
Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion**

1. By signing and submitting this proposal, the prospective subcontractor (lower tier participant) is providing the certification set out below:
2. The certification is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective subcontractor knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Forest Service, with which this transaction originated may pursue available remedies, including suspension and/or debarment.
3. The prospective subcontractor shall provide immediate written notice to the person to whom this bid is submitted if at any time the prospective subcontractor learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms 'covered transaction,' 'debarred,' 'suspended,' 'ineligible,' 'lower tier covered transaction,' 'participant,' 'person,' 'primary covered transaction,' 'principal,' 'proposal,' and 'voluntarily excluded,' as used in this clause, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. You may contact the Forest Service for assistance in obtaining a copy of those regulations.
5. The subcontractor agrees by submitting this certification that, should the proposed subcontract be entered into, it shall not knowingly enter into any other subcontract with a person who is proposed for debarment under 48 CFR 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this timber sale, unless authorized by the Forest Service.
6. The subcontractor further agrees by submitting this certification that it will include this certification titled "Subcontractor Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion," without modification, and instructions in all subcontracts and in all solicitations for its subcontracts.

**Subcontractor Certification
Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion**

Sale Name: Spanish Creek Bridge Replacement Project

National Forest: Plumas

The prospective subcontractor (participants in lower tier covered transactions) certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this timber sale by any Federal department or agency.

Where the prospective subcontractor is unable to certify to any of the statements in this certification, such prospective subcontractor shall attach an explanation to this proposal.

Name of Subcontractor: _____

Business Address: _____

Date

Signature

Permit / Certification

(1600: Lake and Streambed Alteration Agreement No. 1600-2009-0059 R2)

AGREEMENT REGARDING PROPOSED STREAM ALTERATION

THIS AGREEMENT, entered into between the State of California, Department of Fish and Game, hereinafter called the Department, and the California Department of Transportation, State of California, hereafter called Caltrans, is as follows:

WHEREAS, pursuant to California Fish and Game Code, Section 1602, Caltrans, on April 18, 2009, notified the Department that it intends to substantially divert or obstruct the natural flow of, or substantially change the bed, channel, or bank of, or use material from the streambed of the following waterway: Spanish Creek, in the County of Plumas, State of California, Section 15, Township 25N, Range 9E, MDB&M (Crescent Mills USGS 7.5 minute quadrant map).

WHEREAS, the Department, represented by Sharon Stohrer, has determined that such operations may substantially adversely affect existing fish and wildlife resources including: rainbow trout (*Oncorhynchus mykiss*), hardhead minnow (*Mylopharodon conocephalus*), Sierra Nevada yellow-legged frog (*Rana sierrae*), foothill yellow-legged frog (*Rana boylei*), pallid bat (*Antrozous pallidus*), California spotted owl (*Strix occidentalis*), northern goshawk (*Accipiter gentilis*), Quincy lupine (*Lupinus dalesia*), warm water fish species, amphibians, and other aquatic and terrestrial plant and wildlife species.

THEREFORE, the Department hereby proposes measures to protect fish and wildlife during the Caltrans work. Caltrans hereby agrees to accept the following recommendations as part of this work:

Project Description: Caltrans will replace the Spanish Creek Bridge (Bridge No. 09-0015) on SR 70, approximately 7.3 miles north of the community of Quincy in Plumas County. The project will include: a) construction of a new concrete arch bridge immediately west of the existing bridge; b) construction of up to three temporary trestles across Spanish Creek; c) construction of a temporary access road along the south bank of Spanish Creek; d) construction of an equipment staging area on the south stream bank beneath the existing bridge; e) demolition and removal of the existing bridge; f) relocation of seven utility poles; g) realignment of segments of Highway 70 north and south of the new bridge; and h) incidental modifications to roadways within the Spanish Creek campground. The project is expected to take 3 years for completion.

Three temporary trestles will be constructed to provide stream crossings and to serve as work platforms during construction of the new bridge and demolition of the existing bridge. One or two trestles (Trestle Nos. 2 and 3) will span Spanish Creek in the immediate vicinity of the existing bridge, supported by temporary abutments placed on each stream bank. Trestle No.1 will extend approximately 164 feet across Spanish Creek to connect Campground Road (on the north) with the proposed access road to be constructed along the south stream bank. Trestle No.1 will require the placement of approximately 24 steel vertical support piles into the bed of the active Spanish Creek channel in addition to concrete abutments on each stream bank. Construction at each trestle crossing site will require the temporary removal of mature riparian vegetation from within the banks of Spanish Creek. The trestles will be utilized over a period of three years; trestle decks and horizontal girders will be removed during the winter and spring high flows then replaced as the construction season begins with decline in the Spanish Creek hydrograph. A temporary access road will be constructed along topographic contours above the floodplain on the south bank of Spanish Creek. Upland vegetation, including species of the mixed conifer forest will be removed for roadway, staging area, and extension of the paved campground road.

Riparian vegetation removal will be minimized to those areas necessary for construction of the arch bridge and abutments for each temporary trestle. Approximately 4,800 square feet of riparian corridor will be removed upstream of the bridge site (2,400 square feet on north bank and 2,400 square feet on south bank); approximately 1,934 square feet will be removed at the Trestle No. 1 location (1,400 square feet on north bank and 534 square feet on south bank). Temporary fencing will be installed to prevent construction encroachment into environmentally sensitive areas (ESA) including wetlands, riparian habitat, and upland forest. The contractor will be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP), which includes appropriate best management practice measures to protect water quality.

Using temporary access facilities, construction of a new concrete arch bridge will proceed immediately downstream (west) of the existing bridge. Foundations of the new bridge will be located above the "base" floodplain elevation of Spanish Creek. A falsework structure will be constructed using Trestle No. 2 to support the arch as the bridge is engineered; all falsework will be removed along with trestle decks, abutments, and other structure that may significantly impede streamflow, prior to winter flows.

Once the new arch bridge is completed and traffic is routed to the new bridge, demolition of the existing bridge will begin. Trestle No. 3 will be constructed as a work platform immediately beneath the existing bridge and a catchment device will be installed under the bridge deck to catch small debris. The deck will be cut into manageable pieces using a concrete saw or pneumatic hammer; concrete dust slurry will be collected with a vacuum; an excavator or crane will remove pieces from the bridge beginning in the center and progressing back toward the abutments. Steel bridge trusses, (known to be coated with lead-based paint) will be dismantled in sections using a torch. Bridge truss sections will be lowered to the area beneath the bridge or lifted to the deck of the new bridge, and transported by truck to an appropriate disposal facility. The contractor will be required to adhere to all laws pertaining to the handling and disposal of lead containing materials. Concrete foundations will be rubblized with a pneumatic hammer and removed to a depth of approximately three feet below grade. Concrete debris and steel reinforcing steel will be loaded onto trucks and hauled off site to an appropriate disposal facility. Trestle No. 3 will be removed when the last piece of debris from the bridge is removed from the site. All temporary structures and/or fill will be removed following construction.

The staging and access areas on the south side of Spanish Creek will be returned to pre-construction elevations and grades with the exception of a portion of the access road, which will be converted to a pedestrian hiking trail. Upland woody vegetation within the public recreation area campground will be replanted by the Plumas National Forest. Following construction, disturbed areas will be stabilized with an application of erosion control seeding and replacement of woody riparian vegetation. A revegetation program will be conducted to establish native riparian species along disturbed stream margins, with supplemental watering as necessary. A 3 year monitoring program will be implemented.

Stream Zone Defined: The stream zone is that portion of the stream channel that restricts lateral movement of water. The stream zone is delineated at the top of the bank or the outer edge of any riparian vegetation, whichever is more landward.

1. The Notification of Streambed Alteration, together with all supporting documents submitted with the notification, including the descriptive cover letter (dated March 17, 2009), project design plans, Natural Environment Study (August 2006), Natural Environment Study Amendment (March 7, 2008), final Environmental Impact Report, and Addendum to the EIR (September 9, 2009) are hereby incorporated into this agreement to describe the location and features of the

proposed project. Caltrans agrees that all work shall be done as described in the notification and supporting documents, incorporating all project modifications, wildlife resource protection features, mitigation measures, and provisions as described in this agreement. Where apparent conflicts exist between the notification and the provisions listed in this agreement, Caltrans shall comply with the provisions listed in this agreement. Caltrans further agrees to notify the Department of any modifications made to the project plans submitted to the Department. At the discretion of the Department, this agreement will be amended to accommodate modifications to the project plans submitted to the Department and/or new project activities. Please see the current fee schedule to determine the appropriate amendment fee.

2. Documents, plans, surveys, notifications, and requests pertaining to this project or required by this agreement may be sent by email to Sharon Stohrer at [sstohrer@dfg.ca.gov](mailto:ssstohrer@dfg.ca.gov) or delivered to the Department of Fish and Game at 1701 Nimbus Road, Suite A, Rancho Cordova, CA 95670. Refer to Notification No. 1600-2009-0059-R2 when submitting documents to the Department.
3. The time period for completing the work within the stream zone of Spanish Creek shall be restricted to periods of low stream flow and dry weather and shall be confined to the period of **May 1 to October 15**. Construction activities shall be timed with awareness of precipitation forecasts and likely increases in stream flow. Construction activities within the stream zone shall cease until all reasonable erosion control measures, inside and outside of the stream zone, have been implemented prior to all storm events. No work will occur during wet weather. Wet Weather is defined as when there has been ¼ inch of rain in a 24-hour period. In addition, no earth-disturbing work will occur during a dry out period of 24 hours after the above referenced wet weather. Tree removal (as described in condition 18), revegetation, restoration, and erosion control work is not confined to this time period.
4. A copy of this agreement shall be provided to the Contractor(s) who works within the stream zone of this project. The Contractor(s) shall sign this agreement prior to working within the stream zone, and Caltrans shall provide a copy of the final signed agreement to the Department as directed in item number 2 above. The Contractor(s) or a designated crew supervisor shall be on site the entire time a work crew is working near the stream zone. The supervisor shall be completely familiar with the terms and conditions of this agreement and shall ensure compliance with all terms and conditions. The Department reserves the right to enter the project site at any time to ensure that there is compliance with the terms/conditions of this Agreement.
5. A copy of this agreement and a copy of the original notification, including the project description as submitted to the Department, must be available upon request at the work site.
6. Caltrans shall notify the Department two working days prior to beginning work within the stream zone of Spanish Creek. In addition, the Caltrans shall notify the Department within two working days of the completion of work within the stream zone on this project. Notification shall be submitted to the Department as instructed in item number 2 above.
7. Prior to commencement of work within the stream zone and upon completion of work activities, Caltrans shall photograph the project site, including upstream views and downstream views from the work site. Labeled, hard copies of before and after photographs shall be provided to the Department of Fish and Game within 15 days of project completion. Mailings should be sent as directed in item number 2 above.

8. When work in a flowing stream is unavoidable, the entire stream flow shall be passed around or through the work area during pile driving, excavation and/or other construction operations. If diversion of stream flow is necessary to prevent discharge to waters of the state, the Department and the Regional Water Quality Control Board shall be notified, and methods of diversion must be approved by the Department prior to initiating this activity. Authorization of any diversion method shall be at the discretion of the Department. Normal flows will be restored to the affected stream immediately upon completion of authorized work.
9. Prior to beginning construction of any diversion features in Spanish Creek, Caltrans shall submit to the Department for review, a detailed dewatering and diversion plan prepared by a qualified hydraulic or civil engineer. The plan shall, at a minimum: a) provide for complete isolation of the work site from the flowing stream, b) describe in detail, methods for impounding and conveying all anticipated stream flow around the work site for return to the natural channel downstream, c) provide methods and a schedule for maintenance of the temporary structures used in dewatering and diversion, and d) present a step-by-step sequence for breach and/or structure removal to avoid sediment, debris, or turbidity release to the flowing channel at completion of instream construction activities. The Department will have a minimum of ten working days to approve the plan or provide requirements for that approval. If the Department does not respond within 14 days, the plan shall be automatically approved. The approved plan shall be appended to this Streambed Alteration Agreement.
10. Introduction of equipment into the stream channel shall be minimized to the greatest extent possible and shall occur only as necessary for efficient completion of the project. If operations require moving of equipment into the wetted stream zone, including riparian corridor, such operations shall be conducted without increasing stream turbidity. All culverts, pipe, sandbags, gravel bags or other materials used within the defined stream zone shall be clean when placed, and shall be removed completely at the end of each annual work period.
11. Pile driving and other construction activities shall be conducted in a manner that minimizes noise exposure and pressure impacts to fish and other aquatic species resident within Spanish Creek. As appropriate, vibratory hammer methods or other equipment with measured decibel and pressure exposure levels that limit disturbances to fish should be selected for use in placement of vertical supports for Trestle No. 1 within the channel bed.
12. This agreement does not authorize "take" of any listed species. Take is defined as hunt, pursue, catch, capture or kill or attempt to hunt, pursue, catch, capture, or kill. If there is potential for take of any listed species to occur, Caltrans shall consult with the Department as outlined in Fish and Game Code Section 2081 and shall obtain the required state and federal threatened and endangered species permits.
13. It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by the Fish and Game Code. No trees that contain active nests of birds shall be disturbed until all eggs have hatched and young birds have fledged without prior consultation and approval of a Department representative.
14. Prior to construction activity at the Spanish Creek Bridge project site, Caltrans shall clearly stake and fence boundaries of environmentally sensitive areas to exclude equipment access. Temporary ESA fencing shall be placed to effectively cordon protected riparian corridor and upland conifer/streambank habitat as described in Caltrans Riparian Vegetation Replanting Map

Figures 1 and 2 (March 11, 2009) and construction plan Layout Sheets L-3 and L-4.

15. Prior to initiating construction activities, Caltrans shall demonstrate to the satisfaction of the Department, that bat species and their habitat will be protected from temporary and/or permanent impacts that may result from construction and demolition at the Spanish Creek Bridge site. To demonstrate protection of local bat populations, Caltrans may do one of the following: a) provide survey data to document a history of non-use by bat species along with written rationale to justify an assertion that the bridge is unsuitable roosting habitat. Or, b) develop and submit to the Department for approval, a plan to have a qualified biologist survey the existing Spanish Creek Bridge to determine use of the structure by roosting bat species. Appropriate survey techniques shall be used to evaluate potential bridge habitat and to identify, by species, any active colony utilizing the structure as day roost, maternity roost, and/or night roost during spring and summer months. Once approved by the Department, the Bat Survey Plan shall be implemented, and a Data Report developed with data to support conclusions of bat use or nonuse of the bridge; this report shall be provided to the Department as well as the Plumas National Forest. As necessary, a mitigation program to compensate for potential loss of bat roosting habitat(s) will be determined through consultation with the Department, and implemented by Caltrans.
16. No less than one year prior to demolition of the existing Spanish Creek Bridge, Caltrans shall implement measures to exclude wildlife from the structure. Exclusion measures shall be carried out under the direction of a wildlife biologist during winter or early spring months, and shall at a minimum, effectively prevent nesting of swallow or raptor species and prevent establishment of seasonal roosting by bat species within girders, expansion joints, crevices or other bridge features. All exclusion methods or equipment, including netting, foam-fill, "noodles" or other devices shall be maintained securely to avoid trapping or injury to wildlife throughout the construction activity period and during the non-construction season.
17. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations. A biologist shall be onsite during riparian vegetation removal and clearing of areas for trestle abutments and during tree removal for access roads. Except for the vegetation specifically identified for trimming and/or removal in the notification, no native trees with a trunk diameter at breast height (DBH) in excess of four (4) inches shall be removed or damaged without prior consultation and approval of a Department representative. Using hand tools (clippers, chain saw, etc.), trees may be trimmed to the extent necessary to gain access to the work sites. All cleared material/vegetation shall be removed out of the riparian/stream zone.
18. Riparian vegetation within the abutment footprint of temporary construction Trestles No. 1, No. 2 and No. 3 (as described in the two Figures 1 of the Revegetation and Monitoring Plan) may be hand-trimmed during the period between October 15 and February 15. Riparian trimming shall be conducted in a manner that leaves root systems in place, and vegetation stubble and/or stumps as appropriate, to stabilize streambank and reduce erosion. Exposed soils shall be stabilized to prevent erosion, sediment transport, or change in water quality conditions. Riparian cuttings and debris shall be removed from the stream zone. Tree removal above the 100-year flow elevation and necessary for construction of the south-bank access road may be conducted as authorized by the Plumas National Forest, between October 15 and February 15. If any wildlife is encountered during the course of tree trimming or tree removal, said wildlife shall be allowed to leave the project area unharmed, and shall be flushed or herded in a safe direction away from the activity site.

19. Riparian vegetation shall be restored to pre-construction conditions along margins of Spanish Creek at all locations where temporary impacts of project activity have caused removal of riparian corridor. Wetland survey and Caltrans vegetation assessments estimate temporary impacts to approximately 4,800 square feet in the vicinity of Spanish Creek Bridge (2,400 sq. ft. on north bank and 2,400 sq. ft. on south bank) and approximately 1,934 square feet downstream at the Trestle No. 1 location (1,400 sq. ft. on north bank and 534 sq. ft. on south bank). Replanting shall be conducted immediately following completion of the project construction and cleanup, ideally in the early fall months at the conclusion of construction year three.

The revegetation program shall ensure no net loss of riparian habitat or values. Riparian restoration efforts shall provide for the replanting of locally-native woody riparian species in ratios of 2:1, as described in Table 1 of the Spanish Creek Bridge Replacement Revegetation and Monitoring Plan (March 2009). Supplemental irrigation shall be provided as necessary to establish and maintain plantings. Monitoring and annual reporting of restoration success shall be conducted for a minimum of 3 years, beginning in the first full year after planting. Monitoring shall include the survey and record of survival rates by species, bank stabilization success or erosion problems, water source for maintenance, and overall health of the restored area as contracted with the upstream and downstream riparian corridor. A brief report shall be provided to the Department by November 15 of each monitoring year, which shall include photographs, data and assessment of success rates, along with description of any corrective actions taken to replace stem losses or to minimize erosion or other disturbance concerns. Following year 3 of the riparian revegetation program, Caltrans shall confer with the Department to determine adequacy in meeting riparian restoration goals.

20. All exposed/disturbed areas, access points, and construction staging areas within the stream zone left barren of vegetation as a result of the construction activities shall be restored using locally native grass seeds, locally native grass plugs and/or a mix of quick growing sterile non-native grass with locally native grass seeds. Seeded areas shall be covered with broadcast straw and/or other wildlife-friendly material (monofilament or jute netting erosion blankets are not authorized).
21. Precautions to minimize turbidity/siltation shall be implemented along riparian and upland activity sites, including but not limited to access roads, staging areas, trestle and bridge abutment zones, and all areas left barren of vegetation as a result of construction work. This may require the placement of silt fencing, coir logs, coir rolls, straw bale dikes, and/or other siltation barriers so that silt or other deleterious materials are not allowed to pass to Spanish Creek or downstream reaches. If silt fencing is used, the bottom edge of the material shall be buried in the ground to prevent snakes or other wildlife from crawling underneath the material. Products with plastic monofilament or jute netting (such as found in straw wattles/fiber rolls and some erosion control blankets), shall not be allowed. Wildlife-friendly erosion control and sediment control products that will not entangle snakes and other wildlife shall be used instead.

Passage of sediment beyond the sediment barrier(s) is prohibited. If any sediment barrier fails to retain sediment, corrective measures shall be taken immediately. The sediment barrier(s) shall be maintained in good operating condition throughout the construction period and through the seasonal events of precipitation and runoff between work periods. Maintenance includes, but is not limited to, removal of accumulated silt and/or replacement of damaged silt fencing, coir logs, coir rolls, and/or straw bale dikes. Caltrans is responsible for the removal of non-

biodegradable silt barriers (such as plastic silt fencing) after the disturbed areas have been stabilized with erosion control vegetation (usually after the first growing season). Upon Department determination that turbidity/siltation levels resulting from project related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation shall be halted until effective Department approved control devices are installed or abatement procedures are initiated.

22. Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, hazardous waste including lead-based paint residue, and/or any other substances which could be hazardous to aquatic life, resulting from project related activities, shall be prevented from contaminating the soil or entering the waters of the state. Any of these materials, placed within Spanish Creek or where they may enter a stream or lake by the Caltrans or any party working under contract or with the permission of Caltrans, shall be removed immediately. The Department shall be notified immediately by Caltrans of any spills and shall be consulted, along with the appropriate Regional Water Quality Control Board, regarding clean-up procedures.
23. During construction, the contractor shall not dump any litter or construction debris within the stream zone. All construction debris and associated materials shall be removed from the work site weekly as feasible, a complete cleanup of onsite debris shall occur at close of each October 15th work period, and final construction site cleanup will be implemented upon completion of this project. All concrete dust, lead-based paint residue, petroleum laden wastes, and/or other hazardous debris shall be contained and removed from the construction site to appropriate waste disposal area, consistent with guidelines from the California Department of Toxic Substances Control.
24. Any equipment operated within or adjacent to a stream zone shall be checked and maintained daily to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic life. All equipment and vehicles shall be removed from the stream zone prior to refueling and at the close of each work day. Vehicular construction equipment and all petroleum products shall be removed from the stream zone area at the close of each work season.
25. All horizontal structure and deck features of temporary Trestles No. 1, No. 2, and No.3, along with the entire falsework structure shall be removed from the stream zone by October 16 following each construction period. Any abutment or other temporary feature that has potential to significantly impede flow or cause undue channel scour shall also be seasonally removed. Structures and materials shall be stored at an elevation above the 100-year flow elevation to prevent transport by surface runoff or flood downstream in Spanish Creek. Caltrans shall notify the Department within 2 days of completing each rainy season dismantling of temporary cross structures that could interfere with high flow in Spanish Creek.
26. Caltrans engineers shall routinely monitor the construction site October 16 through May 31, to identify any potential risks of pending flow obstruction as a result of woody debris or other material impingement on the vertical pilings in the Spanish Creek channel. Spanish Creek shall be maintained open for year-round fish passage upstream and downstream along that stream course. Caltrans shall be responsible for maintenance and removal of any obstructions that would impede fish movement or cause risks of impoundment at the project site as a result of precipitation and/or runoff events during the multi-year construction period.

27. This agreement is not valid and work may not begin until the agreement is signed by a representative of the Department of Fish and Game. **Stream alteration work authorized by this agreement expires five years from the date it was signed by the Department.** This agreement shall remain in effect for that time necessary to satisfy all required mitigation and monitoring measures.
28. If Caltrans finds more time is needed to complete the authorized activity, Caltrans shall submit a written request for a work period time extension to the Department no less than 14 days prior to the end date of the authorized work period. The request for work period extension shall, at a minimum: 1) describe the extent of work already completed; 2) provide specific detail of the activities that remain to be completed within the stream zone; and 3) detail the actual time required to complete each of the remaining activities within the stream zone. The work period extension request should consider the effects of increased stream conditions, rain delays, increased erosion control measures, limited access due to saturated soil conditions, and limited growth of erosion control grasses due to cool weather. Photographs of the work completed to date and the proposed work areas are helpful in assisting the Department in its evaluation. Time extensions are issued at the discretion of the Department. The Department will review the written request to work beyond the established work period. The Department will have ten calendar days to approve or deny the proposed work period extension. The Department reserves the right to require additional measures designed to protect natural resources.
29. Any request for Extension (agreement renewal), Minor Amendment and/or Major Amendment must be submitted in writing prior to expiration of the agreement or commencement of work on modified project plans. Extensions and Amendments are issued at the discretion of the Department. Please see the current fee schedule to determine the appropriate fee.
30. The Department may take enforcement action and reserves the right to suspend and/or revoke this agreement if the Department determines that the circumstances warrant. The circumstances that could require these Department actions include, but are not limited to, the following: a) failure to comply with the terms/conditions of this agreement; b) the information provided by Caltrans in support of the agreement/notification is determined by the Department to be incomplete, or inaccurate; c) when new information becomes available to the Department representative(s) that was not known when preparing the original terms/conditions of this agreement; d) the project as described in the notification, agreement, or amendment has changed, or conditions affecting fish and wildlife resources change.
31. If, in the opinion of the Department, conditions arise or change in such a manner as to cause any authorized project activity to be considered deleterious to aquatic life, operations shall cease until corrective measures are taken.
32. Caltrans is responsible for obtaining all required permits and authorizations from local, state and federal agencies. Caltrans shall notify the Department where conflicts exist between the provisions of this agreement and those imposed by other regulatory agencies. Unless otherwise notified, Caltrans shall comply with the provision that offers the greatest protection to water quality, species of special concern and/or critical habitat.
33. It is understood that the Department enters into this agreement for purposes of establishing protective features for fish and wildlife, in the event that a project is implemented. The decision to proceed with the project is the sole responsibility of Caltrans, and is not required by this

SIGNATURE PAGE

Caltrans, as designated by the signature on this agreement, shall be responsible for the execution of all elements of this agreement. A copy of this agreement must be provided to contractor and subcontractors and must be in their possession at the work site.

Failure to comply with the provisions of this agreement and with other pertinent Code Sections, including but not limited to Fish and Game Code Sections 5650, 5652 and 5948, may result in prosecution.

Nothing in this agreement authorizes Caltrans to trespass on any land or property, nor does it relieve Caltrans of responsibility for compliance with applicable federal, state, or local laws or ordinances.

This agreement is not valid and work may not begin until the agreement is signed by a representative of the Department of Fish & Game.

Applicant: ERIC ORR  Date 10/12/09

Print & Sign Name
Title: PROJECT MANAGER

Organization: CALTRANS

Contractor: _____ Date _____

Print & Sign Name
Title: _____

Company: _____

Department Representative:  Sandra Morey, Regional Manager Date 10/20/09

agreement. It is agreed that all liability and/or incurred costs related to or arising out of the Caltrans project and the fish and wildlife protective conditions of this agreement, remain the sole responsibility of Caltrans. Caltrans agrees to hold harmless and defend the State of California and the Department of Fish and Game against any related claim made by any party or parties for personal injury or other damage.

**Foundation Report
Spanish Creek Bridge Replacement
(Bridge No. 09-0077)
SR 70 Between Oroville and Quincy
(EA 02-373101)
Plumas County, California**

September 17, 2009

TECHNICAL MEMORANDUM

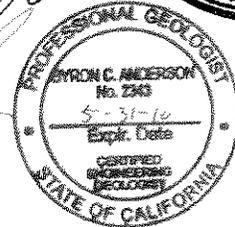
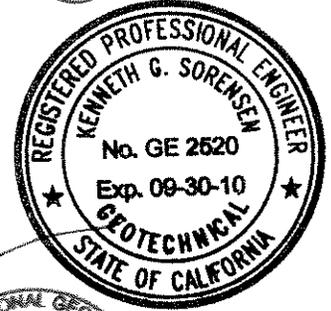
To: Eric Watson, P.E., Caltrans – Office of Bridge Design
Mark Hagy, P.E., Caltrans – Office of Geotechnical Services

From: Ken Sorensen, P.E., G.E. – Kleinfelder

Byron Anderson, PG, CEG – Kleinfelder

Date: September 17, 2009

Subject: **Foundation Report
Spanish Creek Bridge Replacement (Bridge No. 09-0077)
SR 70 Between Oroville and Quincy (EA 02-373101)
Plumas County, California**



This report presents geotechnical recommendations for design and specification development for foundations of the proposed new Spanish Creek Bridge to be constructed between Oroville and Quincy on State Route 70 in Plumas County, California. This report supersedes our previous draft "Geotechnical Recommendations for Design and Specification Development" technical memorandum dated September 19, 2007. Kleinfelder performed this work under Task Order 049409 of Contract 59A0494 with the Department of Transportation, State of California (Caltrans). The location of the project site is shown on Plate 1.

1.0 EXISTING STRUCTURE

The existing Spanish Creek Bridge (Bridge No. 09-0015) was constructed in 1931. The existing bridge is a 2-lane, 4-span steel bridge approximately 8 meters wide and 187 meters long. The bridge is supported on steel truss towers. The towers are supported by approximately 2.1-meter square spread footings founded on rock. The abutments are also founded on spread footings that bear in soil or rock. As-built drawings and results of a retrofit foundation investigation performed by Caltrans in 1999 are presented in Appendix A.

2.0 PROPOSED STRUCTURE

The proposed new Spanish Creek Bridge (Bridge No. 09-0077) will be a concrete arch bridge constructed on the west side and parallel to the existing bridge (see General Plan). The new bridge will be an approximately 190-meter long, 7-span structure using cast-in-place concrete box girder construction.

The General Plan indicates the Abutments and Piers 2, 6, and 7 will be founded in soil and/or rock, whereas Bents 3, 4 and 5 will be resting on the concrete arches.

3.0 SITE TOPOGRAPHY

The project spans the Spanish Creek canyon which is within the western slope of the Sierra Nevada mountains. Spanish Creek, a main tributary to the North Fork of the Feather River, has incised hundreds of meters into the surrounding landscape. The proposed bridge will be approximately 50 meters above the creek. The canyon is asymmetrical with a steeper north side. The north side typically has a slope gradient of approximately 1H:1.5 to 2V (horizontal to vertical) with common rock outcroppings and occasional vertical slopes. The south slope is typically more uniform and flatter with a general lack of outcrops. Slopes on the south side are typically about 2H:1V.

4.0 GEOLOGIC SETTING

The bedrock geology of the northern Sierra Nevada geomorphic province in the vicinity of Plumas County is generally north-trending belts of Paleozoic and Mesozoic rocks of varying metamorphic grade intruded by Cretaceous plutons and overlain by Tertiary volcanic and sedimentary rocks (Harden, 1998, Durrell, 1987). These metamorphic belts contain rocks that were pushed onto the North American Continent during the Late Paleozoic to Middle Mesozoic. The Paleozoic and Mesozoic metamorphic rocks are commonly subdivided, from west to east, into the Smartville, central, Feather River peridotite, and eastern belts (Moores and Day, 1984). The eastern belt includes the Devonian to Mississippian Shoo Fly Complex as well as the unconformably overlying Devonian to Pennsylvanian Taylorsville Sequence.

The project site lies within the western slope of northern Sierra Nevada Geomorphic Province, which is a tilted fault block nearly 640 km (400 miles) long. The Sierra Nevada's east face is a high, rugged, multiple scarp slope, contrasting with the gentle western slope (about 2 degrees) that disappears under sediments of the Great Valley Geomorphic Province to the west.

5.0 SITE INVESTIGATION

The site investigation for this project included aerial photograph review and geologic mapping of the new bridge site, and the drilling of exploratory borings at each proposed support location for the new bridge. The investigation also included review of a previous retrofit report for the existing bridge that was performed by Caltrans dated July 7, 1999. The 1999 Caltrans report is attached in Appendix A. All references to mean sea level (msl) contained in this report are based on the Caltrans datum being used at this time. Summaries of the geologic mapping and subsurface exploration programs conducted for this study are provided in the following sections of this report.

5.1. Geologic Mapping Program

5.1.1. Aerial Photograph Analysis

Stereoscopic aerial photographs of the site were provided by District 2 personnel and were reviewed for lineations, tonal character, or other geomorphic conditions. The following table presents details of the aerial photographs reviewed.

Table 1: Stereo-Paired Aerial Photographs Reviewed

Flight	Frames	Flight Date	Scale
2-PLU-70	6D-1 through 6D-8	6/16/04	1:3000

5.1.2. Geologic Mapping

Geologic mapping was conducted by our engineering geologists and geotechnical engineers between July 6 and 22, 2006 with supplemental mapping performed between September 6 and 10, 2006. The mapping was performed on a topographic base map provided by Caltrans overlaid onto an aerial photograph at a scale of 1cm = 10m. The mapping included road cuts in the United State Forest Service (USFS) Spanish Creek Campground, SR 70, access roads, railroad cuts in the site vicinity along the Union Pacific Railroad (UPRR) and the Burlington Northern Railroad (BNRR) alignments, and rock outcrops. The most prevalent rock outcrops were generally along the banks of Spanish Creek and Clear Creek.

During July 2006, a team of geologists/engineers conducted field mapping at available rock outcrops on the north and south side of Spanish Creek in the vicinity of the bridge. Existing rock outcrops were mapped at the following locations: north abutment along old access road, near the campground, road cut at south abutment, and near the creek on south side of bridge. Mountaineering techniques (rappelling) were employed to map the exposed rock outcrop face on the north side of the creek below the bridge.

Information was collected in accordance with *The Rock Slopes Reference Manual* (FHWA A-HI-99-007, 1998). Much of the information collected during our outcrop mapping activities is attendant to the condition of discontinuities within the exposed rock masses. Discontinuity information collected includes the following:

- Location of the discontinuity in question
- Type of discontinuity
- Discontinuity orientation (dip and dip direction)
- Discontinuity persistence
- Discontinuity termination

- Discontinuity aperture width
- Discontinuity filling (or lack of)
- Discontinuity wall strength
- Discontinuity surface roughness and shape
- Discontinuity waviness, wavelength, and amplitude
- Barton's JRC value
- Presence or lack of water
- Discontinuity spacing

Rock mass information collected includes the following:

- Locality type
- Slope length
- Slope height
- Rock mass color
- Rock mass grain size
- Intact rock uniaxial compressive strength
- Rock mass fabric
- Rock mass block size
- Rock mass state of weathering
- Number of discontinuity sets

5.2. Subsurface Explorations

Exploratory drilling for this investigation was performed between July and September 2006 by Crux Subsurface, Inc. of Spokane Valley, Washington at boring locations selected by Caltrans. Prior to drilling, Caltrans obtained an encroachment permit from the Plumas National Forest. To provide access to the drilling locations, Caltrans selected approximately 33 large trees that needed to be felled prior to drilling operations. Jimmy West Tree Service of Quincy, California provided the tree falling service in August 2006. All drilling and sampling operations were supervised by Kleinfelder professionals. Before the start of the field investigation, Underground Service Alert (USA) was contacted to locate utilities at the boring locations.

A total of 9 exploratory borings identified as B-1, B-1b, B-2, B-2b, B-3, B-3b, B-4, B-4b and B-5 were advanced using rotary wash drilling methods. The borings were performed using track mounted Burley 4000 and Burley 5500 drill rigs utilizing 96-mm outside diameter drill bits and equipped with wireline rods. The total lengths below ground surface and orientations of the borings are shown on Table 2 below.

Table 2: Summary of Exploratory Borings

Boring No.	Angle and direction	Total Length (m)	Date Completed
B-1 ¹	Vertical	55.1	7/10/06
B-1b	57°, S21E	57.9	7/13/06
B-2 ^{2, 3}	Vertical	46.0	7/22/06
B-2b	80°, S13E	45.9	7/25/06
B-3 ^{2, 3}	Vertical	27.7	9/13/06
B-3b ²	51°, S21E	39.3	9/16/06
B-4 ³	Vertical	30.5	9/10/06
B-4b	Vertical	12.3	9/23/06
B-5	Vertical	34.8	9/8/06

Notes:

1. PVC casing was installed for downhole geophysical testing by Caltrans
2. Crux Oriented Borehole Logging (COBL) optical logging technique performed
3. Converted to standpipe piezometers

Soil samples were obtained from the borings using techniques and equipment in general accordance with the American Society for Testing and Materials (ASTM) Standard Specification D1586-Standard Penetration Test (SPT) and D3550-Standard Practice for Thick Walled, Ring Lined, Split Barrel, Drive Sampling of Soils. The SPT consists of driving a 35-mm I.D. and 51-mm O.D. split spoon sampler with repeated blows of a 623-N hammer free falling a distance of 760-mm. The Standard Penetration, or N-value, is determined as the number of blows required advancing the sampler the next 305-mm after an initial 152-mm penetration.

Rock cores were obtained using rock-coring equipment configured for the wireline drilling method. In the wireline system, the 1.56-m drill rods act as a casing and water is circulated from the bit through the annulus between the drill hole wall and drill rod. The inner core barrel is removed and replaced without removing the drill rods, allowing for continuous coring. The inner barrel assembly is locked into the lead section of the wireline drill rod by means of a retrievable overshot latching mechanism. After the core run, the overshot mechanism is lowered through the rods and latched onto the spearhead on the top of the core barrel assembly that is then hoisted to the surface with a cable and wireline winch. Two inner core barrel assemblies are used for maximum productivity in continuous coring. The wireline drilling method was used under the general guidelines of ASTM D 2113 Standard Practice for Diamond Core Drilling for Site Investigation. Water for the rock coring process was obtained at the Caltrans maintenance yard in Quincy, California. Drill cuttings were contained, placed in drums and transported to the Caltrans maintenance yard in Quincy. Samples from the drums were collected and chemically tested by Torrant Laboratory in Milpitas California. The sampling procedures and laboratory analytical results are attached in Appendix B.

Soil samples were obtained from the borings at an approximate interval of 1.52 m utilizing SPT sampling procedures. Each soil sample was classified in accordance with the Unified Soil Classification (USCS) system. When rock was encountered, the drilling method switched to continuous rock coring. The soil and rock units encountered were described using Caltrans Soil & Rock Logging Classification Manual (Field Guide) (Caltrans, 1996) as guidance during our subsurface investigation. Following laboratory testing of soil and rock samples, the visual classifications recorded on the boring logs were modified as necessary to reflect the laboratory test results. The subsurface information obtained from the borings is presented on the Log of Test Borings (LOTB) sheets in the plans. Crux Oriented Borehole Logging (COBL), an optical borehole logging technique, was performed on Borings B-2, B-3 and B-3b. The COBL logs are presented in Appendix C.

Piezometers were constructed in Borings B-2, B-3, and B-4. A 50 mm PVC casing was installed in Boring B-1 and the annular space grouted to permit future downhole geophysical testing by Caltrans. The remaining borings were backfilled with grout upon completion. The piezometers were constructed using 39-mm diameter PVC pipe the length of the borehole. The bottom 6 meters of the pipe was slotted. The annular space was backfilled with sand to approximately 0.6 meters above the slots. The remaining annulus above the sand was grouted using a tremie pipe. Borings B-3 and B-4 were completed with a monument well cover. Boring B-2 had no surface cover installed. The casing was taped closed after installation and later used for downhole geophysical testing by Caltrans. The results of this geophysical testing by Caltrans are included in Appendix H.

6.0 LABORATORY TESTING

Laboratory testing of selected soil samples obtained from the test borings was performed by AP Engineering & Testing, Inc. in Pomona, California, Sunland Analytical Laboratories in Rancho Cordova, California, and at the Caltrans Geotechnical Laboratory in Sacramento, California. The purpose of the testing was to verify the field visual classifications and evaluate pertinent soil and rock characteristics for subsequent engineering evaluations. Tests performed included the following:

- Grain Size Distribution tests (ASTM D 422)
- Atterberg Limits tests (ASTM D4318)
- Corrosivity tests (Caltrans Test Methods 532 - pH, 643 – minimum resistivity, 417 - sulfates, and 422- chlorides)
- Rock Point Load Strength Index tests (ASTM D 5731-95)

The results of the laboratory testing program are attached in Appendix D, Laboratory Testing. Corrosion test results are presented in the Corrosion Evaluation section of this report. Results of rock point load strength index testing performed by Caltrans for the 1999 retrofit study are also included in Appendix D.

7.0 FINDINGS

7.1. General Subsurface Conditions

The subsurface conditions encountered in the borings drilled for this study are presented on the Log of Test Boring (LOTB) sheets included in the project plans. A map showing the geology of the site is presented on Plate 5. A generalized geologic profile and cross section of the subsurface materials encountered and inferred to be present along the proposed bridge alignment is presented on Plate 6. This cross section was constructed using the geologic and geotechnical information collected from the 2006 borings and geologic mapping. Information from the 1999 Caltrans retrofit study was also used, as appropriate, and is projected onto the cross section. Generalized classifications of rock strengths shown on the drawing and used throughout this report are based on the criteria presented by the International Society of Rock Mechanics (ISRM, 1981). The information presented on the cross section drawing indicates the following:

- On the north side of the creek, the surficial soils at the Abutment 1 location consist of alluvial terrace deposits (sandy or gravelly silts and silty gravels) to a depth of about 6.4 to 6.6 meters, underlain by bedrock (primarily metasandstones and phyllites). The terrace deposits appear to contain rounded to subrounded gravel, cobbles and boulders up to about 2 meters in maximum dimension. The clasts appear to be relatively hard greenstone and meta-andesite rocks (ISRM Classification R4 to R6). Based on published data (Wyllie, 1999) and point load tests on cobbles and boulder specimens from the borings (ASTM D5731-08), the uniaxial compressive strengths of the clasts are expected to range from about 80 to 350 MPa. The presence of hard clasts represents difficult auger drilling conditions. Phyllite bedrock was encountered at the surface at the location of Pier 2. This rock appears similar to the bedrock encountered beneath the terrace deposits at Abutment 1.
- On the south side of the creek in the vicinity of Piers 6 and 7, the depths of overburden soils range from approximately 5.8 meters to more than 12.3 meters. The soils consist of loose to medium dense colluvium overlying terrace deposits and/or a rock creep zone and decomposed phyllite and metasandstone bedrock. In the vicinity of Abutment 8 the overburden fill and colluvial soils extend to a depth of about 7.9 meters and overlie decomposed phyllite and metasandstone bedrock. At depth the bedrock appears to become progressively stronger. In the vicinity of Pier 6, the

colluvium overlies terrace deposits containing rounded to subrounded and relatively hard gravel, cobbles and boulders. In Borings B-3 and B-3b at Pier 6, the sizes of clasts ranged from about 23 to 64 cm. Softer, angular, cobble and boulder sized phyllite rock fragments were also encountered within the colluvium in the area of Pier 7 that were up to about 46 cm in size in Boring B-4.

The approximate depths and sizes of boulders in the upper soil units encountered in the borings drilled at the site for this investigation are presented in Table 3 below:

Table 3: Boulders Encountered in Borings – North and South Sides of Canyon

Boring (Core Box)	Elevation of top of boring (m)	Approximate depth at top of boulder (m)	Elevation of top of boulder	Length (cm)	Perceived rock type
B-1 b (core box 1)	971.721	5.5	Varies	28	meta-andesite
		6.1		25	greenstone
		6.6		46	greenstone
		7.6		25	greenstone
B-3 (core box 1)	948.121	4.7	943.4	64	greenstone
B-3b (core boxes 1 & 2)	950.809	6.7	Varies	25	greenstone
		7.6		23	greenstone
		8.5		30	greenstone
B-4 (core box 1)	966.704	10.1	956.6	46	quartzite/phyllite

Note: This data provided by Caltrans

Because of the predominance of bedrock within the depths of interest, an extensive investigation of rock properties was performed including evaluations of rock properties at each support location. The parameter values developed include: Rock Mass Rating (RMR), Geological strength index (GSI), Rock Quality Designation (RQD) and Rock Strength.

7.2. Site Geologic Structure

Using the discontinuity data collected at existing rock outcrops and from the COBL logging of selected borings, pole and dip vector plots were constructed on equal area stereonet. Table 4 summarizes the average results for the three primary discontinuity sets including the foliations identified during our exploration and analyses of the entire site. The foliation dip direction changed approximately 180 degrees due to a fold structure present at the north side of Spanish Creek, beneath the location of Abutment 1, at a depth of between 13.7 and 15.3 meters below the terrace deposit/bedrock contact surface. The foliation generally dips moderately toward the northeast above the axis of the fold, and generally dips steeply to the southwest below the fold. The discontinuity data presented in Table 4 includes this dip orientation reversal. Although much of the bedrock is covered by colluvium and residual soils on the south side of the

canyon, the rock outcrops observed at the site displayed foliation orientations generally consistent with those below the fold axis on the north side of the canyon (i.e., dipping steeply to the southwest).

Table 4: Summary of Discontinuity Sets

Structure	Dip Direction	Dip Angle Range
Foliation	075	40-65
Joint Set 1	215	40-65
Joint Set 2	340	70-90

7.3. North Side Bedrock Conditions

Table 5 below outlines the geomechanical rock mass information collected during the mapping traverses of existing rock outcrops on the north side of Spanish Creek.

Table 5: Summary of Rock Mass Characteristics Collected During Field Mapping – North Side

Location	Rock Type	Rock Strength ¹ (MPa)	RQD ²	RMR ³	GSI ⁴
Geologic Mapping					
North Abutment	Phyllite	1	5	50	40-50
North Abutment	Phyllite	5	5	50	40-50
North Abutment	Phyllite	3	5	45	40-50
Notes:					
1: Rock Strength assessed in field using rock hammer test and related to megapascals (MPa)					
2: RQD - Rock Quality Designation					
3: RMR - Rock Mass Rating					
4: GSI - Geological Strength Index					

Bedrock observed during field investigation of the north side was primarily phyllite and metasandstone. The phyllite bedrock was extremely weak (R0) to weak (R2) and highly to extremely fractured. The phyllite encountered was generally moderately weathered to decomposed. Fracture apertures ranged from tight to very wide (> 1cm) with some infilling of silt and clay. The rock mass is composed of interbedded very weak to weak meta-sandstones and phyllites. Structure is blocky, folded and disturbed with angular blocks formed by the intersecting discontinuity sets. The rock mass structure dips obliquely to the planned resultant forces of the skewback foundation structure. Therefore, based on the loading direction, the rock mass strength will be contingent on

the rock mass strength perpendicular to the rock mass structure. Using guidance in Hoek and Brown (1997), we estimated a lower bound GSI for the phyllite of 40, indicating rock mass that is “Blocky/Disturbed” with “Good to Fair” discontinuity surfaces. The metasandstone bedrock ranged from very weak (R1) to moderately strong (R3) and moderately to extremely fractured. The metasandstone encountered was generally moderately weathered to decomposed. Fracture apertures ranged from tight to very wide (>1cm) with some infilling of silt and clay. We estimated a lower bound GSI for the metasandstone of 40, rock mass that is “Blocky/Disturbed” with “Good to Fair” discontinuity surfaces.

7.4. North Side Markland Analysis

A Markland analysis was used to estimate the kinematic potential for rock blocks to fail out of the existing or proposed slopes. A friction angle of 25 degrees was assumed for the phyllite based on the geomechanical information collected in the field (including rock tilt tests), experience with similar rock types, and guidance from the Rock Slopes Reference Manual (FHWA, 1998). Based on the results of our analyses for the north rock slope, the existing slope is kinematically unstable with the potential for wedge, planar and toppling type failures. However, because of the highly fractured nature of the rock mass, the potential failures can be considered small-scale. Additionally, small-scale wedge failures were observed during the geologic mapping.

7.5. North Side Engineering Properties

The design properties for the overburden soils were established using the SPT blow counts in conjunction with the laboratory test results and generally accepted correlations contained in published literature (e.g. Duncan and Wright, 2005). For bedrock, the Hoek-Brown strengths and design data were estimated using the geomechanical data collected in the field and the geologic cross-section developed from this and previous investigations. An assumed disturbance factor 0.5 was used for the bearing capacity analyses and 0.2 for the slope stability analyses. The slope will be disturbed during excavation of the pier foundations. Therefore, a higher disturbance factor was used for the bearing capacity analyses to account for the anticipated disturbance. However, the slope stability models analyze the global stability deeper in the slope, where less disturbances will occur. The following list presents specific design data for the subsurface conditions. Additional design information is presented in the Design Recommendations section of this report.

- Terrace Deposits (Qt)
 - Cohesion = 50 kPa
 - Friction Angle = 25 degrees
- R0-R1 Rock
 - Unconfined Compressive Strength = 3 MPa

- GSI = 40
- R2 Rock
 - Unconfined Compressive Strength = 15 MPa
 - GSI = 43
- R2-R3 Rock
 - Unconfined Compressive Strength = 25 MPa
 - GSI = 43

7.6. South Side Bedrock Conditions

Table 6 outlines the geomechanical rock mass information collected during the mapping traverses of existing rock outcrops on the south side of Spanish Creek.

Table 6: Summary of Rock Mass Characteristics Collected During Field Mapping – South Side

Location	Rock Type	Rock Strength ¹ (MPa)	RQD ²	RMR ³	GSI ⁴
Geologic Mapping					
South Rock Outcrop	Phyllite	3	5	50	40-50
Notes:					
1: Rock Strength assessed in field using rock hammer test and related to megapascals (MPa) 2: RQD - Rock Quality Designation 3: RMR - Rock Mass Rating 4: GSI - Geological Strength Index					

Four vertical borings and one angled boring were completed on the south side of Spanish Creek. We estimated GSI values based on the rock core and boring log information. Bedrock observed during field investigation of the south side was primarily phyllite and meta-sandstone. The phyllite bedrock was typically very weak (R1) to weak (R2) and highly to extremely fractured. The phyllite encountered was generally moderately weathered to decomposed. Fracture apertures ranged from tight to very wide (>1cm) with some infilling of silt and clay. The rock mass is composed of interbedded very weak to weak meta-sandstones and phyllites. Structure is blocky, folded and disturbed with angular blocks formed by the intersecting discontinuity sets. The rock mass structure dips obliquely to the planned resultant forces of the skewback foundation structure. Therefore, based on the loading direction, the rock mass strength will be contingent on the rock mass strength perpendicular to the rock mass structure.

We estimated a lower bound GSI for the phyllite of 40, indicating a rock mass that is “Blocky/Disturbed” with “Good to Fair” discontinuity surfaces. The metasandstone bedrock was very weak (R1) to strong (R3) and moderately to extremely fractured. The metasandstone encountered was generally moderately to highly weathered. Fracture apertures ranged from tight to very wide (> 1cm) with some infilling of silt and clay. We estimated a lower bound GSI for the metasandstone of 40, indicating rock mass that is “Blocky/Disturbed” with “Good to Fair” discontinuity surfaces.

7.7. South Side Markland Analysis

A Markland analysis was used to estimate the kinematic potential for rock blocks to fail out of the existing or proposed slopes. We assumed a friction angle of 25 degrees for the phyllite based on the geomechanical information that we collected in the field, experience with similar rock types, and guidance from the Rock Slopes Reference Manual (FHWA, 1998). Based on the results of our analyses for the south rock slope, the existing south slope is kinematically stable. However, existing outcrops were limited and the existing slope inclination is 2H:1V to 1.5H:1V.

7.8. South Side Engineering Properties

The design properties for the overburden soils were established using the SPT blow counts in conjunction with the laboratory test results and generally accepted correlations contained in published literature (e.g. Duncan and Wright, 2005). For bedrock, the Hoek-Brown strengths and design data were estimated using the geomechanical data collected in the field and the geologic cross-section developed from this and previous investigations. We assumed a disturbance factor 0.5 for the estimates of bearing capacity and 0.2 for the estimates of slope stability. The following list presents specific design data for the subsurface conditions. Additional design information is presented in the Design Recommendations section of this report.

- Colluvium (Qc)
 - Cohesion = 50 kPa
 - Friction Angle = 25 degrees
- Terrace Deposits (Qt)
 - Cohesion = 50 kPa
 - Friction Angle = 25 degrees
- Rock Creep Zone (Rc)
 - Cohesion = 50 kPa
 - Friction Angle = 35 degrees
- R0-R1 Rock
 - Unconfined Compressive Strength = 3 MPa
 - GSI = 40

- R1-R2 Rock
 - Unconfined Compressive Strength = 5 MPa
 - GSI = 40
- R2 Rock
 - Unconfined Compressive Strength = 15 MPa
 - GSI = 43
- R2-R3 Rock
 - Unconfined Compressive Strength = 25 MPa
 - GSI = 43
- R3-R4 Rock
 - Unconfined Compressive Strength = 50 MPa
 - GSI = 43

Due to similarities in the rock mass conditions at each support location on the south side of the canyon, we have considered similar rock properties for design at each bridge support location (Piers 6 and 7, Abutment 8).

7.9. Site Groundwater Levels

Groundwater levels at the bridge site were evaluated by recording observed water levels in the borings during and shortly following completion of drilling, and by reading open standpipe piezometers installed in Borings B-2, B-3, and B-4. During drilling, recovered samples were examined for evidence of groundwater. Following drilling, the borehole fluid levels were checked periodically to look for evidence of a stabilized groundwater level. The information contained in the Caltrans 1999 retrofit study indicates groundwater was encountered in Borings 99-13, 99-14, and 99-15 located near existing bridge Towers 2, 1, and 3, respectively. The results of those groundwater measurements are presented in Table 7 below.

Table 7: Groundwater Levels - Caltrans 1999 Retrofit Study

Boring No.	Water Level Measurement Date	Ground Surface Elevation (m-msl)	Static Water Level Depth from Ground Surface (m)	Static Water Level Elevation (m-msl)
99-13	4/27/99	930.59	5.19	925.4
99-14	5/5/99	934.02	8.82	925.2
99-15	5/13/99	953.07	12.27	940.8

The ground surface elevations at the boring locations for this study were surveyed by Caltrans. The water levels in the piezometers were measured in October 2006, several months after installation, and again on May 5, 2009. The results of the groundwater measurements are presented in Table 8 below. It should be noted that during a site

visit by Caltrans on May 5, 2009, Well No. B-2 could not be located and may have been damaged or buried by sloughing soils from above. If this well head cannot be found during construction, current water level data from that well will not be available to the Contractor. The other borings drilled at the site did not appear to encounter free groundwater based on visual observation of the samples collected and periodic fluid level measurements taken in the borings following drilling.

Table 8: Groundwater Levels – Current Study

Boring No.	Water Level Measurement Date	Ground Surface Elevation (m-msl)	Static Water Level Depth from Ground Surface (m)	Static Water Level Elevation (m-msl)
B-2	10/26/06	962.6	26.70	935.9
B-2b	7/25/06	962.8	22.40	940.4
B-3	10/26/06	948.1	14.20	933.9
B-3	5/5/09	948.1	13.87	934.3
B-4	10/26/06	966.7	24.17	942.5
B-4	5/5/09	966.7	25.51	941.2

Groundwater levels encountered at the site are above the active stream level and appear to be the result of surface infiltration of water into rock fractures. The presence of groundwater in rock fractures above the creek level is expected to be highly variable throughout the site. It is possible that perched groundwater within rock fractures or at transitions between soil layers and underlying rock will be present in areas where groundwater was not encountered during this study. During and shortly following the wet season, site groundwater levels may be higher than those shown in Tables 8 and 9. In the vicinity of Spanish Creek, groundwater levels are expected to be at or above the creek level. Groundwater and soil moisture conditions within the area will vary depending on rainfall, irrigation practices, and/or runoff conditions not apparent at the time of our field investigation.

7.10. Corrosion Evaluation

Near-surface soil samples from three site borings were tested for corrosion potential. The soils tested appear to be representative of the majority of the soils encountered at the site. Testing was performed by Sunland Analytical in Rancho Cordova, California. The test results are summarized in Table 9 below.

Table 9: Corrosion Test Results

Boring Number	Sample Depth (m)	pH	Minimum Resistivity (ohm-cm)	Sulfate (ppm)	Chloride (ppm)
B-1	0-1	6.01	11,790	0.6	4.0
B-4	2-3	5.68	21,710	0.7	8.6
B-5	5-6	6.31	18,760	2.0	4.4

Per Section 3, "Testing Requirements" of the "Corrosion Guidelines Version 1.0," prepared by the Corrosion Technology Section, Caltrans Office of Materials and Foundation, dated September 2003, a corrosive area is defined as an area where the soil and/or water contains more than 500 ppm of chlorides, more than 2,000 ppm of sulfates, has a minimum resistivity of less than 1,000 ohm-cm, or has a pH of less than 5.5. Minimum resistivity is used by Caltrans to screen samples to determine if further analytical testing is required. Based on these guidelines and our test results, the samples from Borings B-1, B-4 and B-5 tested are considered to be non-corrosive. Therefore, the Spanish Creek Bridge site may be considered as non-corrosive to steel and concrete.

Kleinfelder has performed these soil corrosivity tests as a service to Caltrans. These tests are only an indicator of soil corrosivity characteristics. A corrosion engineer may be retained to design corrosion protection systems appropriate for the project or perform additional in situ tests if required.

8.0 FAULTING AND SEISMICITY

The project site is located in a seismically active region. Some northwest-southeast and east-west trending fault zones which have a history of seismic activity exist near the project vicinity.

The Caltrans Seismic Design Criteria (SDC) in effect at the time of the exploration for the Spanish Creek Bridge were based on the 1996 Caltrans Seismic Hazard Map (SHM) and fault database by Mualchin (1996, with an errata posted on the website http://www.dot.ca.gov/hq/esc/earthquake_engineering/Seismology/seismicmap.html). Based on the 1996 SHM, the nearest fault to the site is the Indian Valley (IVY) Fault at a distance of about 9 km to the northeast. The 1996 SHM also indicates the Melones (MLS) and the Mohawk Valley (MOV) Faults are located at distances of about 10 km and 10.5 km to the southwest and the southeast of the site, respectively. The locations of these faults and the project site are shown on Plate 3, as reproduced from the 1996 SHM.

Subsequent to completion of the exploration for the bridge, however, we learned that a new Caltrans SHM (including mapped fault locations and peak bedrock acceleration values) was under production. Based on our discussions with Ms. Martha Merriam of

Caltrans, we understand that there are some significant proposed changes to the fault database and map used for the SHM for the project area. Some of the proposed changes in the area nearby the project site include: exclusion of the Melones Fault, the Rich Bar Fault, the Goodyears Creek Fault, the Camel Peak Fault, and most of the Dogwood Peak-Ramshorn Fault; decreasing the extent of the Mohawk Valley Fault; and addition of the Butt Creek Fault Zone, the Almanor Fault Zone, and the Walker Spring Fault. According to the proposed new SHM (a draft copy of the 2006 version of the SHM was provided by Caltrans), the nearest fault to the site would be the Butt Creek Fault Zone, located about 2.5 km to the northwest of the site. A reproduction of the draft 2006 SHM showing a comparison of the Caltrans mapped faults in the vicinity of the site is provided on Plate 4.

Based on the 1996 SHM (Mualchin, 1996), the controlling faults are the Indian Valley Fault and the Melones Fault. However, based on the proposed changes for the updated SHM, the Butt Creek Fault Zone would be the controlling fault for this project. According to California Geological Survey (CGS) 2005 Digital Fault Database (Bryant, 2005) and the United States Geological Survey (USGS) Quaternary Fault and Fold Database, the Butt Creek Fault Zone is considered to be late Quaternary. The California Division of Mines and Geology Fault Activity Map (Jennings, 1994) refers to the many fault strands of the Butt Creek Fault Zone as "unnamed faults south of Lake Almanor" and the "Clear Creek Fault." At present, to our knowledge, neither a maximum earthquake magnitude nor a slip sense/fault type have been assigned to the Butt Creek Fault Zone by CGS or USGS. However, during our previous analysis we assumed a maximum magnitude of 6.5 and a normal fault type for this fault zone. The maximum magnitude of 6.5 was assigned because the strand of the Butt Creek Fault Zone identified by Caltrans in the draft 2006 SHM is of similar length and geometry to other faults in the area that have a 6.5 magnitude assigned to them.

The closest distance from the site to the some of the active major faults, type of faults, their maximum moment magnitudes, and peak bedrock accelerations corresponding to the 1996 SHM based on Mualchin (1996) and the proposed new SHM (Draft, 2006) are presented in Tables 10 and 11, respectively.

Table 10: Fault Parameters Based on Caltrans 1996 Seismic Hazard Map and Mualchin (1996)

Fault Name	Fault Code (2)	Site Distance (km)	Type of Displacement (1)	Maximum Magnitude (2)	Peak Bedrock Acceleration Mean (g)	
					(3)	(4)
Indian Valley	IVY	9	XX	6.25	0.28	0.34
Melones	MLS	10	NL	6.5	0.30	0.31
Mohawk Valley	MOV	10.5	NL	6.5	0.29	0.30
Rich Bar	RIB	13	NL	6.5	0.25	0.25
Dogwood Peak-Ramshorn	DPR	26	NL	6.5	0.15	0.12
Camel Peak	CPK	30	XX	6.5	0.12	0.12
Goodyears Creek	GYC	39	NL	6.5	0.09	0.07

Notes:

- (1) ST-strike slip, RE-reverse including thrust, NO-normal-oblique, NL-normal, XX-not known
- (2) Mualchin (1996, with errata dated November 2004)
- (3) Mualchin & Jones (1992, 1996)
- (4) Sadigh et al. (1997 Rock). For XX faults more conservative reverse/thrust attenuation fault relationship used.

Table 11: Fault Parameters Based on Proposed New Caltrans Seismic Hazard Map (Draft, 2006)

Fault Name	Fault Code (2)	Site Distance (km)	Type of Displacement (1)	Maximum Magnitude (2)	Peak Bedrock Acceleration Mean (g)	
					(3)	(4)
Butt Creek		2.5	SS ⁽⁵⁾	6.5	0.50	0.59
Indian Valley	IVY	9	XX	6.25	0.28	0.34
Walker Spring		24	NL	6.5	0.15	0.14
Dogwood Peak-Ramshorn	DPR	30	NL	6.5	0.12	0.10
Almanor		44	NL	6.5	0.07	0.06
Mohawk Valley	MOV	48	NL	6.5	0.06	0.05

Notes:

- (1) ST-strike slip, RE-reverse including thrust, NO-normal-oblique, NL-normal, XX-not known
- (2) Mualchin (1996, with errata dated November 2004)
- (3) Mualchin & Jones (1992, 1996)
- (4) Sadigh et al. (1997 Rock). For XX faults more conservative reverse/thrust attenuation fault relationship used.
- (5) The latest update to the Caltrans fault database (2007) indicates a right-lateral strike slip displacement.

9.0 SEISMIC DESIGN CRITERIA

Based on our subsurface investigation program and geological study, depth to bedrock at the north side of the canyon varies from 0 meters at Pier 2 to about 6.5 meters at Abutment 1. Depth to bedrock on the south side of the canyon varies from about 5.8 meters to more than 12.3 meters at Piers 6 and 7 and Abutment 8. The overburden soil generally consists of medium dense granular soils with silt and/or clay. According to Table B.1 of the Caltrans Seismic Design Criteria (SDC) Version 1.4 (2006), the site can be classified as Soil Profile Types C and D at the north and south sides of the canyon, respectively, for design purposes.

Based on the 1996 SHM and the Mualchin and Jones (1992) attenuation relationship, the controlling faults are the Indian Valley and the Melones Faults with a peak bedrock acceleration (PBA) of about to 0.3g. However, based on a magnitude 6.25 event, a distance from the fault of 9 km, and a reverse fault type, the PBA is about 0.34g according to the Sadigh et al. (1997) attenuation relationship for rock. Based on the proposed new SHM (Draft, 2006), the controlling fault is the Butt Creek Fault Zone with a PBA of 0.5g according to Mualchin and Jones (1992), and 0.59g according to Sadigh et al. (1997). Based on the above, we believe that according to the 1996 SHM, the base Acceleration Response Spectrum (ARS) curves for the north and south sides of

the canyon can be estimated from the ARS curves presented in Figures B.4 and B.7 of SDC, respectively, for an associated PBA value of 0.4g. However, based on the new SHM (Draft, 2006), the base ARS curves for the north and south sides of the canyon can be estimated from the same figures for an associated PBA value of 0.6g.

Based on the above discussion it is our professional opinion that the seismic design parameters presented in Table 12 corresponding to the proposed new PBA maps may be used for the design of the new Spanish Creek Bridge. We believe that this is more conservative and reflects the current understanding of the faults in the project area. These values were estimated using a draft copy of new CSHM (Merriam, personal communication), procedures outlined in Caltrans Seismic Design Criteria (SDC) Version 1.4 (2006) and Caltrans Guidelines for Structures Foundations Reports (CGSFR) (March 2006).

Table 12: Summary of Seismic Data Based on Proposed New Seismic Hazard Map (Draft, 2006)

Causative Fault (Type of Fault)	Butt Creek (Normal) ⁴
MCE¹ Magnitude	6.5
Distance to Fault	2.5 km
Design PBA²	0.6g
SDC Soil Profile Type	Type C for north side and Type D for south side
ARS Curve Recommendation³	SDC ARS Figures B.4 and B.7 (2006) and modified for directivity effects
Notes:	
¹ MCE = Maximum Credible Earthquake.	
² Design PBA = Design Peak Bedrock Acceleration, Based on Caltrans Seismic Hazard Map (1996) and verified by attenuation relationships by Sadigh et al. (1997).	
³ Modified for directivity and verified using the attenuation relationship by Sadigh et al. (1997). The directivity and PBA modifications are based on Caltrans SDC (2006) and Caltrans Guidelines for Structures Foundations Reports (2006).	
⁴ The latest update to the Caltrans fault database (2007) indicates a right-lateral strike slip displacement.	

According to the guidelines presented in Section 6.1.2.1 of the SDC and Section 2.5.1 of the CGSFR, for bridges located within 15 km of a fault, the ARS curve needs to be adjusted to account for fault rupture directivity effects. According to these criteria, the ARS curve needs to be increased by 20 percent for periods greater than 1 second. In addition, the ARS curve needs to be increased by linear interpolation between 0 and 20 percent for periods between 0.5 and 1.0 second. No increase is needed for periods less than 0.5 second. Based on the above, the base and modified ARS curves (both spectral acceleration and displacement) are presented on Plates 7 and 8 for the north and the south sides of the canyon, respectively. The base and modified spectral acceleration and displacement values are also listed in Tables 13 and 14 for the north and the south sides of the canyon, respectively.

**Table 13: Recommended ARS Values for the North Side (Soil Profile C)
(Abutment 1 and Pier 2)**

No.	Period (sec)	Base ARS Curve		Modified ARS Curve	
		Spectral Acceleration (g)	Spectral Displacement (inch)	Spectral Acceleration (g)	Spectral Displacement (inch)
1	0.010	0.6003	0.0006	0.6003	0.0006
2	0.020	0.6003	0.0024	0.6003	0.0024
3	0.030	0.6003	0.0053	0.6003	0.0053
4	0.050	0.8222	0.0201	0.8222	0.0201
5	0.075	1.0554	0.0581	1.0554	0.0581
6	0.100	1.2599	0.1233	1.2599	0.1233
7	0.120	1.3625	0.1920	1.3625	0.1920
8	0.150	1.4030	0.3090	1.4030	0.3090
9	0.170	1.4003	0.3961	1.4003	0.3961
10	0.200	1.3798	0.5402	1.3798	0.5402
11	0.240	1.3389	0.7548	1.3389	0.7548
12	0.300	1.2613	1.1110	1.2613	1.1110
13	0.400	1.1396	1.7846	1.1396	1.7846
14	0.500	1.0332	2.5281	1.0332	2.5281
15	0.750	0.7977	4.3920	0.8775	4.8312
16	1.000	0.6182	6.0507	0.7418	7.2608
17	1.500	0.3893	8.5730	0.4671	10.2876
18	2.000	0.2615	10.2372	0.3138	12.2846
19	3.000	0.1434	12.6363	0.1721	15.1635
20	4.000	0.0877	13.7340	0.1052	16.4808

**Table 14: Recommended ARS Values for the South Side (Soil Profile D)
(Piers 6, 7, and Abutment 8)**

No.	Period (sec)	Base ARS Curve		Modified ARS Curve	
		Spectral Acceleration (g)	Spectral Displacement (inch)	Spectral Acceleration (g)	Spectral Displacement (inch)
1	0.010	0.6003	0.0006	0.6003	0.0006
2	0.020	0.5978	0.0023	0.5978	0.0023
3	0.030	0.5963	0.0053	0.5963	0.0053
4	0.050	0.8171	0.0200	0.8171	0.0200
5	0.075	1.0526	0.0579	1.0526	0.0579
6	0.100	1.2598	0.1233	1.2598	0.1233
7	0.120	1.3625	0.1920	1.3625	0.1920
8	0.150	1.4030	0.3090	1.4030	0.3090
9	0.170	1.4003	0.3961	1.4003	0.3961
10	0.200	1.3861	0.5427	1.3861	0.5427
11	0.240	1.3547	0.7637	1.3547	0.7637
12	0.300	1.2735	1.1218	1.2735	1.1218
13	0.400	1.1659	1.8258	1.1659	1.8258
14	0.500	1.0603	2.5946	1.0603	2.5946
15	0.750	0.8696	4.7876	0.9566	5.2664
16	1.000	0.7109	6.9582	0.8531	8.3499
17	1.500	0.4492	9.8917	0.5390	11.8700
18	2.000	0.3078	12.0488	0.3693	14.4586
19	3.000	0.1690	14.8898	0.2028	17.8678
20	4.000	0.1045	16.3649	0.1254	19.6379

10.0 SEISMIC HAZARDS

Potential seismic hazards evaluated for this project include ground disruptions due to fault rupture and liquefaction. They are discussed below.

10.1. Fault Rupture

The site is not located within the Alquist-Priolo Earthquake Fault Zone (Hart and Bryant, 1997), which requires a site-specific fault investigation. No active fault is known to transect the project site. Therefore, the possibility of primary surface rupture or deformation at the site is considered low.

10.2. Liquefaction

Groundwater was not encountered within the depths of the overburden soils. The potential for the occurrence of liquefaction at the site is, therefore, considered minimal.

11.0 DESIGN RECOMMENDATIONS

11.1. Bridge Foundation Alternatives

A variety of foundation options were investigated for each support location at the request of Caltrans Structural Division. The following foundation types were selected for the various support locations:

Spread Footings:	Abutment 1 Type 1 Retaining Walls, Abutment 8
Drilled Shafts (CIDH):	Abutment 1 and Pier 7
Micropiles:	Piers 2 and 6

11.2. Spread Footings

Abutment 8 and the Abutment 1 Type 1 retaining walls will be supported on spread footings. We recommend spread footings be constructed of reinforced concrete and founded on undisturbed soil or rock.

11.2.1. Allowable Bearing Capacities

Spread footings should have their bearing surfaces situated at least 1 m (3 ft) below the lowest adjacent subgrade. The ultimate bearing pressures and deformation modulus values for decomposed to moderately weathered phyllite bedrock (Grade R0-R2) are presented in Table 16. These values were estimated by treating the rock mass as a continuum. We used a "disturbance" factor of 0.5 (from Hoek, 2002) to incorporate the effect of excavation and unloading of the rock mass below the finished footing grade.

Table 16: Spread Footing Design Parameters

Location	Rock Grade	Top Elevation, m	Bottom Elevation, m	Ultimate Bearing Pressure, kPa	Deformation Modulus, MPa
Abutment 8	R0-R2	972.99	947.0	665	130
	R3-R4	947.0	942.2	6,600	2,115

Recommendations and design data for spread footings are provided in Tables 17 and 18 below.

Table 17: Spread Footing Recommendations for Abutments

Foundation Design Recommendations for Spread Footings ^{1,2}										
Support Location	Footing Size (m)		Bottom of Footing Elevation (m)	Minimum Footing Embedment Depth (m)	Total Permissible Support Settlement (mm)	WSD (LRFD Service-I Limit State Load Combination)		LRFD		
	B	L				Permissible Gross Contact Stress (kPa)	Allowable Gross Bearing Capacity (kPa)	Service	Strength $\phi_b = X$	Extreme Event $\phi_b = 1.00$
								Permissible Net Contact Stress (kPa)	Factored Gross Nominal Bearing Resistance (kPa)	Factored Gross Nominal Bearing Resistance (kPa)
Abut. 8	2.50	13.48	971.08 (Lt) 971.68 (Rt)	1.42 (Lt) 1.50 (Rt)	25	220	220	N/A	N/A	N/A

Notes:

- 1) Recommendations are based on the foundation geometry and the load provided by Structure Design in the Foundation Design Data Sheet. The footing contact area is taken as equal to the effective footing area, where applicable.
- 2) See MTD 4-1 for definitions and applications of the recommended design parameters

Table 18: Abutment Spread Footing Data Table

Abutment Spread Footing Data Table					
Support Location	Working Stress Design (WSD)		Load and Resistance Factor Design (LRFD)		
	Permissible Gross Contact Stress (Settlement) (kPa)	Allowable Gross Bearing Capacity (kPa)	Service Permissible Net Contact Stress (Settlement) (kPa)	Strength Factored Gross Nominal Bearing Resistance $\phi_b = X$ (kPa)	Extreme Event Factored Gross Nominal Bearing Resistance $\phi_b = 1.00$ (kPa)
Abut. 8	220	220	N/A	N/A	N/A

11.2.2. Estimated Settlements

Total settlement of an individual foundation is expected to be less than 25 mm. Settlement of spread footings is expected to occur rapidly and should be essentially complete shortly after initial application of the loads.

11.2.3. Lateral Resistance

Resistance to lateral loads (including those due to wind or seismic forces) may be provided by frictional resistance between the bottom of concrete foundations and the underlying soils and by passive soil pressure against the sides of the foundations. A coefficient of friction of 0.7 may be used between cast-in-place concrete foundations and the underlying rock mass. The ultimate passive resistance in soil or weak rock may be taken as 62.6 kN/m³ equivalent fluid weight.

11.3. Cast-in-Drilled Hole Piles

11.3.1. CIDH Pile Design

Cast-in-drilled-hole (CIDH) piles will be used for support of Abutment 1 and Pier 7. We recommend CIDH piles be designed to derive their support from side friction. We recommend end bearing be neglected due to strain incompatibility issues and anticipated difficulties in cleaning out the hole bottoms. According to the current Caltrans amendments to the AASHTO LRFD bridge design specifications, the LRFD resistance factor for axial compression and tension/uplift of a drilled shaft in soil and/or rock is 0.7. The resistance factors are multiplied by the axial ultimate side resistance values of the drilled shafts to evaluate load capacity.

The recommended CIDH pile design parameters, diameters and tip elevations for Abutment 1 and Pier 7 are presented in Tables 19 through 21 below. For evaluation of the design tip elevation, the side friction was neglected in the lowermost 1.5 diameters (0.9 meters for 600 mm diameter piles) of the rock socket at the bottom of the shaft. The bottom of the shaft should extend to at least the specified tip elevation and at least 2 meters into rock. The pile tip elevations presented in Table 20 below are controlled by group effects along the front row of piles.

Table 19: Pile Foundation Recommendations for Abutments

Abutment Foundations Design Recommendations									
Support Location	Pile Type	Cut-off Elevation (m)	LRFD Service-I Limit State Load (kN) per Support		LRFD Service-I Limit State Total Load (kN) per Pile (Compression)	Nominal Resistance (kN)	Design Tip Elevations (m)	Specified Tip Elevation (m)	Nominal Driving Resistance Required (kN)
			Total	Permanent					
Abut. 1	600 mm CIDH	968.5	4,260	3,350	400	800	959.50(a), 959.50(c), xx(d)	959.50	NA

Notes: Design tip elevations are controlled by: (a) Compression, (c) Settlement, and (d) Lateral Load, respectively.

1) The specified tip elevation shall not be raised above the design tip elevations for tension, lateral, and tolerable settlement.

xx) To be determined by the structure designer

Table 20: Pile Foundation Recommendations for Pier 7

Pier 7 Foundation Design Recommendations											
Support Location	Pile Type	Cut-off Elevation (m)	Service-I Limit State Load per Support (kN)	Total Permissible Support Settlement (mm)	Required Factored Nominal Resistance (kN)				Design Tip Elevations (m)	Specified Tip Elevation (m)	Nominal Driving Resistance Required (kN)
					Strength Limit		Extreme Event				
					Comp. ($\phi=0.7$)	Tension ($\phi=0.7$)	Comp. ($\phi=1$)	Tension ($\phi=1$)			
Pier 7 Lt	600 mm CIDH	959.00	4,720	25	1,060	NA	1,513	NA	945.20(a-I) 945.20(a-II) 947.50(c) xx(d)	945.20	NA
Pier 7 Rt	600 mm CIDH	959.00	4,720	25	1,060	NA	1,513	NA	945.20(a-I) 945.20(a-II) 947.50(c) xx(d)	945.20	NA

Notes:

- 1) Design tip elevations are controlled by: (a-I) Compression (Strength Limit), (b-I) Tension (Strength Limit), (a-II) Compression (Extreme Event), (b-II) Tension (Extreme Event), (c) Settlement, and (d) Lateral Load, respectively.
- 2) The specified tip elevation shall not be raised above the design tip elevations for tension, lateral, and tolerable settlement.
- xx) To be determined by the structure designer

Table 21: Pile Foundation Data Table

Pile Data Table						
Location	Pile Type	Nominal Resistance (kN)		Design Tip Elevation (m)	Specified Tip Elevation (m)	Nominal Driving Resistance (kN)
		Compression	Tension			
Abut. 1	600 mm CIDH	800	NA	959.50(a), 959.50(c), xx(d)	959.50	NA
Pier 7	600 mm CIDH	1,513	NA	945.20(a), 947.50(c), xx(d)	945.20	NA

Notes:

- 1) Design tip elevations for Abutments are controlled by: (a) Compression, (c) Settlement, (d) Lateral Load
- 2) Design tip elevations for Piers are controlled by: (a) Compression, (b) Tension, (c) Settlement (d) Lateral Load
- 3) The specified tip elevation shall not be raised above the design tip elevations for tension load, lateral load, and tolerable settlement.
- xx) To be determined by the structure designer

11.4. Micropiles

Micropiles are proposed for support of Piers 2 and 6. Design recommendations are provided in the following sections of this report.

11.4.1. Micropile Axial Load Design

We understand micropiles will be installed in 250mm (10-inch) nominal diameter drilled holes. An internal steel casing will be used in the upper portion and connect to the pile cap. The micropiles will also have a continuous center reinforcing bar. The micropile grout will completely surround the casing and provide a bond to the rock. The inclination of the micropiles will be consistent with the inclination of the resultant loads imparted by the arch structure at Piers 2 and 6.

We recommend micropiles be designed using only side friction resistance and not end bearing. The ultimate skin friction in the bond zone for the weak rock at the arch pier foundation locations is estimated to be about 345 kPa (Kulhawy, 2005). Assuming that the micropile tips will be drilled into rock, we recommend using a LRFD resistance factor of 0.7 to estimate the factored side friction capacity of the micropiles.

The top 1.52-meters (5 feet) of the micropile shaft should be neglected when evaluating axial capacity. The downward axial capacity of micropiles should be reduced by 30 percent when the spacing of the piles is less than three times the micropile diameter. Based on our analyses, group action does not govern the design of micropiles in tension or compression. The recommended design criteria for micropiles are presented in Tables 22 and 23 below.

Table 22: Foundation Recommendations for Piers 2 and 6

Piers 2 and 6 Foundation Design Recommendations											
Support Location	Pile Type	Cut-off Elevation (m)	Service-I Limit State Load (kN) per Support	Total Permissible Support Settlement (mm)	Required Factored Nominal Resistance (kN)				Design Length (m)	Specified Length (m)	Steel Casing Specified Length (m)
					Strength Limit		Extreme Event				
					Comp. ($\phi=0.7$)	Tension ($\phi=0.7$)	Comp. ($\phi=1$)	Tension ($\phi=1$)			
Pier 2	250 mm inclined micropile with steel casing	Varies (at least 100 mm into pile cap)	54,110	25	2,000	NA	2,860	890	8.91 (a-I)	12.08	xx
									12.08 (a-II)		
									8.91 (c)		
									4.81 (b-II)		
Pier 6	250 mm inclined micropile with steel casing	Varies (at least 100 mm into pile cap)	54,110	25	2,000	NA	2,860	890	8.91 (a-I)	12.08	xx
									12.08 (a-II)		
									8.91 (c)		
									4.81 (b-II)		
									xx (d)		

Notes:

- Design tip elevations are controlled by: (a-I) Compression (Strength Limit), (b-I) Tension (Strength Limit), (a-II) Compression (Extreme Event), (b-II) Tension (Extreme Event), (c) Settlement, (d) Lateral Load.
 - The specified tip length shall not be shortened.
- xx To be determined by the structure designer.

Table 23: Micropile Data Table

Micropile Data Table						
Location	Pile Type	Factored Nominal Resistance (kN)		Steel Casing Specified Length (m)	Design Length (m)	Specified Length (m)
		Compression ($\phi = 1$)	Tension ($\phi = 1$)			
Pier 2	250 mm inclined micropile with steel casing	2,860	890	xx	12.08 (a) 4.81 (b) 8.91 (c) xx (d)	12.08
Pier 6	250 mm inclined micropile with steel casing	2,860	890	xx	12.08 (a) 4.81 (b) 8.91 (c) xx (d)	12.08

Notes:

1. *Design tip elevations are controlled by: (a) Compression, (b) Tension, (c) Settlement, (d) Lateral Load.*
 2. *The specified tip elevation shall not be raised.*
- xx *To be determined by the structure designer.*

11.4.2. Micropile Lateral Resistance

According to the foundation plans, the proposed micropiles at Piers 2 and 6 will be founded entirely in phyllite rock. The pile caps will be excavated into weak rock on the north side and terrace deposits, colluvium, rock creep zone materials, and weak rock on the south side. Based on the International Society for Rock Mechanics (ISRM) criteria, rock grades at Pier 2 are R0-R2. The rock grades at Pier 6 are R1-R2 and R3-R4. The recommended geotechnical parameters for lateral resistance analysis of micropiles founded in rock using the L-PILE™ (by Ensoft) computer program are presented in Tables 24 and 25. We have also provided recommendations for evaluation of lateral resistance at the pile caps in the following section. Due to the small lateral deflections required to engage the rock, the micropiles in the group will act as individual piles and group action effects need not be considered.

Table 24: Soil/Rock Parameters for Borings B-1b, B-2b (Pier 2)

Boring Locations:		Elevations at Tops of Borings:							
B-1b: STA "NB" 15+53.162		B-1b: 971.721 m							
B-2b: STA "NB" 15+67.565, 3.8 m Rt		B-2b: 962.790 m							
		Groundwater level: 940.390 m							
Layer No.	Soil/Rock Type	Thickness (m)	Top of Layer (m)		Uniaxial Compressive Strength of Rock (kPa)	Young's Modulus of Elasticity (kPa)	Φ (degrees)	RQD for Rock	Unit Weight (kN/m ³) Moist or =Submerged=
			Elevation	Depth					
1	Phyllite R0-R2	45.90+	962.621	0.00	3,000	127,000	NA	0	22.77 =12.97=

The K_{rm} value for phyllite rock with RQD = 0 should be taken as 0.00005

Table 25: Soil/Rock Parameters for Borings B-3, B-3b (Pier 6)

Boring Locations: B-3: STA "NB" 16+94.663, 4.2 m Lt B-3b: STA "NB" 16+96.929, 3.6 m Rt	Elevations at Tops of Borings: B-3: 948.121 m B-3b: 950.809 m Groundwater level: 933.921 m
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Layer No.	Soil/Rock Type	Thickness (m)	Top of Layer (m)		Uniaxial Compressive Strength of Rock (kPa)	Young's Modulus of Elasticity (kPa)	φ (degrees)	RQD for Rock	Unit Weight (kN/m ³) Moist or =Submerged=
			Elevation	Depth					
1	Phyllite R0-R2	0.92	942.310	0.00	3,000	127,000	NA	0	22.77
2	Phyllite R3-R4	21.03+	941.390	6.71	50,000	2,115,000	NA	0	22.77 =12.97=

The K_{rm} value for phyllite rock with RQD = 0 should be taken as 0.00005



Due to the very low lateral deflections required for the micropiles to engage lateral resistance in the rock mass, the pile caps are not expected to translate enough to develop passive resistance. Therefore, the at-rest earth pressure should be used for evaluation of lateral resistance of the embedded portions of the pile caps. The recommended at-rest earth pressure for the Terrace deposits, colluvium, rock creep zone materials, and weak phyllite rock at Piers 2 and 6 is 13.2 kN/m^3 .

11.4.3. Micropile Load Testing

Micropile performance (or verification) and proof load testing should be conducted in general accordance with Federal Highway Administration Micropile Design and Construction Guidelines Implementation Manual (FHWA, 2000), and as shown on the plans and in the specifications. The specific requirements of the plans and specifications should govern over the FHWA specifications. Performance tests should be performed on sacrificial micropiles located at least 3 meters away (in any direction) from production micropile locations. The piles should be constructed at orientations similar to the production micropiles. Performance tests should be performed in tension to verify to the design bond stress. The performance test piles need not have the permanent steel casing installed as for production micropiles. Proof tests should be performed on production piles in compression to verify overall pile integrity. Pile grout should attain the required design compressive strength prior to load testing.

11.5. CIDH Pile Behavior Under Lateral Loads

We have not considered deflections of CIDH piles under lateral loads.

11.6. Settlement of Pile Foundations

We assume that the CIDH piles and micropiles will be founded in weak rock. Based on the methods outlined in FHWA Publication No: FHWA-IF-99-025 (Drilled Shafts: Construction Procedures and Design Methods) long term settlement should be on the order of 13mm or less.

11.7. Abutment Walls and Retaining Walls

The abutment walls will be extended as shown on the General Plan. Backfill placed behind the abutments and retaining walls should conform to the requirements for Structure Backfill provided in Section 19-3 of the Caltrans Standard Specifications.

11.7.1. Lateral Earth Pressure

Active earth pressures will govern the static behavior of walls, which are able to rotate freely at the top. A typical value of relative movement required to reach active pressure

conditions in the cohesionless backfill is $0.002H$ (height of the wall). We recommend using a Coulomb's active earth pressure coefficient of 0.28 (with a wall friction angle equal to zero and backfill slope angle of zero) and corresponding fluid pressure of 5.7 kN/m^3 for the development of the lateral earth pressure diagram for the abutment and wing walls.

Surcharge pressures due to dead (abutment, etc.) or live loads should be included in the lateral earth pressures, if applicable. In case of traffic coming closer than half the height of the wall, we recommend a live load surcharge pressure equal to not less than 0.6 meters of soil surcharge with an average unit weight of 19.6 kN/m^3 .

11.7.2. Wall Drainage

Adequate drainage should be provided behind the abutment and retaining walls in accordance with Caltrans Standard Plan B0-3, Bridge Detail 3-1. For wall backfills without drainage, the walls should be designed to resist hydrostatic pressures.

11.7.3. Bearing Capacity

The retaining walls at the abutments will be designed using working stress design. We evaluated the bearing capacity of the soils at the planned footing elevations using classical bearing capacity equations accounting for sloping ground conditions. We also evaluated the bearing capacity using the methods prescribed by Caltrans in their bridge design manual. We found that using the empirical procedures for rock, we achieve a more conservative estimate of bearing capacity than for soil (terrace deposits) and are therefore reporting the results for weak rock. We also understand that Caltrans plans to use Type 1 retaining walls (Standard Plan B3-1) and that the required loading is less than 220 kPa which is the allowable bearing capacity that we estimate using the empirical procedures for rock or the terrace deposits. An abutment retaining wall footing data table is presented in Table 26 below.

Table 26: Abutment Retaining Wall Footings

Footing Data Table				
Support Location	Design Method	Bottom of Footing Elevation	Recommended Bearing Limits	
			Nominal Capacity (kPa)	Allowable Capacity (kPa)
Abutment 1 Upper Left RW	WSD	970.80	665	220
Abutment 1 Lower Left RW	WSD	969.40	665	220
Abutment 1 Upper Right RW	WSD	970.80	665	220
Abutment 1 Lower Right RW	WSD	969.40	665	220
Abutment 8 Upper Left RW	WSD	973.25	665	220
Abutment 8 Lower Left RW	WSD	971.68	665	220
Abutment 8 Right RW	WSD	971.68	665	220

11.8. Soil Nail/Rock Dowel Wall at North Slope

11.8.1. General

Soil nail/rock dowel-shotcrete wall systems are proposed to retain the natural slope and cut section above the proposed skewback foundation at Pier 2 to raise the global factor of safety for the slope to greater than 1.5 for static conditions and 1.1 under a pseudo-static seismic loading condition. We have provided recommendations for design below to satisfy these required minimum factors of safety.

11.8.2. Soil and Rock Design Parameters

The following soil and rock parameters in Table 27 should be used for the design of the soil nail/rock dowel-shotcrete wall:

Table 27: Soil and Rock Design Parameters for North Slope

Soil/Rock Type	Approximate Elevations (m)	Total Unit Weight (kN/m ³)	Mohr-Coulomb Parameters from Hoek-Brown Strength Criteria	
			Angle of Internal Friction, Φ (degrees)	Cohesion, c (kPa)
Terrace Deposits	972.0 - 965.6	20	40	50
Fractured Phyllite	965.6 - 922.0	25	22	69

In accordance with Post Tensioning Institute (PTI) "Recommendations for Prestressed Rock and Soil Anchors (2004)" the ultimate bond stress between the soil or rock and the anchor grout can be approximated by using a value of 10% of the unconfined compressive strength of soil or rock. A minimum factor of safety of 2 should be applied to the ground/grout interface for permanent anchors.

11.8.3. Dowel Length/Inclination

For the modeled slope configuration, there should be a minimum of 8 rows of dowels with the upper four rows having dowel lengths of at least 14 meters and the lower four rows having dowel lengths of at least 12 meters.

A maximum vertical center to center spacing of 1.5 meters and a maximum horizontal center to center spacing of 2.0 meters should be maintained between adjacent dowels. The top row of dowels should be located a maximum of 1 meter from the top of the wall.

For this analysis we assumed a rock dowel diameter of 37 mm and a 100 mm diameter grouted hole. A 15 degree inclination below horizontal is typical for rock dowel installation. Caltrans Right of Way (ROW) limits near the project site should be considered in designing the rock dowels. We recommend a lock off load of 22.5 kN for the rock dowels. As these rock dowels do not require tensioning to develop their resistance, the lock off load is intended only to secure the shotcrete facing to the face of the slope.

11.8.4. Lateral Earth Pressures

A wall batter angle of 20 degrees from vertical is recommended to provide a cut face with a static factor of safety of greater than or equal to 1.0, as documented by our slope stability analysis. The computer program SnailWin calculates the Maximum Average Reinforcement Working Force, defined as the average force per member that must be mobilized to support the active wedge of material behind the wall. In this case, there are no areas that have a factor of safety of less than 1.0. Therefore, no active soil/rock

pressure will act on the nails or the inclined shotcrete face. The purpose of the shotcrete facing will be to prevent raveling of the slope face.

Pseudo-static analysis of the subject slope was conducted using equivalent horizontal accelerations of 0.2g (1/3 of PBA). This results in an Average Reinforcement Working Force of 78.9 kN per row of reinforcement. The reinforced slope has a calculated Factor of Safety of 1.1. We recommend the shotcrete facing be designed for this average force in accordance with FHWA design guidelines.

Surcharge pressures due to dead and live loads (traffic loads, etc.) should be included in the lateral earth pressures, if applicable. In case of traffic coming closer than one half height of the wall, we recommend a live load surcharge pressure equal to not less than 0.6 meters of soil surcharge with an average unit weight of 19.6 kN/m³.

11.8.5. Vertical Support

In accordance with the Caltrans BDS Section 5.2.1.3, only minimal embedment of the wall facing may be required (where soldier piles are not used) where competent and stable foundation material is located at the base of the wall face. If a bearing surface is available, we recommend an allowable bearing capacity of 664 kPa (level ground conditions) and a coefficient of friction of 0.26 (assuming $\delta=2/3\phi$) for the wall facing material. The allowable bearing value will be reduced for sloping ground and will depend on the slope angle below the wall as well as any setback distance. However, the proposed soil nail wall will be located above the Pier 2 foundation and the excavation for this foundation will likely remove bearing support for the wall facing. If required, additional short dowels can be installed between the full length dowels to provide support in shear for the shotcrete facing. We recommend using a coefficient of friction of 0.26 for temporary support of shotcrete panels.

11.8.6. Drainage

The recommended lateral earth pressures assume that drainage is provided behind the walls to prevent the accumulation of hydrostatic pressures. Proper drainage should be designed behind the walls to allow drained conditions in the retained soils/rocks, in accordance with Caltrans Standard Plan (May 2006) BO-3.

12.0 CONSTRUCTION CONSIDERATIONS

12.1. General

- All earthwork should be performed in accordance with Caltrans Standard Specifications, Section 19.

- Prior to any site work and excavations, conditions of existing structures and improvements should be surveyed and photo/video documented. A survey of all structures and improvements that are to be left in place that are within a distance equal to two times the height of the excavations, including backcuts for retaining walls, should be prepared prior to excavation and monitored during excavations.
- Observation and testing by a qualified geotechnical professional should be performed during construction, as applicable.
- Groundwater was encountered during excavation for the Tower 2 and 3 footings for the existing bridge. Water may be encountered during excavations for the proposed pile caps at the pier locations, particularly at Piers 2 and 6. Measures to control the impact of both ground and surface water on the stability of temporary excavations should be employed and should remain the sole responsibility of the Contractor.
- Excavations should be performed in accordance with Section 19-3 of the Caltrans Standard Specifications. All trenches and temporary excavations should be excavated in accordance with CALOSHA safety requirements.
- Any temporary sheeting or shoring should be made the Contractor's responsibility. A shoring design and safety plan stamped and signed by a Professional Engineer practicing in California should be required from the Contractor.
- At Abutment 8, the new abutment is located adjacent to the abutment for the existing bridge. It is not known whether the limits of the excavation for construction of the existing bridge abutment will encroach into the excavation area for Abutment 8. If it does and the Engineer identifies unsuitable material, any existing fill associated with the backfilling of the former abutment excavation that encroaches into the Abutment 8 foundation support area should be removed to undisturbed soil or rock and be backfilled with a concrete mix having at least 4 sacks of portland cement per cubic yard (i.e., 376 pounds of cement per cubic yard). The limits of old fill removal should extend behind the new footing to competent and undisturbed native materials, and at least 0.5 meters in front of the new footing. At the front of the over-excavation, it could be cut near vertical or as steep as practical based on the ground conditions present such that the remaining earth between the excavation and the existing slope face could be used as a form for the concrete backfill. Some formwork may also be necessary depending on the configuration of the excavation at the time of construction. A detail showing the anticipated zone where over-excavation and replacement may be necessary is presented on Plate 9, Abutment 8 Old Fill Over-Excavation Detail.
- At Abutment 1 and Pier 7, CIDH pile excavations could encounter some difficulty penetrating soil layers with cobbles and boulders. Cobbles and boulders

composed of relatively hard meta-andesite and greenstone were observed within the near-surface terrace deposits in the area of Abutment 1. The largest boulders observed during our field reconnaissance were about 2 meters in maximum dimension. In Boring B-1b at depths between about 5.5 and 7.6 meters below the ground surface, rounded cobbles and boulders in the core sample ranged from about 25 to 46 cm in vertical length. The presence of these hard cobbles and boulders represents potential problems for conventional flight auger drilling methods. Air percussion or similar hammer drilling systems may be required to advance the holes through the cobbles and boulders. In the area of Pier 7, the near-surface colluvium contained cobble and boulder sized phyllite rock fragments. In Boring B-4 at a depth of about 10.1 meters, a boulder was encountered that was about 46 cm in vertical length in the core sample. The phyllite rock fragments in the colluvium are expected to be much softer than the cobbles and boulders within the terrace deposits at Abutment 1 and are expected to be less problematic with respect to excavation. Excavations in the underlying phyllite bedrock are expected to be feasible with conventional auger-type rock drilling equipment. Temporary casings may be required where surficial soils lack cohesion and are susceptible to caving.

- Ponding of water adjacent to the structure should be avoided. During and after construction, positive drainage should be provided to direct surface water away from structures and all excavations toward suitable, non-erosive drainage devices.
- Due to the highly fractured and foliated nature of the bedrock formation, micropile construction may take significant grout without proper construction sequencing. To develop the required micropile plunge length, the grout must completely surround the steel casing in the plunge zone.

12.2. Soil/Rock Nail Wall

- Materials to be excavated along the slope face will consist primarily of moderately weathered rock. A terrace deposit exists on upper portion of the slope that contains gravel, cobbles, and boulders. During excavation, erosion and surficial sloughing may occur. Excavations during wet season may require erosion protection.
- The Shoofly Formation on the site is composed of foliated and highly fractured phyllite and metasandstone bedrock. Drilling for soil/rock dowels may encounter either penetration difficulty and/or difficulty maintaining hole alignment. Therefore, variable rock strengths should be anticipated and drilling with casing and centralizers may be required. In addition, grout takes may be higher than the theoretical anchor hole volume in the phyllite rock due to the degree of fracturing present. A sanded grout mix is recommended.

- Vertical cut sections should not be deeper than 1.5 meters without shoring or installing, tensioning, and testing of tiebacks. This requirement should be applicable to all stages of excavation for the wall.
- Installation of soil/rock dowels shall conform to the applicable drawings and specifications (SSP for Soil Nail Walls).
- Soil/rock dowels should be tested in accordance with the requirements of the SSP for Soil Nail Walls.
- Shotcrete should be tested to ensure in-place quality of the materials. Shotcrete should conform to Section 53 and shotcrete reinforcement should conform to Section 52 of Caltrans Standard Specifications (2006).
- The Contractor should be aware of water pollution control work as defined in "Section 7-1.01G, Water Pollution" in Caltrans Standard Specifications.
- Prior to any site work and excavations, conditions of existing structures and improvements should be surveyed and photo/video documented. A survey of all structures and improvements that are to be left in place that are within a distance equal to two times the height of the excavations, including backcuts for retaining walls, should be prepared prior to excavation or installation of shotcrete, and monitored during excavations. Special attention should be accorded to any existing structures top of proposed retaining walls.
- Sufficient and timely observation during construction should be performed to correlate findings of the investigation with actual subsurface conditions exposed during construction.
- The contractor should research utility locations and take necessary precautions to protect-in-place or relocate utilities as applicable, prior to excavation.
- Ponding of water adjacent to the structure should be avoided. During and after construction, positive drainage should be provided to direct surface water away from structures and all excavations toward suitable, nonerosive drainage devices. Drainage should be collected by perforated pipes and directed to a sump, storm drain, weep hole(s), or other suitable location for disposal. Drainage for retained soils should be provided in accordance with the Caltrans Standard Plan (2006) BO-3.

13.0 PROJECT INFORMATION

Standard Special Provisions S5-280, "Project Information," discloses to bidders and contractors a list of pertinent information available for their inspection prior to bid opening. The following is an excerpt from SSP S5-280 disclosing information originating from Geotechnical Services. Items listed to be included in the information

Handout will be provided in Acrobat (.pdf) format to the addressee(s) of this report via electronic mail.

Data and information attached with the project plans are:

- A. Logs of Test Borings for the 2006 subsurface exploration.
- B. Logs of Test Borings for the 1999 subsurface exploration for the Bridge No. 09-0015 Retrofit Study.

Data and Information included in the Information Handout provided to the bidders and Contractors are:

- A. "Foundation Report, Spanish Creek Bridge Replacement" (Bridge No. 09-0077), dated September 17, 2009.
- B. "Foundation Recommendations, Spanish Creek Bridge" (Bridge No. 09-0015), dated July 7, 1999.

Data and Information available for inspection at the District Office:

- A. None

Data and information available for inspection at the Transportation Laboratory:

- A. Core samples collected from the 2006 subsurface exploration for Borings B-1, B-1b (depths 5.5 to 9.8 m, 14.3 to 19.2 m, 28.3 to 31.7 m, 45.4 to 52.4 m, 54.9 to 57.3 m only), B-2 (depths 9.8 to 46.0 m only), B-2b (depths 7.3 to 11.0 m, 26.8 to 35.1 m, 38.1 to 46.0 m only), B-3, B-3b, B-4, B-4b and B-5.
- B. Core samples collected from the 1999 subsurface exploration.

14.0 LIMITATIONS

Recommendations contained in this report are based on our field observations and subsurface explorations, limited laboratory tests, and our present knowledge of the proposed construction. It is possible that soil conditions vary between or beyond the points explored. If soil or groundwater conditions are encountered during construction that differ from those described herein, we should be notified immediately in order that a review may be made and any supplemental recommendations provided. If the scope of the proposed construction, including structural locations, changes from that described in this report, our recommendations should also be reviewed. We have not reviewed the final grading plans or foundation plans for the Project.

Kleinfelder does not practice corrosion engineering and therefore does not provide recommendations regarding corrosion potential mitigation.

Our evaluation of subsurface conditions at the site has considered subgrade soil, rock, and groundwater conditions present at the time of our investigation. The influence(s) of post-construction changes to these conditions such as introduction of water into the subsurface will likely influence future performance of the proposed foundations. Whereas our scope of services addresses present groundwater conditions; broken

water pipelines, etc. may adversely influence the Project and should be addressed and mitigated, as needed.

Other standards or documents referenced in any given standard cited in this report, or otherwise relied upon by the authors of this report, are only mentioned in the given standard; they are not incorporated into it or "included by reference", as the latter term is used relative to contracts or other matters of law.

We have strived to present the findings, conclusions and recommendations in this report in a manner consistent with the standards of care and skill ordinarily exercised by members of this profession practicing under similar conditions in Plumas County, California, and at the time the services were performed. No warranty, expressed or implied, is made.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on site and off site) or other factors may change over time, and additional work may be required with the passage of time.

The scope of our geotechnical services did not include any environmental site assessment for the presence or absence of hazardous/toxic materials. Kleinfelder will assume no responsibility or liability whatsoever for any claim, damage, or injury which results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials.

15.0 REFERENCES

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PLATES

The following plates are attached:

1. Site Location Map
2. Regional Geologic Map
3. Fault and PBA Map
4. Seismic Fault Lines Map
5. Site Geology
6. Engineering Geologic Profile A-A'
7. Recommended ARS Curves: North Side of Canyon
8. Recommended ARS Curves: South Side of Canyon
9. Abutment 8 Old Fill Over-Excavation Detail

APPENDICES

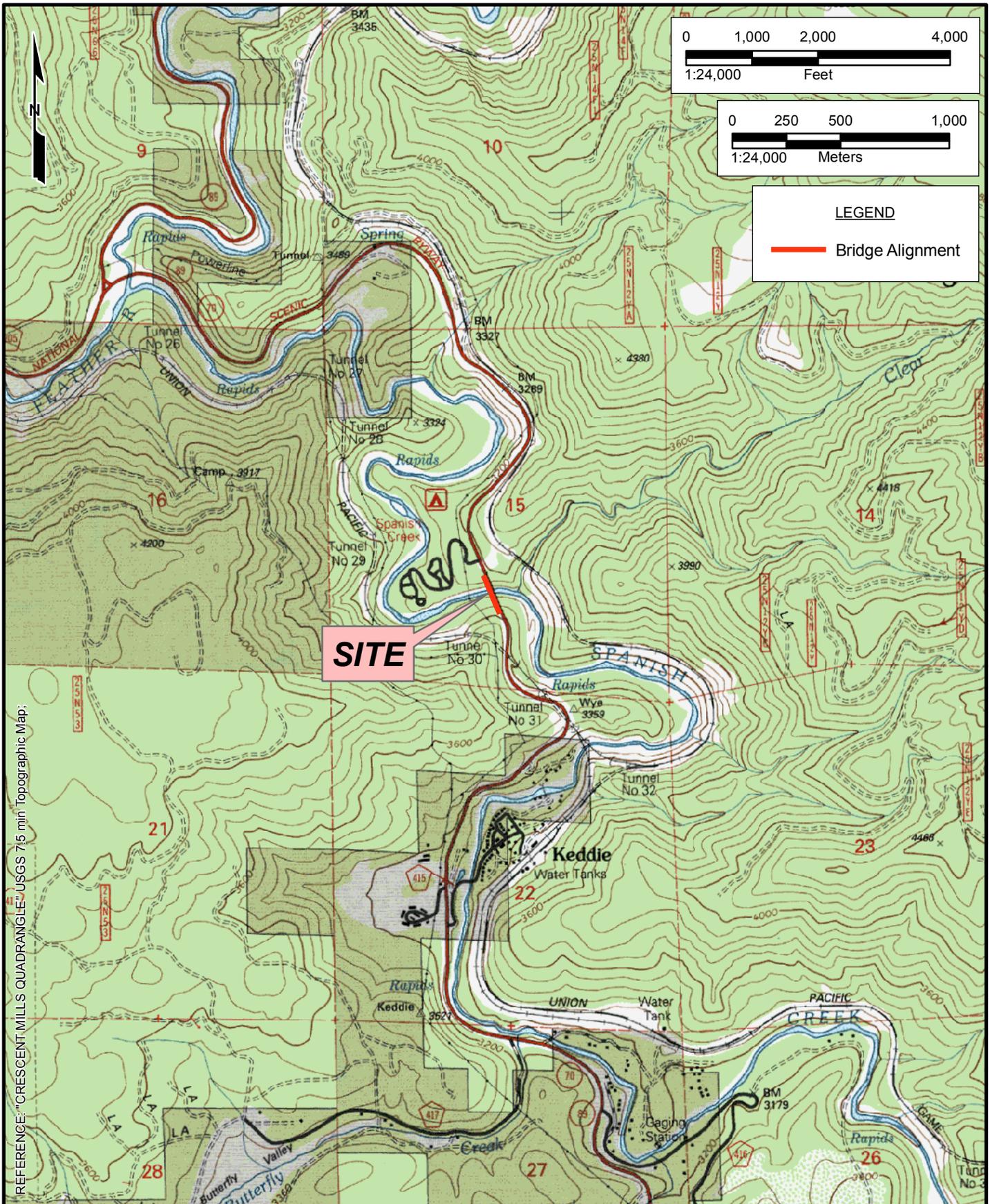
Appendix A – As Built Drawings for Existing Bridge No. 09-0015 and previous Foundation Investigation (1999).

Appendix B – Environmental Analysis of Soil Cuttings

Appendix C – Crux Oriented Borehole Logging

Appendix D – Laboratory Testing

Appendix E – Downhole Seismic Survey of Boring B-1



REFERENCE: "CRESCENT MILLS QUADRANGLE" USGS 7.5 min Topographic Map;



PROJECT NO.	93276
DRAWN:	9/16/09
DRAWN BY:	D. Anderson
CHECKED BY:	C. White
FILE NAME:	93276 Site Location Map.mxd

SITE LOCATION MAP

NEW SPANISH CREEK BRIDGE (02-PLU-70-35.4)
EA-02-373101 HIGHWAY 70
PLUMAS COUNTY, CALIFORNIA

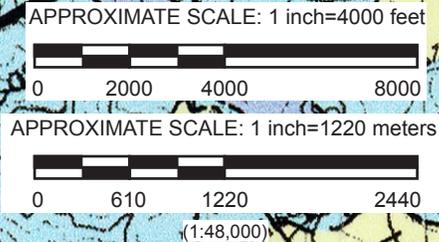
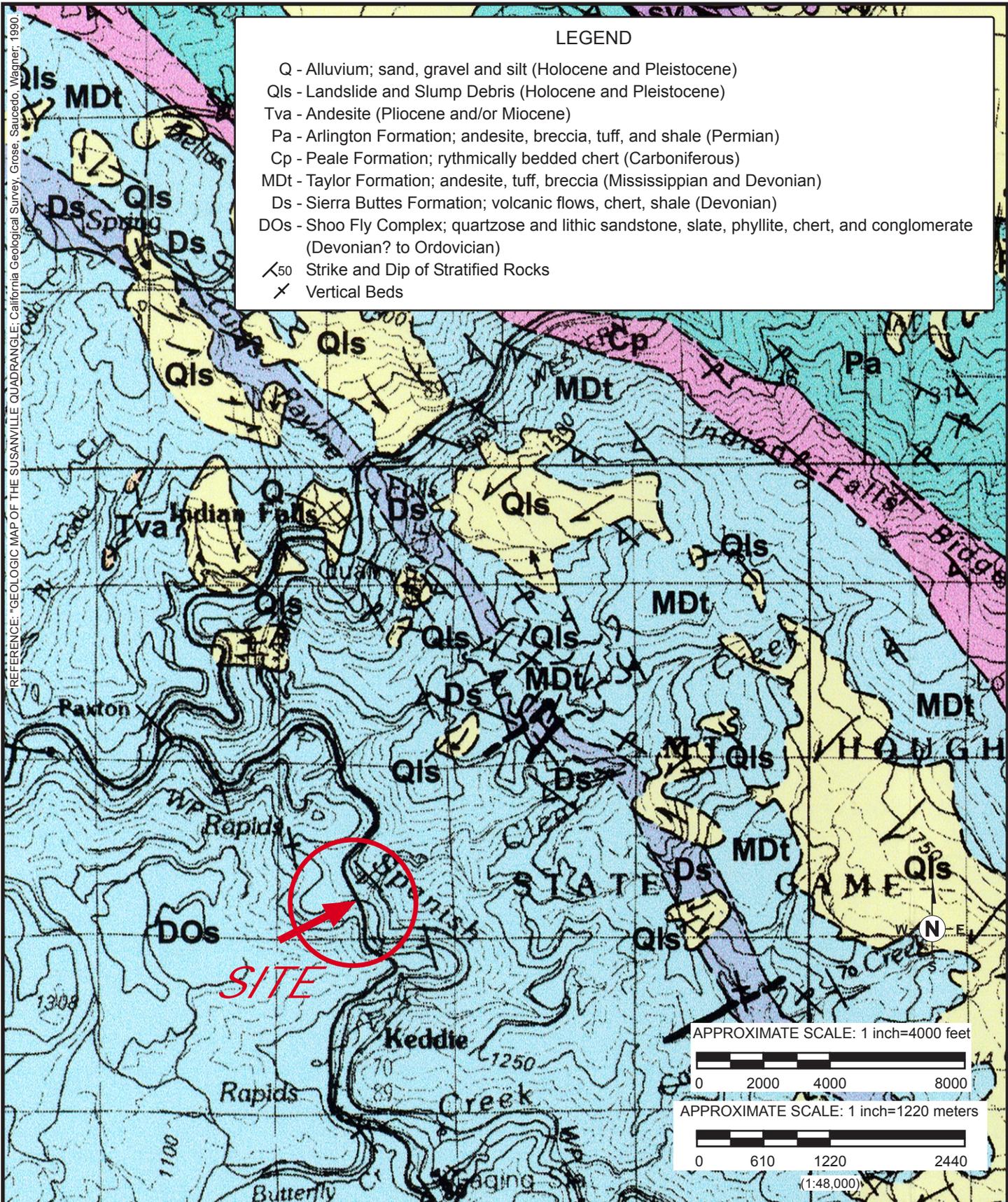
PLATE

1

REFERENCE: "GEOLOGIC MAP OF THE SUSANVILLE QUADRANGLE, California Geological Survey, Grose, Saucedo, Wagner, 1990.

LEGEND

- Q - Alluvium; sand, gravel and silt (Holocene and Pleistocene)
- Qls - Landslide and Slump Debris (Holocene and Pleistocene)
- Tva - Andesite (Pliocene and/or Miocene)
- Pa - Arlington Formation; andesite, breccia, tuff, and shale (Permian)
- Cp - Peale Formation; rythmically bedded chert (Carboniferous)
- MDt - Taylor Formation; andesite, tuff, breccia (Mississippian and Devonian)
- Ds - Sierra Buttes Formation; volcanic flows, chert, shale (Devonian)
- DOs - Shoo Fly Complex; quartzose and lithic sandstone, slate, phyllite, chert, and conglomerate (Devonian? to Ordovician)
- ↘50 Strike and Dip of Stratified Rocks
- ⊗ Vertical Beds



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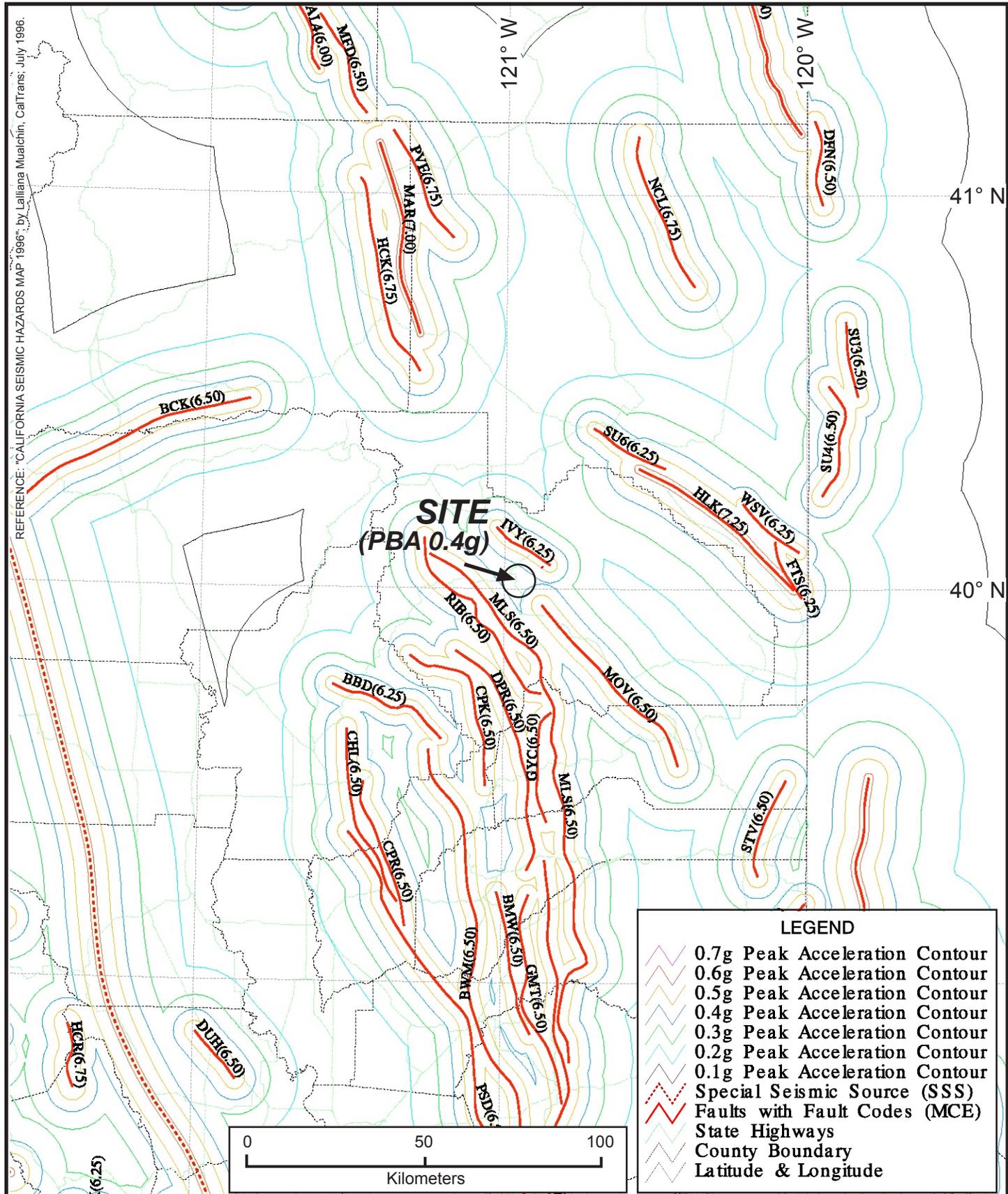
Project Number: 93276
Graphic Date: 9/16/09
Graphic By: D. Anderson
Checked By: C. White
File Name: 93276geo.fh11

REGIONAL GEOLOGIC MAP

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EA-02-373101 HIGHWAY 70
PLUMAS COUNTY, CALIFORNIA

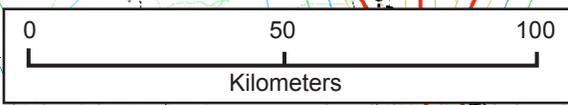
Plate
2

REFERENCE: "CALIFORNIA SEISMIC HAZARDS MAP 1996", by Lillian Mualchin, CalTrans, July 1996.



LEGEND

- 0.7g Peak Acceleration Contour
- 0.6g Peak Acceleration Contour
- 0.5g Peak Acceleration Contour
- 0.4g Peak Acceleration Contour
- 0.3g Peak Acceleration Contour
- 0.2g Peak Acceleration Contour
- 0.1g Peak Acceleration Contour
- Special Seismic Source (SSS)
- Faults with Fault Codes (MCE)
- State Highways
- County Boundary
- Latitude & Longitude



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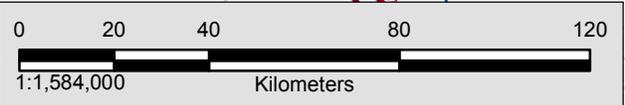
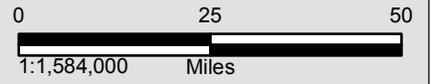
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Graphic Date: 9/16/09
Graphic By: D. Anderson
Checked By: C. White
File Name: 93276Fault PBA.fh11

FAULT AND PBA MAP

NEW SPANISH CREEK BRIDGE (02-PLU-70-35.2)
EA-02-373101 HIGHWAY 70
PLUMAS COUNTY, CALIFORNIA

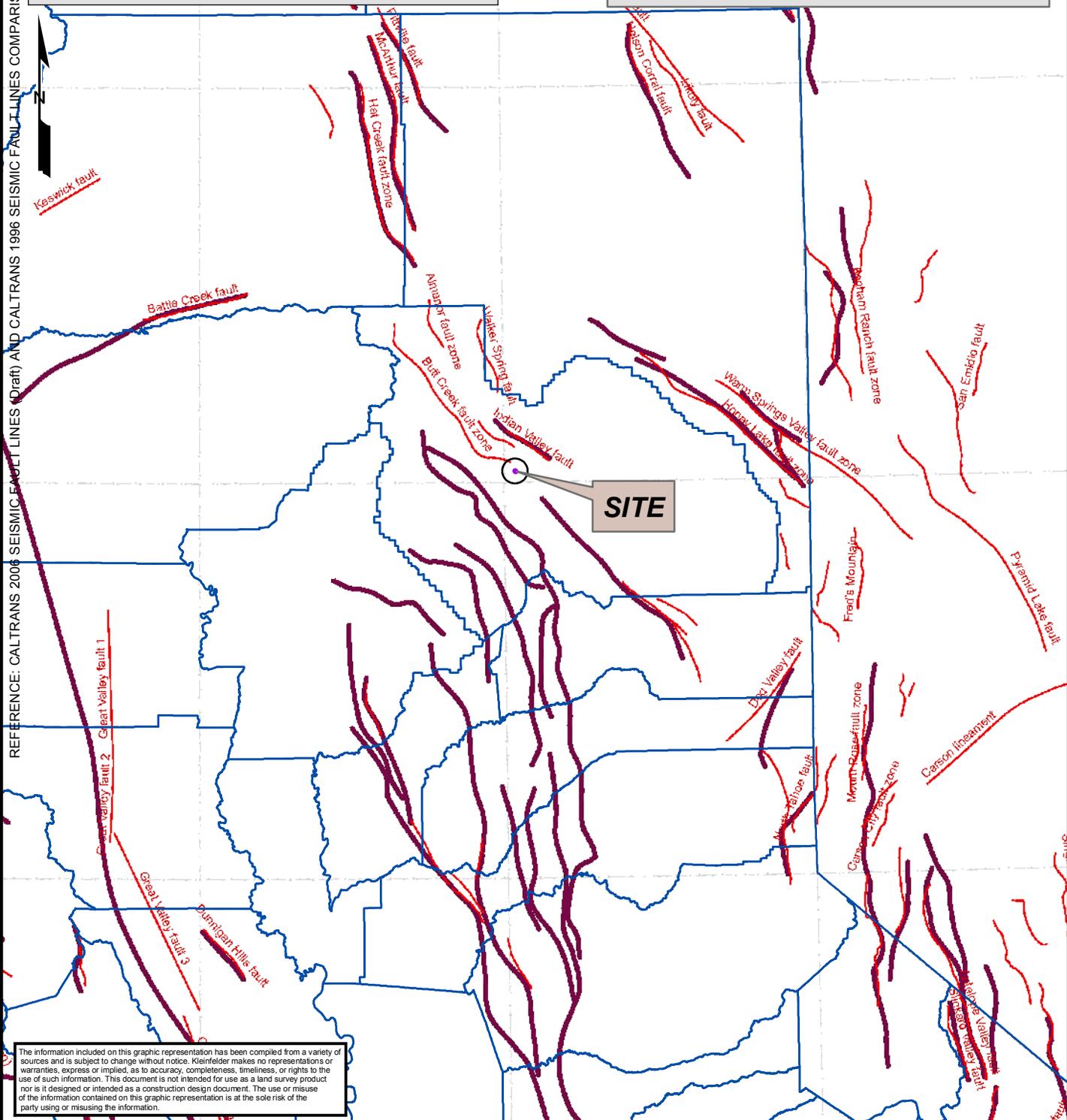
Plate
3

REFERENCE: CALTRANS 2006 SEISMIC FAULT LINES (Draft) AND CALTRANS 1996 SEISMIC FAULT LINES COMPARISON MAP; September 2006.



LEGEND

- Caltrans 2006 Seismic Fault Lines (Draft)
- Caltrans 1996 Seismic Fault Lines
- County Line



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FILE NAME:	93276 CT Seismicity.mxd

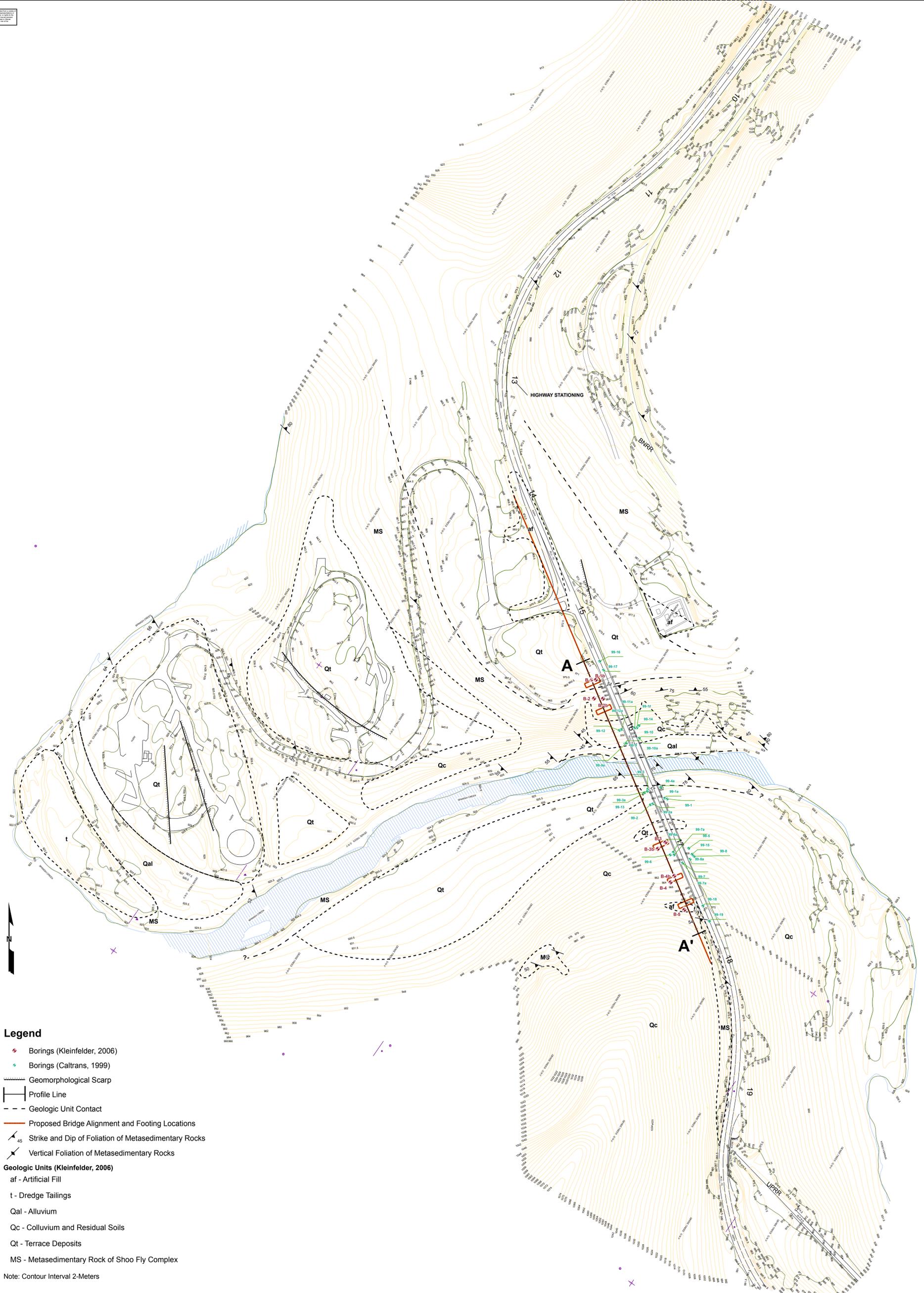
SEISMIC FAULT LINES MAP

NEW SPANISH CREEK BRIDGE (02-PLU-70-35.4)
EA-02-373101 HIGHWAY 70
PLUMAS COUNTY, CALIFORNIA

PLATE

4

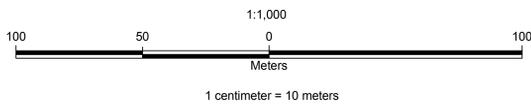
Geographic Information System (GIS) data was used to create this map. The GIS data was provided by the project geologist and is not to be used for any other purpose without the written consent of Kleinfelder.



Legend

- ◆ Borings (Kleinfelder, 2006)
 - ◆ Borings (Caltrans, 1999)
 - Geomorphological Scarp
 - Profile Line
 - Geologic Unit Contact
 - Proposed Bridge Alignment and Footing Locations
 - Strike and Dip of Foliation of Metasedimentary Rocks
 - Vertical Foliation of Metasedimentary Rocks
- Geologic Units (Kleinfelder, 2006)**
- af - Artificial Fill
 - t - Dredge Tailings
 - Qal - Alluvium
 - Qc - Colluvium and Residual Soils
 - Qt - Terrace Deposits
 - MS - Metasedimentary Rock of Shoo Fly Complex

Note: Contour Interval 2-Meters

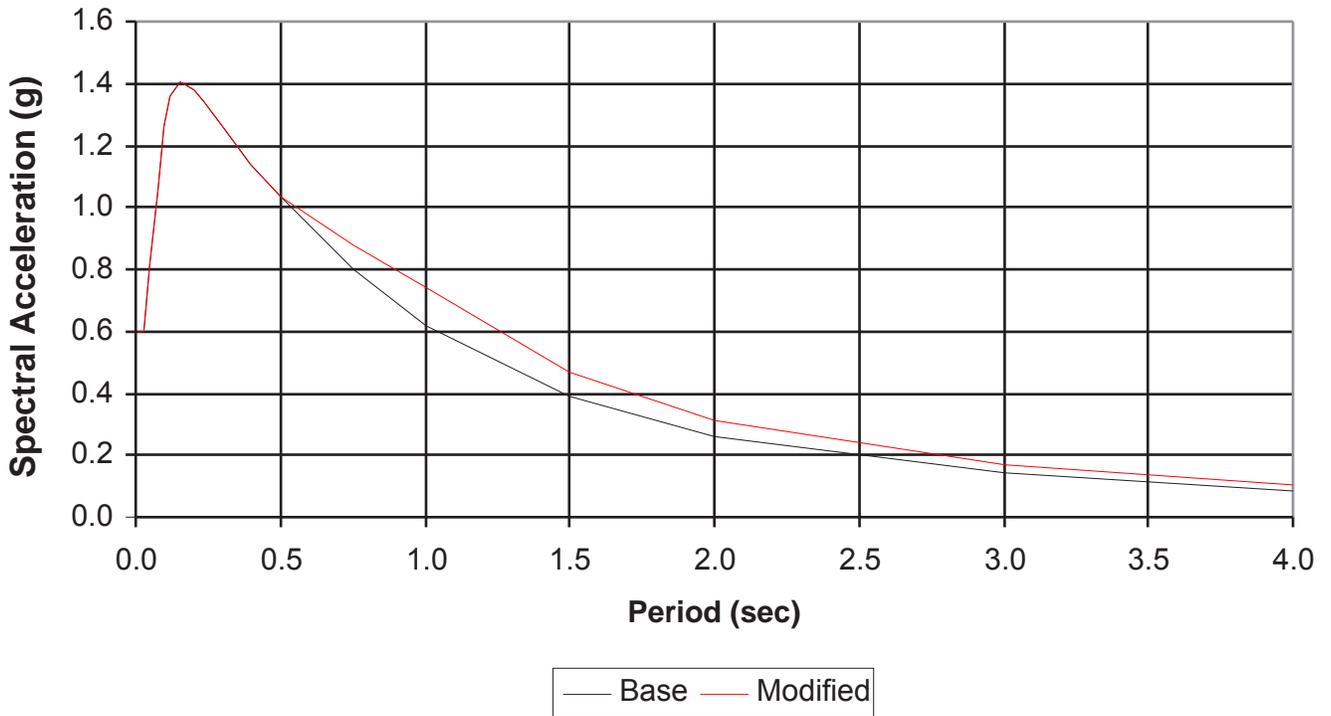


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CHECKED BY:	C. White
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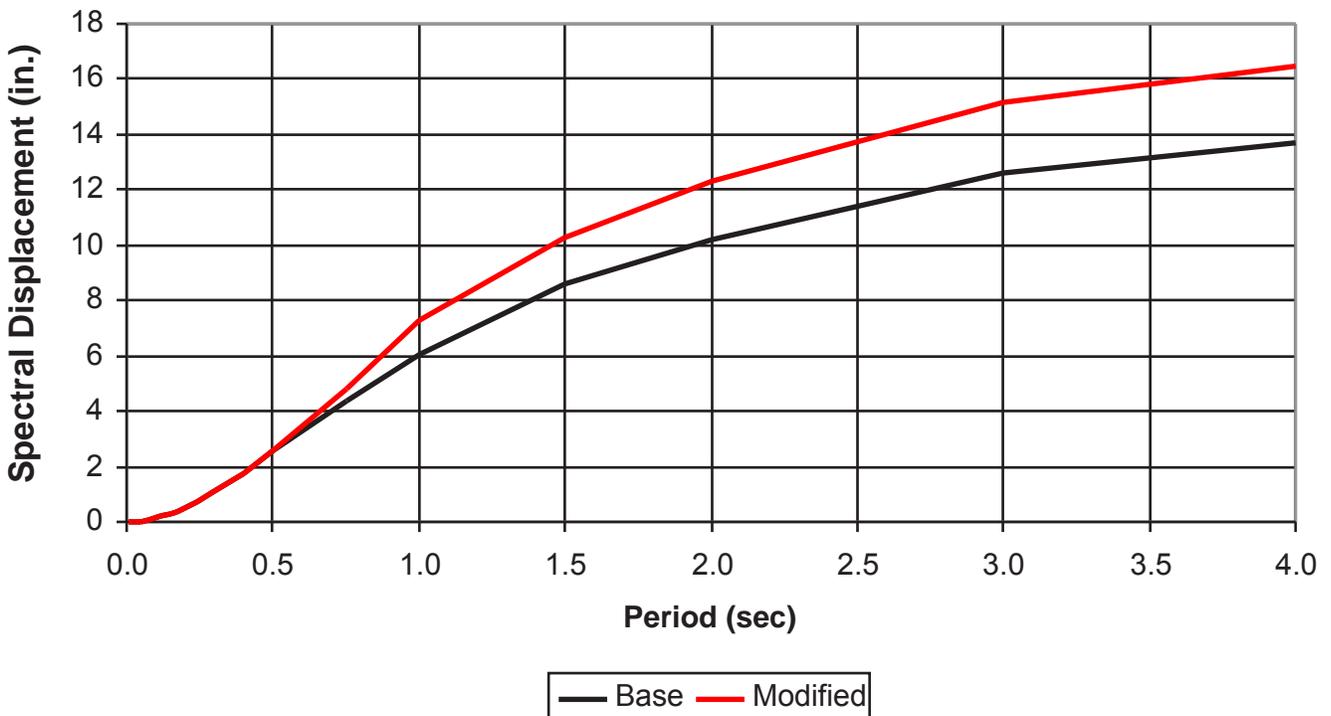
SITE GEOLOGY

NEW SPANISH CREEK BRIDGE (02-PLU-70-35.4)
EA-02-373-101 HIGHWAY 70
PLUMAS COUNTY, CALIFORNIA

North Side (M6.5 - Soil Profile C - 0.6g)



North Side (M6.5 - Soil Profile C - 0.6g)



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Graphic Date: 9/16/09

Graphic By: D. Anderson

Checked By: C. White

File Name:
93276ARS1.fh11

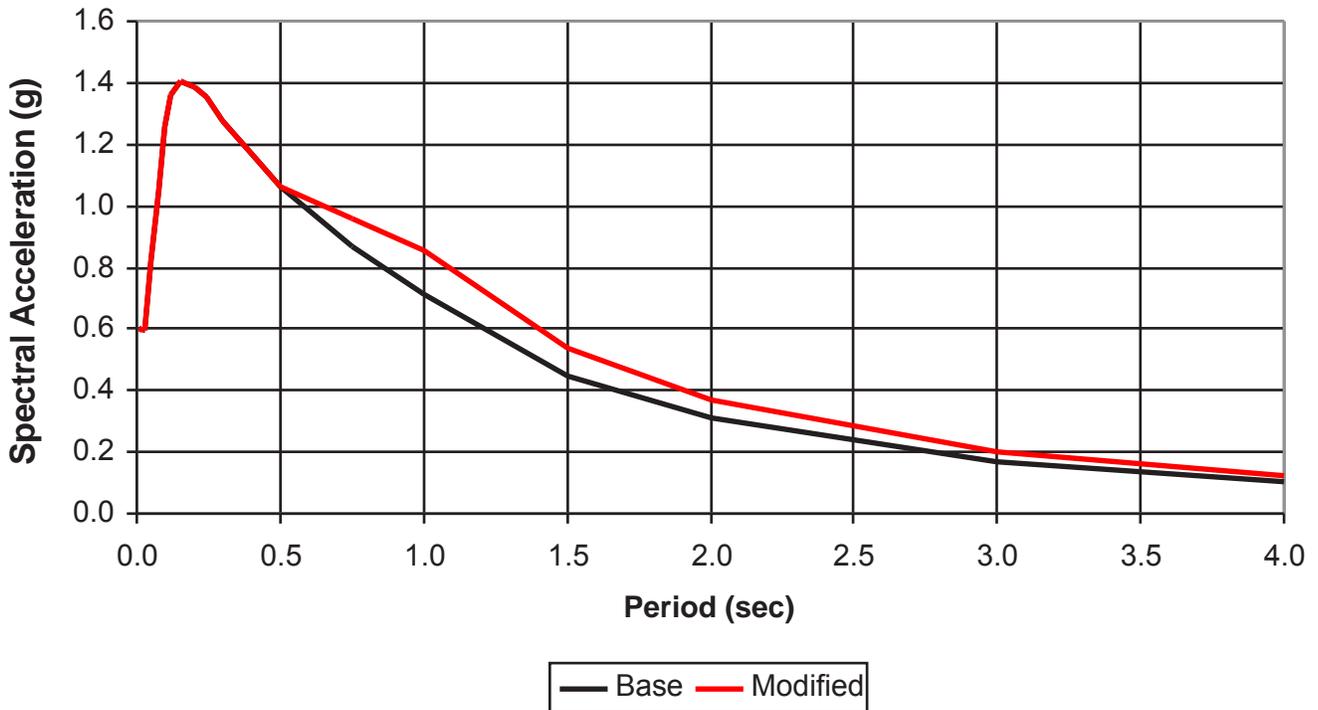
RECOMMENDED ARS CURVES:
NORTH SIDE OF CANYON

NEW SPANISH CREEK BRIDGE (02-PLU-70-35.2)
EA-02-373101 HIGHWAY 70
PLUMAS COUNTY, CALIFORNIA

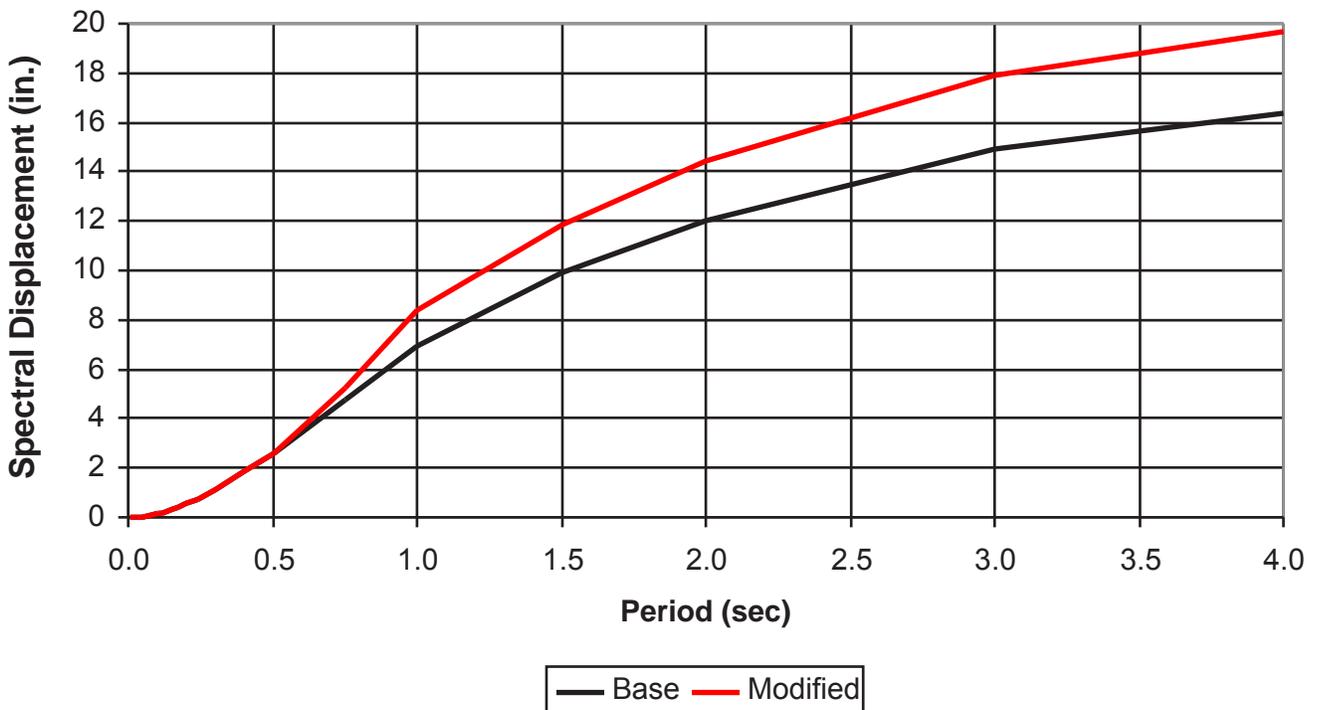
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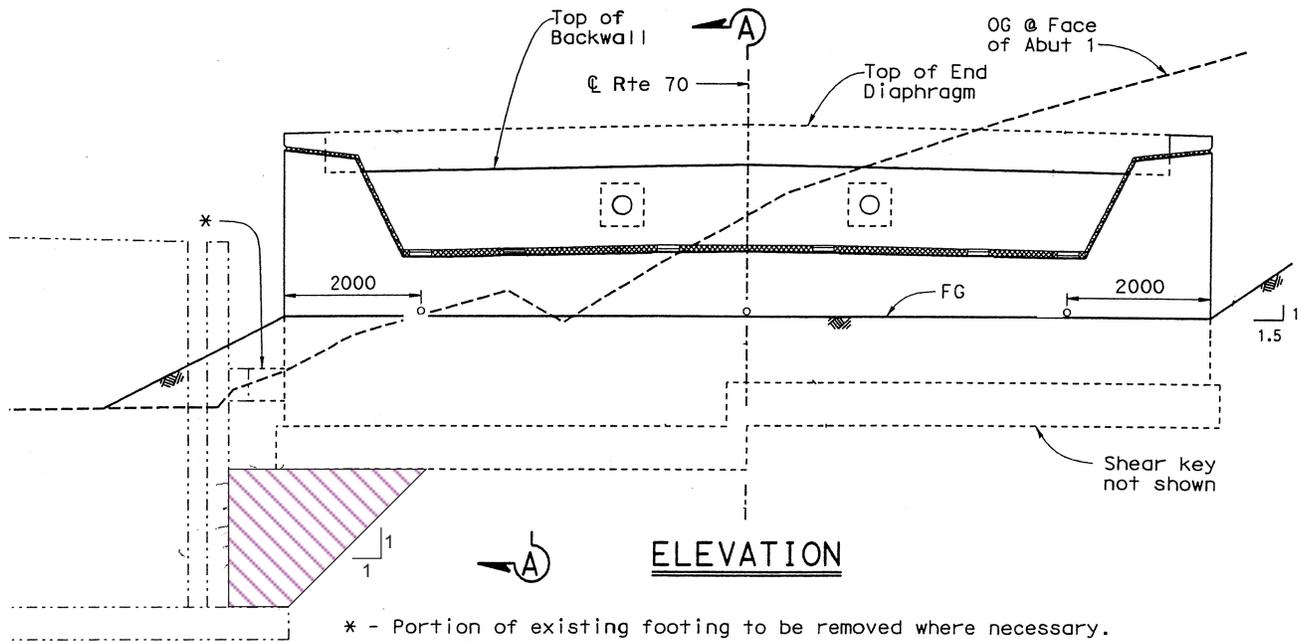
7

South Side (M6.5 - Soil Profile D - 0.6g)



South Side (M6.5 - Soil Profile D - 0.6g)





* - Portion of existing footing to be removed where necessary. Contractor shall stabilize existing wingwall as necessary.

ELEVATION

KEY

 Indicates Over Excavation Area Where Loose Fill May Be Present. Backfill With 4-Sack Minimum Concrete Mix.

Note: All dimensions indicated in millimeters.

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Project Number: 93276
Graphic Date: 8/21/09
Graphic By: D. Anderson
Checked By: K. Sorensen
File Name: 93276 Abut & OvEx.fh11

ABUTMENT 8 OLD FILL OVER-EXCAVATION DETAIL
NEW SPANISH CREEK BRIDGE (02-PLU-70-25.4) EA-02-373101 HIGHWAY 70 PLUMAS COUNTY, CALIFORNIA

Plate
9

APPENDIX A
AS-BUILT DRAWINGS FOR EXISTING SPANISH CREEK BRIDGE
(BRIDGE NO. 09-0015) AND PREVIOUS FOUNDATION INVESTIGATIONS (1999)

1. GENERAL PLAN
2. DETAILS OF BENT NOS. 1 & 2
3. PIER DETAILS
4. PIERS FOR TOWERS 1 & 2
5. ABUTMENT NO. 1
6. ABUTMENT NO. 2
7. FOUNDATIONS RECOMMENDATIONS (1999 RETROFIT INVESTIGATION)
8. LOG OF TEST BORING (LOTB) SHEETS (1999 – 10 SHEETS)

Memorandum

TO: MR. STEVE WIMAN, Chief
Office of Structure Design

Date: July 7, 1999

Attention: Mr. Jorge Estrada

File: 02-Plu-70-35.3
EA 02-259531



Spanish Creek Bridge
Bridge No. 09-00154

From: DEPARTMENT OF TRANSPORTATION
ENGINEERING SERVICE CENTER
Office of Materials & Foundations - MS 5
Structure Foundations Branch

Subject: Foundation Recommendations

A foundation study was conducted by the Structure Foundations Branch for the proposed strengthening and retrofitting of the Spanish Creek Bridge. The study consisted of a review of "As-built" records for the bridge, and a field study. The field study consisted of drilling seven mud rotary sample borings: four with a Mobile B-80 drill rig at the abutment locations, and three utilizing a "Minuteman" portable rig at the towers. Additionally, twenty-three borings utilizing a one-inch soil tube were drilled at the tower locations. The following recommendations are based on the recent field investigation. The boring data are shown on the "Log of Test Borings," dated June 1999, which will be forwarded when completed.

Site Geology

The field study involved drilling soil borings at Abutments 1 and 2 locations, as well as Towers 1, 2 and 3 locations. The foundation materials at the site consist of a slightly to intensely weathered to decomposed slate, meta-siltstone, meta-sandstone, and meta-conglomerate, overlain by a sandy, gravelly silt. Abutment 1 footing (elevation 967.3 m) is founded on a sandy, gravelly silt, with meta-siltstone and met-sandstone cobbles, below which is a very intensely weathered slate bedrock at elevation 965.5 meters. The backfill material behind Abutment 1 consists of the same material as under the footing. Abutment 2 footing is founded on an intensely weathered to decomposed slate. The backfill material behind Abutment 2 consists of a sandy gravel to a depth of approximately 1.8 meters (6 feet) (elevation 972.1 m) below ground surface, at which point bedrock is encountered. At Tower 1, Tower 2, and Tower 3 locations, all four footings at each tower are founded on very intensely weathered slate, overlain by a gravelly, silty sand. No exploratory borings were drilled at Bent 2 since the footing is obviously notched into bedrock, as slate is visually apparent at the surface in that location. Based upon the shallow depth to bedrock encountered in borings drilled at Abutment 2 and Tower 3, the Bent 3 footing must also be founded on bedrock. Therefore, no borings were drilled at Bent 3 location.

Fault and Seismic Data

The Indian Valley fault, with a maximum credible earthquake of $M_w=6.25$, is located approximately 8.5 km northeast of the site. The Melones Fault Zone, 10.3 km southwest, Mohawk Valley Fault, located 10.8 km southeast, and the Rich Bar fault, located 13.4 km southwest of the site, are each capable of generating a maximum credible earthquake of $M_w=6.5$. The site is located within a peak bedrock acceleration zone of 0.4g. For site specific ARS recommendations, refer to the memorandum provided by the Geotechnical Earthquake Engineering Section, dated 6/21/99.

Ground Water

Ground water was measured at an elevation of 925.4 meters (3,036.1 feet) in boring 99-13, adjacent to Tower 2, on April 27, 1999; at 925.2 meters (3,035.4 feet) in boring 99-14, adjacent to Tower 1, on May 5, 1999; and 940.8 meters (3,086.6 feet) in boring 99-15, adjacent to Tower 3, on May 13, 1999. No ground water was detected in any of the other borings.

Scour Potential

The Memorandum "Hydraulic Information" for Feather River Bridges, dated June 16, 1997, states that during a 100 year discharge, it is likely that the hydraulic loading on Spanish Creek Bridge would be very minor. Additionally, the slate bedrock material exposed in the streambed and at the base of Towers 1 and 2 would suggest that scour would be minimal in that area.

Foundation Recommendations

The following recommendations are for the proposed retrofit of the Spanish Creek Bridge, Bridge #09-0015, as shown on the General Plan dated January 29, 1999. The field investigation determined that Abutment 2, Bents 1 and 2, and Towers 1, 2, and 3 footings are founded on bedrock. From examination of the rock samples; the footings may be designed for rock which is capable of supporting a footing pressure of 646.38 kPa (6.75 tsf). The field investigation determined that Abutment 1 footing is founded on a sandy, gravelly silt, with meta-siltstone and meta-sandstone cobbles. The soil beneath Abutment 1 footing is also capable of supporting a footing pressure of 646.38 kPa (6.75 tsf).

The designer's scheme for retrofitting the bridge incorporates tie-backs at both Abutment 1 and 2 locations, and tie-downs at Towers 1, 2, and 3 locations, as well as possibly at Bent 1 and 2 locations. At Abutment 1 location, either tie-backs or deadman anchors may be utilized to restrain the abutment. In the sandy, gravelly, silt material, above the bedrock, the anchors may be designed using the following strength parameters: an Angle of Internal Friction $\phi = 30^\circ$, and a soil Unit Weight $\gamma = 2,083 \text{ kg/m}^3$ (130 pcf). The strength parameters for the slate bedrock include an Angle of Internal Friction $\phi = 25^\circ$, and a Unit Weight $\gamma = 2,244 \text{ kg/m}^3$ (140 pcf). At Abutment 2 location, either tie-backs or deadman anchors may also be utilized to restrain the abutment. In the sandy, gravel material, above the bedrock, the anchors may be designed using the following strength parameters: an Angle of Internal Friction ($\phi = 30^\circ$), and a soil Unit Weight ($\gamma = 2,083 \text{ kg/m}^3$ (130 pcf). The parameters for the slate bedrock material include an Angle of Internal Friction ($\phi = 25^\circ$), and a Unit Weight ($\gamma = 2,083 \text{ kg/m}^3$ (130 pcf). The tie-down data for Towers 1, 2, and 3 are shown below in Table 1.

Table 1

Support Location	Top of Footing Elevation ¹	Bottom of Footing Elevation ²	Top of Rock Elevation	Maximum Elevation Top of Bonded Zone	Anchor Loads	Minimum Unbonded Length ³
Tower 1						
Footing 3L	931.5 m (3056 ft)	929.9 m (3051.0 ft)	931.7 m (3056 ft)	925.3 m (3036 ft)	260.68 kN (58.6 kips)	4.6 m (15 ft)
Footing 3R	929.2 m (3048 ft)	927.9 m (3044.2 ft)	930.0 m (3051 ft)	923.3 m (3029 ft)	260.68 kN (58.6 kips)	4.6 m (15 ft)
Footing 4L	925.3 m (3035 ft)	924.1 m (3031.8 ft)	925.2 m (3035 ft)	919.5 m (3017 ft)	260.68 kN (58.6 kips)	4.6 m (15 ft)
Footing 4R	924.4 m (3022 ft)	923.2 m (3029.0 ft)	925.5 m (3036 ft)	918.6 m (3014 ft)	260.68 kN (58.6 kips)	4.6 m (15 ft)
Tower 2						
Footing 5L	925.7 m (3037 ft)	924.6 m (3033.5 ft)	925.7 m (3037 ft)	920.0 m (3018 ft)	260.68 kN (58.6 kips)	4.6 m (15 ft)
Footing 5R	927.4 m (3042 ft)	923.7 m (3030.5 ft)	927.6 m (3043 ft)	919.1 m (3016 ft)	260.68 kN (58.6 kips)	4.6 m (15 ft)
Footing 6L	929.9 m (3050 ft)	928.7 m (3047.0 ft)	929.8 m (3050 ft)	924.1 m (3032 ft)	260.68 kN (58.6 kips)	4.6 m (15 ft)
Footing 6R	930.6 m (3053 ft)	929.5 m (3049.5 ft)	932.1 m (3058 ft)	924.9 m (3035 ft)	260.68 kN (58.6 kips)	4.6 m (15 ft)
Tower 3						
Footing 7L	946.3 m (3104 ft)	944.9 m (3100.0 ft)	946.7 m (3106 ft)	940.3 m (3085 ft)	93.86 kN (21.1 kips)	4.6 m (15 ft)
Footing 7R	947.2 m (3107 ft)	946.7 m (3106.0 ft)	948.1 m (3110 ft)	942.1 m (3091 ft)	93.86 kN (21.1 kips)	4.6 m (15 ft)
Footing 8L	949.6 m (3115 ft)	948.5 m (3112.0 ft)	948.8 m (3113 ft)	943.9 m (3097 ft)	93.86 kN (21.1 kips)	4.6 m (15 ft)
Footing 8R	950.7 m (3119 ft)	950.1 m (3117.0 ft)	949.7 m (3116 ft) ⁴	945.5 m (3102 ft)	93.86 kN (21.1 kips)	4.6 m (15 ft)

- Notes: 1: Elevations determined from borings utilizing one-inch soil tube
 2: From "As-built" drawings, dated June 30, 1931
 3: Measured from bottom of footing elevation
 4: Elevation extrapolated from top of rock elevations at 99-8 and 99-7 borings

General Notes:

- At Tower 1 and 2 footing locations, the minimum total anchor length shall be 6.1 m (20 feet) or greater from below the bottom of the footing. Because each footing for Tower 1 and 2 will require two tie-downs each, a minimum total anchor length is required due to group effect of the anchors. This does not imply that a bonded length of 1.52 m (5 feet) will satisfy load demands.
- At Towers 1, 2, and 3, the total unbonded length equals the minimum unbonded length, shown in Table 1, plus the distance from the bottom of the footing up to where the designer plans to attach the tie-down anchor head on the tower.
- At Tower 3 footing locations, there is no minimum total anchor length below footing requirement, due to the footings requiring only one tie-down each and there being no anchor group effect.
- All tie backs and tie downs are required to be proof tested prior to lock off.

5. All elevations are in reference to the "As-built" elevations as shown on the "As-built" drawings dated June 30, 1931.
6. The Tower 1, 2, and 3 maximum bonded zone elevations are based on the existing pier supports being located on bedrock.
7. Tie-back and tie-down anchors are to be provided with permanent corrosion protection.
8. All support locations are to be plotted in plan view on the Log of Test Borings as stated in "Memo to Designers" 4-2. The plotting of support locations should be made prior to requesting a final foundation review.

Construction Considerations:

1. Slate bedrock was encountered during the drilling of test borings and will be encountered during the installation of tie-down anchors at Towers 1, 2, and 3, and Bents 1 and 2. Additionally, slate bedrock will be encountered during installation of tie-back or deadman anchors at Abutment 2.
2. A sandy, gravelly, silt, with meta-siltstone and meta-sandstone cobbles was encountered in the test borings at Abutment 1, and will be encountered during the installation of either tie-back or deadman anchors at that location.
3. Tie-down anchors located at Towers 1 and 2 will extend beneath the elevation of the creek, and will encounter water.
4. Shoring may be necessary during the excavation and construction of the deadman anchor and tendon trenches. Steel traffic plates may be necessary to provide temporary cover to the tendon excavations. Installation of temporary shoring may be difficult due to the presence of underground cobbles and gravelly, sandy, silt.
5. If shoring is not used, and an expanded, sloped excavation is created, engineered fill shall be emplaced subsequent to forming, casting and pouring the deadman. Excavated material between the anchor and the abutment shall be replaced with fill compacted to 95% relative density. Replacement fill behind the anchor shall not be compacted in excess of 85% relative density.

Any questions regarding the above recommendations should be directed to Erich Neupert at (916) 227-7145, or Mark DeSalvatore (916) 227-7056, of the Office of Structural Foundations.

Report by:

Erich Neupert
Erich Neupert
Engineering Geologist

Supervised by:

Mark DeSalvatore
Mark DeSalvatore, R.C.E., No. 039499
Senior Materials and Research Engineer

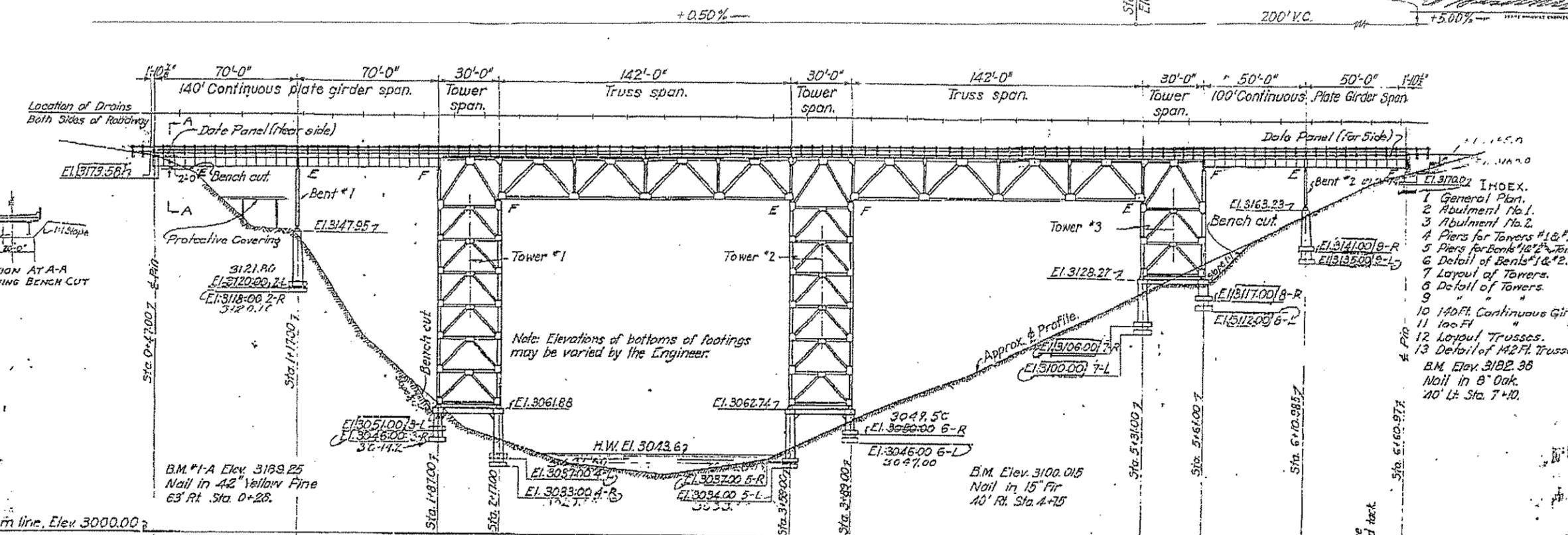
c: R.E. Pending File
DBarlow - Specs & Estimates
HBrimhall - Proj Mgmt
District 2 (2)
ELeivas - SFB



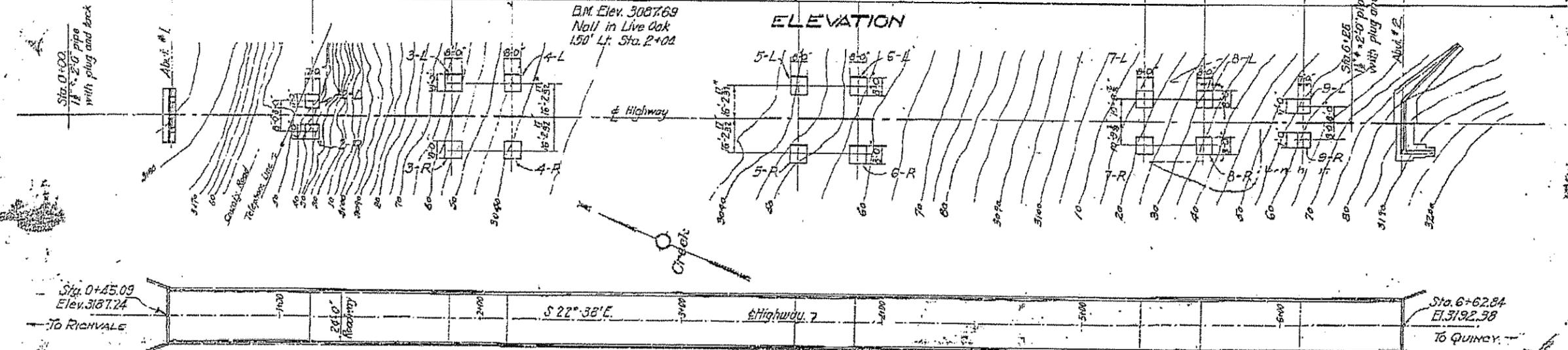
P.M. 35.3

PLAN NO.	411 TC 9
DATE	June 30, 1931
APPROVED	<i>[Signature]</i>

Sta. 7+27.78
Elev. 3195.75
200' V.C.
+5.00%



- INDEX.
- 1 General Plan.
 - 2 Abutment No. 1.
 - 3 Abutment No. 2.
 - 4 Piers for Towers #1 & #2.
 - 5 Piers for Towers #1 & #2.
 - 6 Detail of Bents #1 & #2.
 - 7 Layout of Towers.
 - 8 Detail of Towers.
 - 9 " "
 - 10 140' Continuous Girder.
 - 11 100' " "
 - 12 Layout Trusses.
 - 13 Detail of 142' Trusses.
- B.M. Elev. 3182.36
Nail in 8" Oak.
40' Lt. Sta. 7+10.



Checked by	W. J. [Signature]
Drawn by	[Signature]
Scale	1" = 30'-0"
Project No.	411 TC 9
Sheet No.	1
Contract No.	20000 954
Location	BRIDGE ACROSS SPANISH CREEK
City	PLUMAS COUNTY
State	CALIFORNIA
Date	June 30, 1931

Note: For "GENERAL NOTES" on this set of plans see sheet no. 12.
Approach fills and cuts are not a part of this contract.
Bench cuts as shown to be included in item of structure excavation and are to be as directed by the Engineer.

AS BUILT PLANS
Contract No. 411 TC 9
Date Completed _____
Document No. 20000 954

MICROFILMED

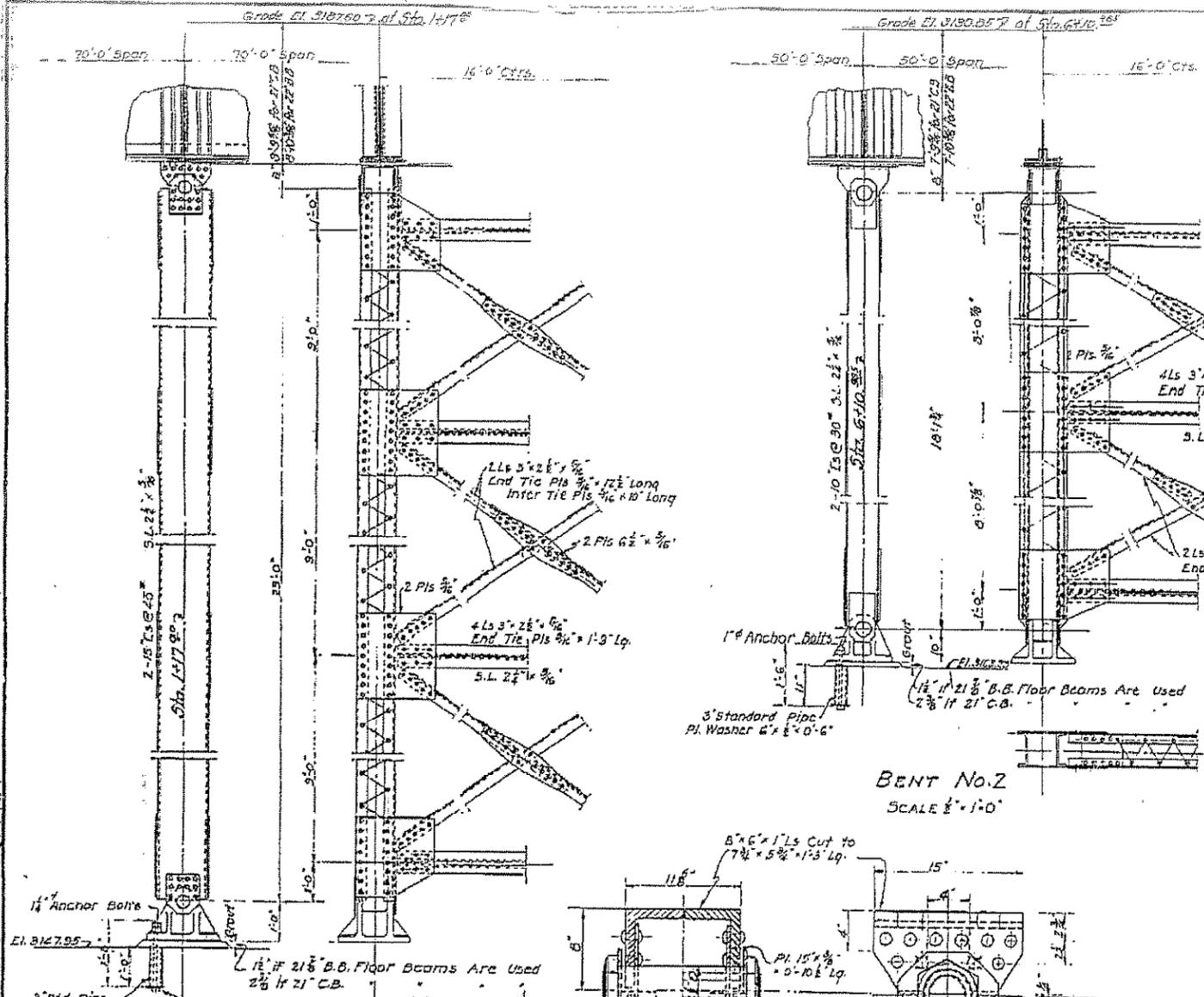
411 TC 9
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS
BRIDGE ACROSS SPANISH CREEK
ABOUT 15 MILES NORTH OF KEDDIE
IN PLUMAS COUNTY
GENERAL PLAN

Revised by	Checked by	Description	Location	Date

SCALE 1" = 30'-0"

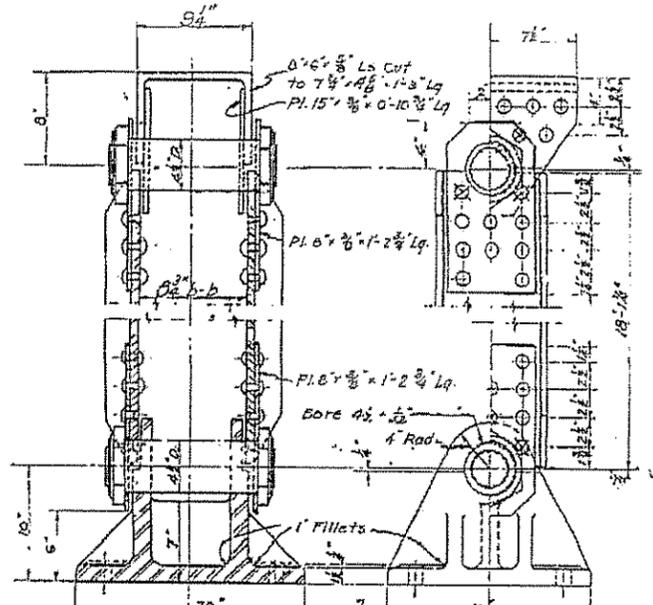
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II	PLUMAS	72	6	6	15

APPROVED June 30, 1931

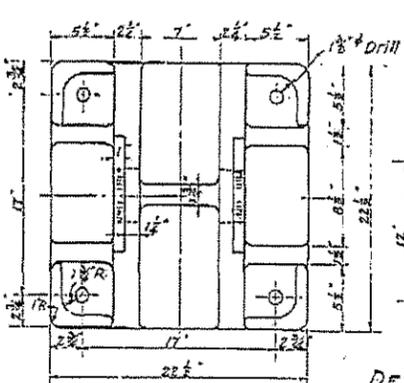


BENT No. 2
SCALE 1/2" = 1'-0"

BENT No. 1
SCALE 1/2" = 1'-0"



DETAIL OF CAST STEEL SHOE AND
PIN CONNECTIONS FOR BENT No. 2
SCALE 1 1/2" = 1'-0"



DETAIL OF CAST STEEL SHOE AND
PIN CONNECTIONS FOR BENT No. 1
SCALE 1 1/2" = 1'-0"

AS BUILT PLANS
Contract No. 411769
Date Completed
Document No. 20000254

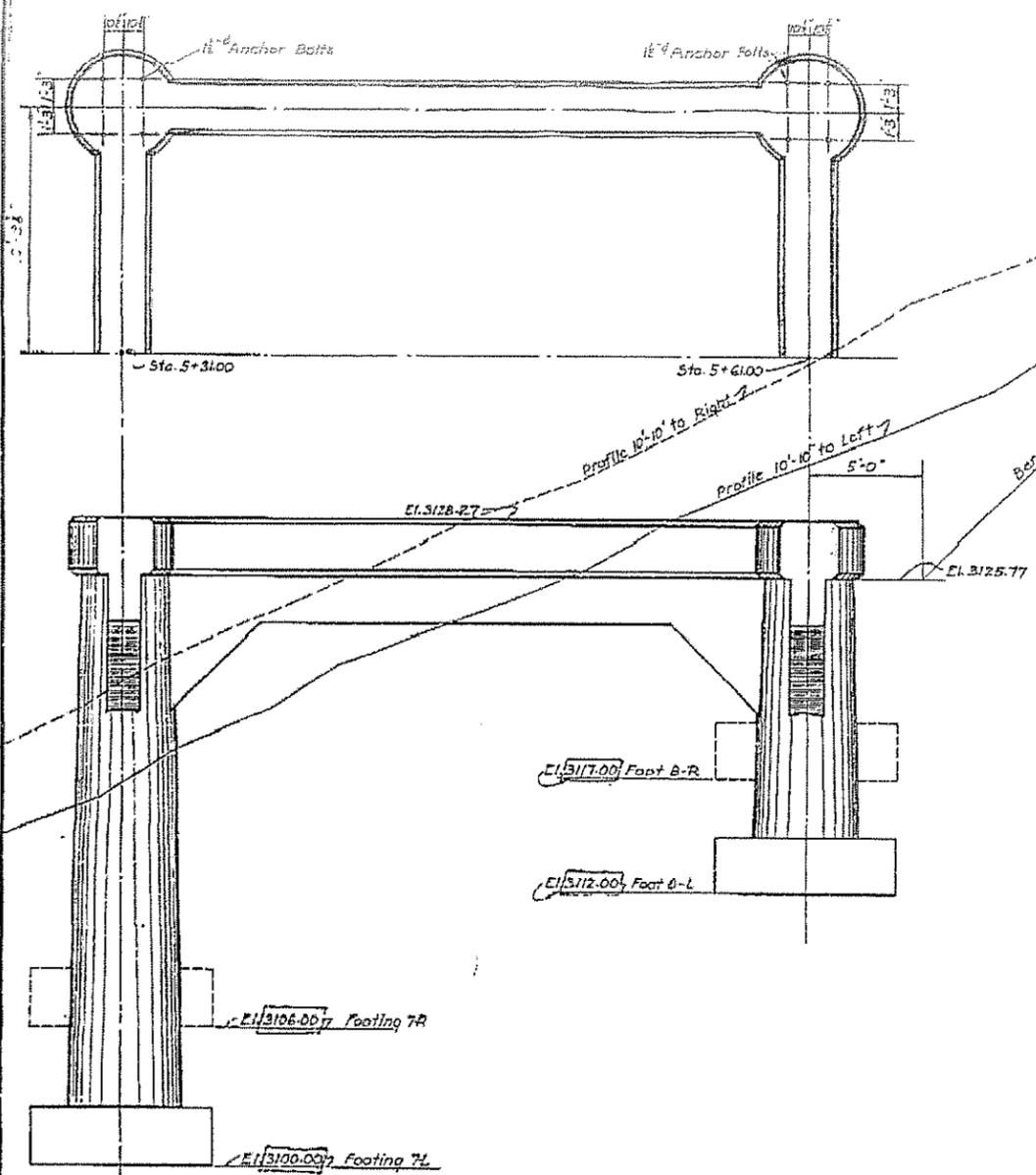
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9-15

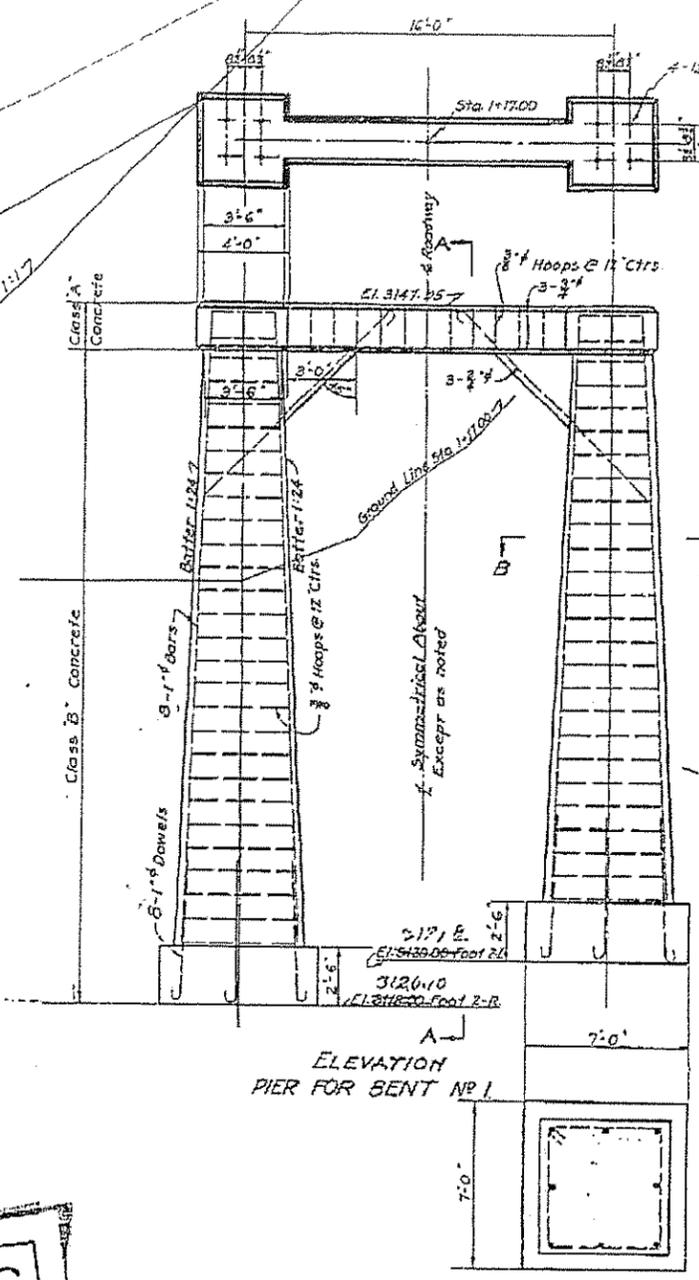
BRIDGE ACROSS SPANISH CREEK
ABOUT 15 MILES NORTH OF KEDDIE
IN PLUMAS COUNTY
DETAIL BENTS No. 1 & 2.
Scales as noted.

REVISION	DATE	BY	DESCRIPTION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

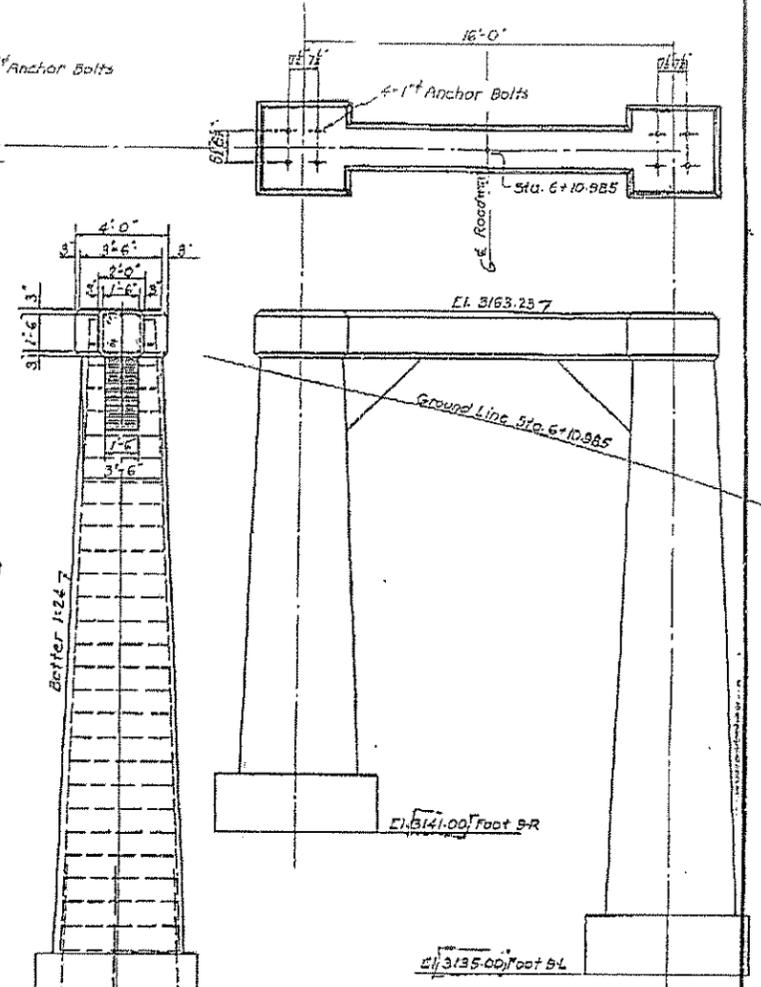
Revised by	Checked by	Description	Location	Date



PIER FOR TOWER NO. 3
Dimensions & Details not shown
are same as Pier for Tower No. 1.
See Sheet #4.



ELEVATION
PIER FOR BENT NO. 1



ELEVATION
PIER FOR BENT NO. 2
Dimensions & Details not
shown are the same as Pier
for Bent No. 1.

AS BUILT PLANS
Contract No. 4117c9
Date Completed
Document No. 20000 257

MICROFILMED

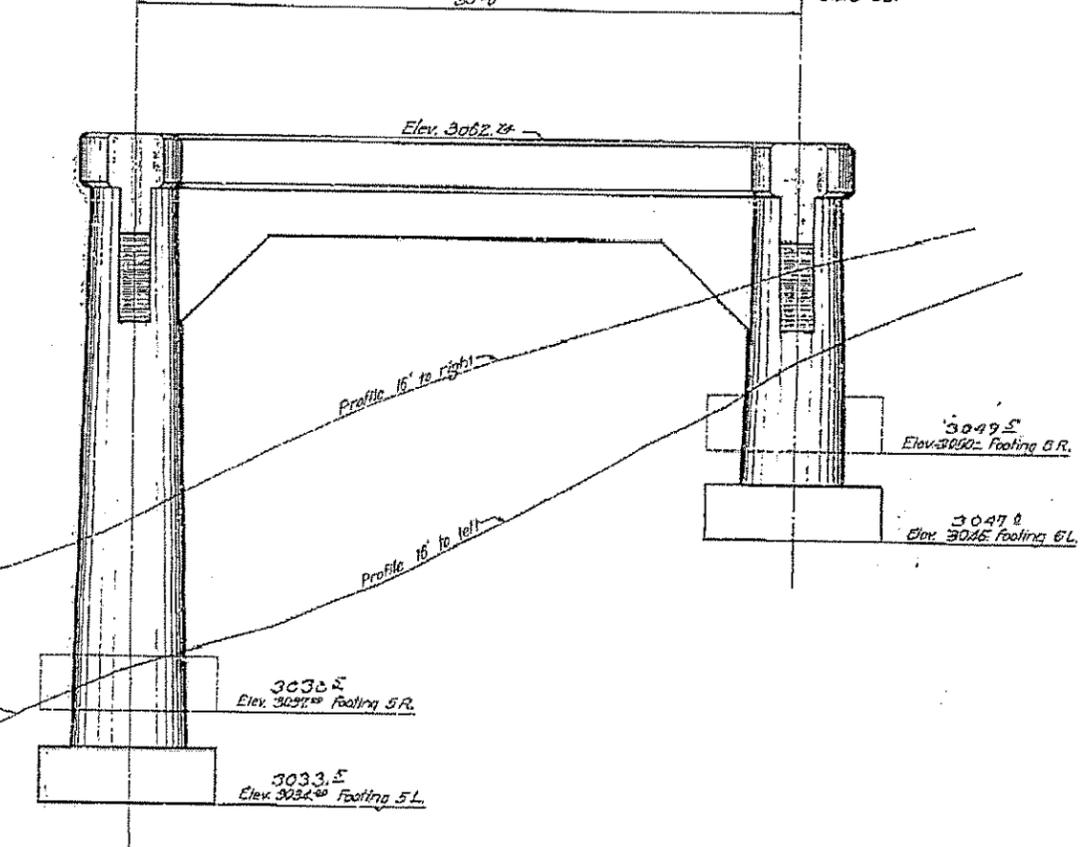
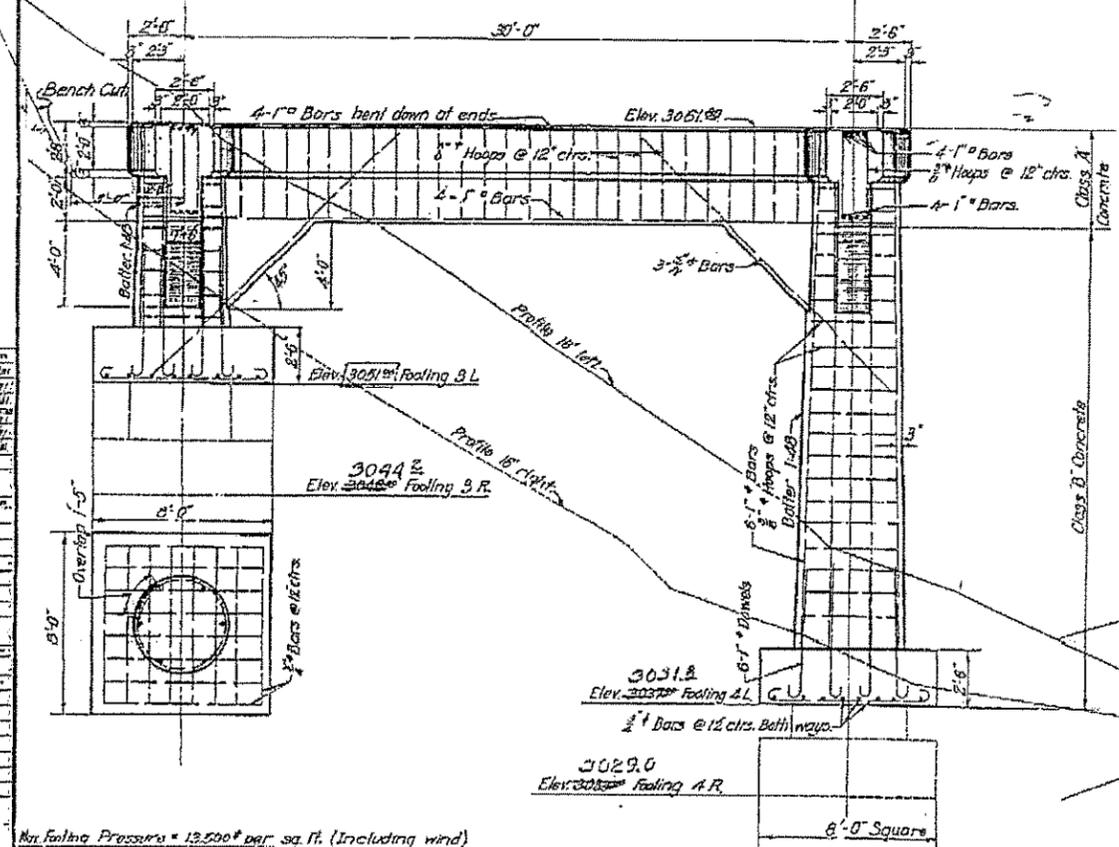
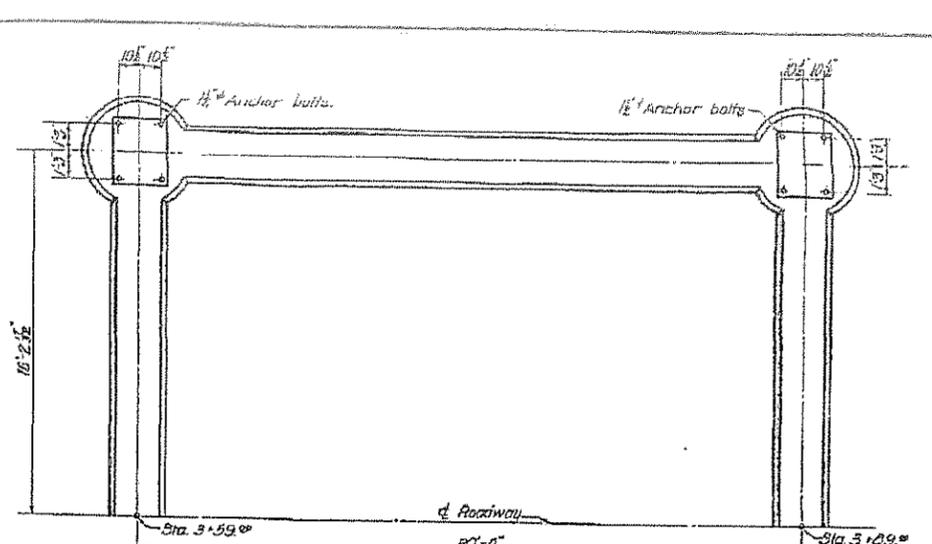
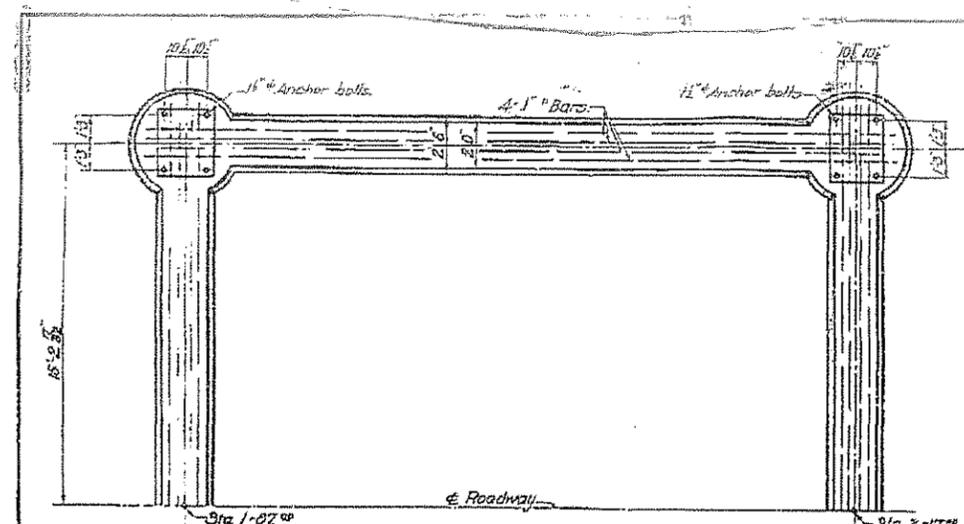
BRIDGE ACROSS SPANISH CREEK
ABOUT 1.5 MILES NORTH OF KEDDIE
IN PLUMAS COUNTY
PIER DETAILS

Scale: 1/4" = 1'-0"

Revised by	Checked by	Description	Location	Date

DATE	COUNTY	ROUTE	SEC.	BLK.	TOTAL
11	Plu	21	C	4	13

Chas. S. Andrews
 June 30, 1931



DESIGNED BY	CHAS. S. ANDREWS
CHECKED BY	...
DATE	JUNE 30, 1931
PROJECT NO.	...
SCALE	1/4\"/>

Max. Loading Pressure = 12,500 lbs. per sq. ft. (Including wind)

PIER FOR TOWER NO. 1.

AS BUILT PLANS
 Contract No. 411 TC 9
 Date Completed _____
 Document No. 20000 954

PIER FOR TOWER NO. 2.
 Dimensions and Details not shown same as Pier for Tower No. 1.

MICROFILMED

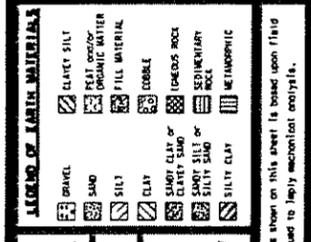
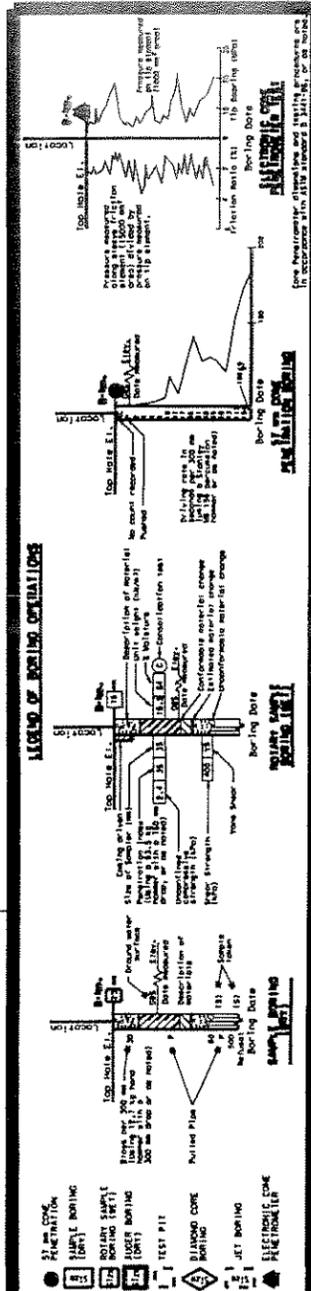
BRIDGE ACROSS SPANISH CREEK
 ABOUT 15 MILES NORTH OF KEDDIE
 IN PLUMAS COUNTY
PIERS FOR TOWERS 1&2
 Scale: 1/4\"/>

Revised by	Checked by	Description	Location	Date



DIST	COUNTY	ROUTE	ALLOCATION	NO. OF	TOTAL
02	PIU	70	TOYAL	PROJECT	SHEET
REGISTERED CIVIL ENGINEER					
PLANS APPROVAL DATE					

FOR PLAN VIEW, SEE
"LOG OF TEST BORINGS" SHEET 1 OF 10

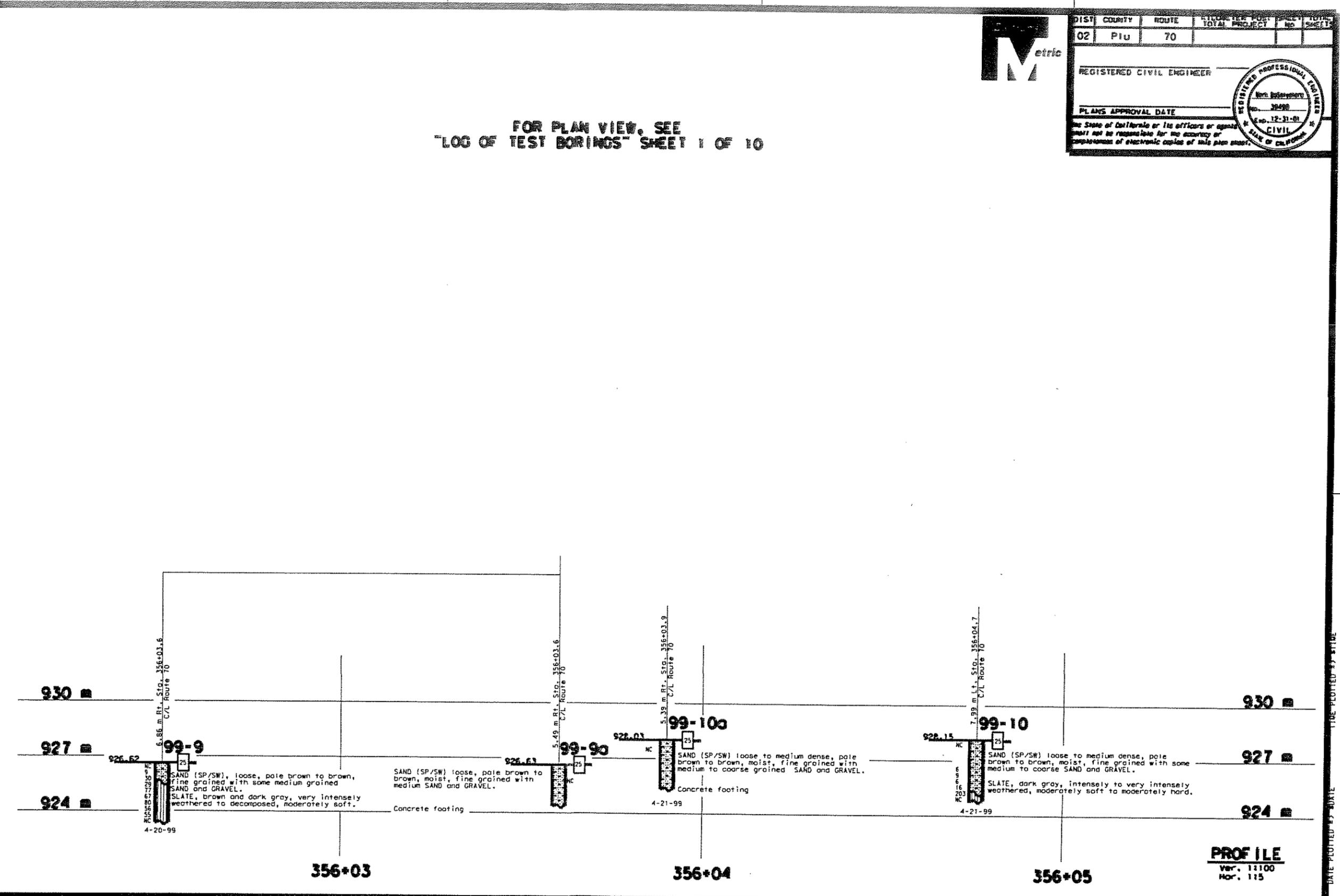


CONSISTENCY CLASSIFICATION FOR SOILS

According to the Standard Penetration Test

Penetration (blows/30cm)	Consistency
0-4	Very Loose
5-10	Loose
11-20	Medium Dense
21-30	Dense
31-50	Very Dense

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



ENGINEERING SERVICE CENTER		STRUCTURE FOUNDATIONS		FIELD INVESTIGATION BY	STATE OF CALIFORNIA	DIVISION OF STRUCTURES	SPANISH CREEK BRIDGE
DRAWN BY	K. Wahl	8/99		E. Neupert & H. Valencia	DEPARTMENT OF TRANSPORTATION	STRUCTURE DESIGN	LOG OF TEST BORINGS 4 OF 10
CHECKED BY	E. Neupert	8/99					
ORIGINAL SCALE IS MILLIMETERS FOR REDUCED PLANS				CU 02 FA 259531		REVISION DATES: 09-0015 35.3	

DATE PLOTTED: 8/99 USERNAME: 83 USER



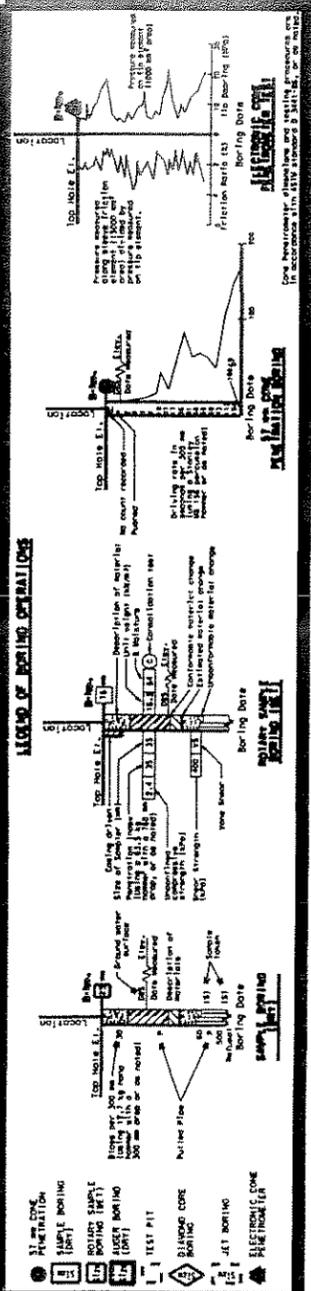
DIST	COUNTY	ROUTE	PROJECT TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Plu	70			

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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

FOR PLAN VIEW, SEE
"LOG OF TEST BORINGS" SHEET 1 OF 10



Station	Boring No.	Soil Description	Notes
975 m	99-18	973.90 974.34 974.34	975 m
972 m	99-18	6.4 BS SANDY GRAVEL (GW), road base (fill).	972 m
969 m	99-18	7 BS SLATE, light brown, intensely weathered to decomposed, very soft, friable, thinly bedded to laminated, SLATELY foliation apparent, but disintegrates under finger pressure, aphanitic to very fine grained.	969 m
966 m	99-18	7.5 BS SLATE, light brown, intensely weathered to decomposed, very soft, friable, extremely fractured, aphanitic to very fine grained.	966 m
963 m	99-18	8 BS SLATE, light brown, intensely weathered to decomposed to a GRAVELLY SILT, very soft, friable, bedding not apparent, extremely fractured, GRAVELS of dark gray SLATE amongst decomposed material.	963 m
975 m	99-19	974.34 974.34	975 m
972 m	99-19	6.1 BS SANDY GRAVEL (GW), road base (fill).	972 m
969 m	99-19	6.2 BS SLATE, light brown, intensely weathered, very soft, laminated to thinly bedded, friable.	969 m
966 m	99-19	6.3 BS SLATE, light brown, intensely weathered to very soft, with clasts of harder SLATE, METASILTSTONE, and META SANDSTONE.	966 m
963 m	99-19	6.4 BS SLATE, light brown, intensely weathered to decomposed, very soft, friable, laminated to thinly bedded, bedding angle at 60° aphanitic to very fine grained, planer surfaces smooth.	963 m
	99-19	6.5 BS SLATE, light brown, intensely weathered to decomposed to a GRAVELLY SILT, remnant planer SLATE structure apparent, but disintegrates under finger pressure, some small GRAVEL clasts of META SILTSTONE, bedding angle approx. 50-60°.	
	99-19	6.6 BS SLATE, light brown, intensely weathered to decomposed to a GRAVELLY SILT, remnant planer SLATE structure apparent, but disintegrates under finger pressure, some small GRAVEL clasts of META SILTSTONE, bedding angle approx. 50-60°.	
	99-19	6.7 BS SCHIST, bands of bluish white to light bluish gray relict bedding, bedding planes at 50° angle, moderately weathered, moderately hard, intensely fractured.	
	99-19	6.8 BS SCHIST, light bluish gray, decomposed to GRAVELS and SAND, friable, very soft, no relict bedding apparent.	
	99-19	6.9 BS SCHIST, banded light bluish gray, white and moderate dark gray, moderately weathered, moderately hard, relict bedding apparent, dipping 60° angle, moderately fractured, parent rock intensely fractured and healed with quartz, iron oxide staining along some bedding planes.	
	99-19	6.10 BS SLATE, moderate dark gray, moderately weathered, moderately hard to moderately soft, bedding at 70° angle, intensely fractured, laminated to thinly bedded, bedding planes smooth, alternating layers of lighter gray material.	
	99-19	6.11 BS SLATE, light olive-brown to olive-gray, moderately to intensely weathered, moderately hard to moderately soft, some thin beds of METASILTSTONE between SLATE, bedding at 70° angle, bedding planes smooth to moderately rough, upper 0.15 m has some QUARTZITE beds, intensely fractured.	
	99-19	6.12 BS Boring filled with bentonite chips and asphalt capped 5/20/99	
	99-19	6.13 BS Boring filled with bentonite chips and asphalt capped 5/20/99	

CLASSIFICATION FOR SOILS

According to the Standard Penetration Test

Penetration (blows/30cm)	Consistency
0-4	Very Loose
5-10	Loose
11-20	Medium Dense
21-30	Dense
31-50	Very Dense
51-100	Hard

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

ENGINEERING SERVICE CENTER		STRUCTURE FOUNDATIONS		FIELD INVESTIGATION BY: E. Neupert	
DRAWN BY: K. Wohl	8/99	STATE OF CALIFORNIA		DIVISION OF STRUCTURES	
CHECKED BY: E. Neupert	8/99	DEPARTMENT OF TRANSPORTATION		STRUCTURE DESIGN	
PROJECT NO. 09-0015				SHEET NO. 35.3	
SPANISH CREEK BRIDGE				LOG OF TEST BORINGS 10 OF 10	
DATE PLOTTED: 8-3-99				DRAWN: 8-7-99	

OF CIVIL LOG OF TEST BORINGS SHEET (REV. 3/1/98)

DATE PLOTTED: 8-3-99

APPENDIX B
ENVIRONMENTAL ANALYSIS OF SOIL CUTTINGS

1. ENVIRONMENTAL SAMPLING AND DISPOSAL OF SOIL CUTTINGS
2. ANALYTICAL RESULTS

APPENDIX B

ENVIRONMENTAL SAMPLING AND DISPOSAL OF DRILL CUTTINGS

Based on review of the *Sand-Blast Waste Site Investigation Report*, dated October 31, 2005, lead-based paint was sand blasted from the Spanish Creek Bridge. The report stated that lead was detected in soil samples collected from below the bridge. Therefore, drill cuttings from Kleinfelder's 2006 geotechnical investigation had to be characterized for lead content and properly disposed of.

Eleven 55-gallon drums containing drill cuttings were generated during the advancement of the geotechnical exploratory borings and piezometers. The borings were advanced using mud rotary; therefore, drill cuttings consisted of a mixture of water and soil. The drums were transported and temporarily stored at the Caltrans facility in Quincy, California.

On October 26, 2006, Steve Dalton of Kleinfelder sampled the contents of the drums. Kleinfelder discussed the contents of the drums with the disposal contractor, who indicated the contents will be classified as "sludge" and that soil samples should be analyzed, rather than water samples. Soil samples were collected using clean brass tubes attached to the end of a sampling rod. The tubes were pushed into the soil, brought to the surface, and the ends of the tubes were sealed with Teflon tape and plastic end caps. The tubes were then labeled and placed in an iced cooler pending transport to the laboratory for analysis.

Soil samples were transported under chain-of-custody documentation and submitted to Torrent Laboratory, Inc. in Milpitas, California. Torrent is accredited by the State of California for the analyses performed. The soil samples were composited by the laboratory and analyzed as a single-composite sample. Although lead is the constituent of concern, additional analyses were required by the disposal facility prior to acceptance of the material. The composite sample was analyzed for the following:

- Total Petroleum Hydrocarbons (TPH) purgeable (aviation gas, gasoline and mineral spirits)
- TPH extractable (Stoddard solvent, diesel, hydraulic oil, jet fuel, kerosene, mineral oil and motor oil)
- Benzene, toluene, ethylbenzene and total xylenes (BTEX)
- Methyl tert-butyl ether (MTBE)
- Total Lead

Laboratory results indicated the following constituents were detected:

- TPH gasoline - 527 micrograms per kilogram (ug/kg) or parts per billion
- TPH diesel - 10.8 milligrams per kilogram (mg/kg) or parts per million
- TPH motor oil - 6.69 mg/kg

- Total Lead - 15 mg/kg

Copies of the analytical laboratory report and chain-of-custody form are included in Appendix B. On February 8, 2007, Delta Oil Field Services of Woodland, California picked up 11 55-gallon drums from the Caltrans Quincy yard. The drums were transported to Altamont Landfill located in Livermore, California. A copy of the Non-Hazardous Waste Manifest is included in Appendix B.



TORRENT LABORATORY, INC.

483 Sinclair Frontage Rd. • Milpitas, CA 95035 • Ph: (408) 263-5258 • Fax: (408) 263-8293

www.torrentlab.com

November 07, 2006

Steve Dalton
KLEINFELDER
3077 Fite Circle
Sacramento, CA 95827-1815

TEL: 916-366-1701

FAX

RE: 72838-9

Order No.: 0610174

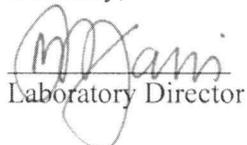
Dear Steve Dalton:

Torrent Laboratory, Inc. received 6 samples on 10/31/2006 for the analyses presented in the following report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these tests results, please feel free to contact the Project Management Team at (408)263-5258;ext: 204.

Sincerely,


Laboratory Director

11-07-06
Date



TORRENT LABORATORY, INC.

483 Sinclair Frontage Road • Milpitas, CA • Phone: (408) 263-5258 • Fax: (408) 263-8293

Visit us at www.torrentlab.com email: analysis@torrentlab.com

Report prepared for: Steve Dalton
KLEINFELDER

Date Received: 10/31/2006
Date Reported: 11/7/2006

Client Sample ID: COMP-D(1to5)
Sample Location: Caltrans-Spanish Creek Bridge
Sample Matrix: SOIL
Date/Time Sampled 10/26/2006

Lab Sample ID: 0610174-006
Date Prepared: 10/31/2006

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Lead	SW6010B	10/31/2006	1	1	1.0	15	mg/Kg	2962
Stoddard Solvent	SW8015B	11/1/2006	0	1	0	ND	mg/Kg	R11129
TPH (Diesel)	SW8015B	11/1/2006	2	1	2.00	10.8	mg/Kg	R11129
TPH (Hydraulic Oil)	SW8015B	11/1/2006	4	1	4.00	ND	mg/Kg	R11129
TPH (Jet Fuel)	SW8015B	11/1/2006	0	1	0	ND	mg/Kg	R11129
TPH (Kerosene)	SW8015B	11/1/2006	0	1	0	ND	mg/Kg	R11129
TPH (Mineral Oil)	SW8015B	11/1/2006	0	1	0	ND	mg/Kg	R11129
TPH (Motor Oil)	SW8015B	11/1/2006	4	1	4.00	6.69	mg/Kg	R11129
Surr: Pentacosane	SW8015B	11/1/2006	0	1	53.5-127	74.5	%REC	R11129
Note: Sample chromatogram does not resemble typical diesel or motor oil pattern. Hydrocarbons within the diesel range quantitated as diesel; hydrocarbons within the motor oil range quantitated as motor oil.								
Benzene	SW8260B	11/2/2006	5	1	5.0	ND	µg/Kg	R11114
Ethylbenzene	SW8260B	11/2/2006	5	1	5.0	ND	µg/Kg	R11114
Methyl tert-butyl ether (MTBE)	SW8260B	11/2/2006	10	1	10	ND	µg/Kg	R11114
Toluene	SW8260B	11/2/2006	5	1	5.0	ND	µg/Kg	R11114
Xylenes, Total	SW8260B	11/2/2006	15	1	15	ND	µg/Kg	R11114
Surr: 4-Bromofluorobenzene	SW8260B	11/2/2006	0	1	62.8-123	167	%REC	R11114
Surr: Dibromofluoromethane	SW8260B	11/2/2006	0	1	63.3-151	113	%REC	R11114
Surr: Toluene-d8	SW8260B	11/2/2006	0	1	65.2-127	82.6	%REC	R11114
Note: S-Surrogate recovery was high because non-target compounds coeluted with surrogate peak.								
TPH (Aviation Gas)	SW8260B(TPH)	11/2/2006	100	1	100	ND	µg/Kg	R11114
TPH (Gasoline)	SW8260B(TPH)	11/2/2006	100	1	100	527 x	µg/Kg	R11114
TPH (Mineral Spirits)	SW8260B(TPH)	11/2/2006	100	1	100	ND	µg/Kg	R11114
Surr: Toluene-d8	SW8260B(TPH)	11/2/2006	0	1	57-127	43 S	%REC	R11114

Note: S-Outlying surrogate recovery observed. A duplicate analysis was performed with similar result indicate a matrix effect. x-Pattern does not match typical gasoline. Result due to a significant amount of heavier hydrocarbons.

Definitions, legends and Notes

Note	Description
ug/kg	Microgram per kilogram (ppb, part per billion).
ug/L	Microgram per liter (ppb, part per billion).
mg/kg	Milligram per kilogram (ppm, part per million).
mg/L	Milligram per liter (ppm, part per million).
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate.
MDL	Method detection limit.
MRL	Modified reporting limit. When sample is subject to dilution, reporting limit times dilution factor yields MRL.
MS/MSD	Matrix spike/matrix spike duplicate.
N/A	Not applicable.
ND	Not detected at or above detection limit.
NR	Not reported.
QC	Quality Control.
RL	Reporting limit.
% RPD	Percent relative difference.
a	pH was measured immediately upon the receipt of the sample, but it was still done outside the holding time.
sub	Analyzed by subcontracting laboratory, Lab Certificate #

CLIENT: KLEINFELDER
 Work Order: 0610174
 Project: 72838-9

ANALYTICAL QC SUMMARY REPORT

BatchID: 2962

Sample ID	MB-2962	SampType:	MBLK	TestCode:	6010B_S	Units:	mg/Kg	Prep Date:	10/31/2006	RunNo:	11103
Client ID:	ZZZZZ	Batch ID:	2962	TestNo:	SW6010B	(SW3050B)		Analysis Date:	10/31/2006	SeqNo:	165391
Analyte	Result	PQL	SPK value	SPK RefVal	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.0									

Sample ID	LCS-2962	SampType:	LCS	TestCode:	6010B_S	Units:	mg/Kg	Prep Date:	10/31/2006	RunNo:	11103
Client ID:	ZZZZZ	Batch ID:	2962	TestNo:	SW6010B	(SW3050B)		Analysis Date:	10/31/2006	SeqNo:	165389
Analyte	Result	PQL	SPK value	SPK RefVal	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	51.05	1.0	50	0	102	67.9	118				

Sample ID	LCSD-2962	SampType:	LCSD	TestCode:	6010B_S	Units:	mg/Kg	Prep Date:	10/31/2006	RunNo:	11103
Client ID:	ZZZZZ	Batch ID:	2962	TestNo:	SW6010B	(SW3050B)		Analysis Date:	10/31/2006	SeqNo:	165390
Analyte	Result	PQL	SPK value	SPK RefVal	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	51.10	1.0	50	0	102	67.9	118	51.05	0.0979	30	

Qualifiers: E Value above quantitation range
 ND Not Detected at the Reporting Limit
 H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 J Analyte detected below quantitation limits
 S Spike Recovery outside accepted recovery limits

ANALYTICAL QC SUMMARY REPORT

CLIENT: KLEINFELDER

Work Order: 0610174

Project: 72838-9

BatchID: R11114

Sample ID	MB	SampType:	MBLK	TestCode:	8260B_S_PE	Units:	µg/Kg	Prep Date:	11/1/2006	RunNo:	11114
Client ID:	ZZZZZ	Batch ID:	R11114	TestNo:	SW8260B						
Analysis Date:	11/1/2006										
Analysis Date:	11/1/2006										
SeqNo:	165546										

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0									
Ethylbenzene	ND	5.0									
Methyl tert-butyl ether (MTBE)	ND	10									
Toluene	ND	5.0									
Xylenes, Total	ND	15									
Surr: 4-Bromofluorobenzene	50.39	0	50	0	101	62.8	123				
Surr: Dibromofluoromethane	51.16	0	50	0	102	63.3	151				
Surr: Toluene-d8	34.14	0	50	0	68.3	65.2	127				

Sample ID	LCS	SampType:	LCS	TestCode:	8260B_S_PE	Units:	µg/Kg	Prep Date:	11/1/2006	RunNo:	11114
Client ID:	ZZZZZ	Batch ID:	R11114	TestNo:	SW8260B						
Analysis Date:	11/1/2006										
Analysis Date:	11/1/2006										
SeqNo:	165547										

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	55.00	5.0	50	0	110	68.2	132				
Toluene	50.43	5.0	50	0	101	64.2	137				
Surr: 4-Bromofluorobenzene	48.64	0	50	0	97.3	62.8	123				
Surr: Dibromofluoromethane	42.49	0	50	0	85.0	63.3	151				
Surr: Toluene-d8	44.89	0	50	0	89.8	60.8	124				

Sample ID	LCSD	SampType:	LCSD	TestCode:	8260B_S_PE	Units:	µg/Kg	Prep Date:	11/1/2006	RunNo:	11114
Client ID:	ZZZZZ	Batch ID:	R11114	TestNo:	SW8260B						
Analysis Date:	11/1/2006										
Analysis Date:	11/1/2006										
SeqNo:	165548										

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	45.98	5.0	50	0	92.0	68.2	132	55	17.9	30	
Toluene	49.70	5.0	50	0	99.4	64.2	137	50.43	1.46	30	
Surr: 4-Bromofluorobenzene	49.53	0	50	0	99.1	62.8	123	0	0	0	
Surr: Dibromofluoromethane	44.28	0	50	0	88.6	63.3	151	0	0	0	
Surr: Toluene-d8	45.05	0	50	0	90.1	60.8	124	0	0	0	

Qualifiers: E Value above quantitation range H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit R RPD outside accepted recovery limits S Spike Recovery outside accepted recovery limits

ANALYTICAL QC SUMMARY REPORT

CLIENT: KLEINFELDER

Work Order: 0610174

Project: 72838-9

BatchID: R11114

Sample ID	MBG	SampType: MBLK	TestCode: TPH_GAS_S	Units: µg/Kg	Prep Date: 11/1/2006	RunNo: 11114						
Client ID:	ZZZZZ	Batch ID: R11114	TestNo: GC-MS		Analysis Date: 11/1/2006	SeqNo: 165532						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)		ND	100									
Surr: Toluene-d8		31.84	0	50		63.7	57	127				

Sample ID	LCSG	SampType: LCS	TestCode: TPH_GAS_S	Units: µg/Kg	Prep Date: 11/1/2006	RunNo: 11114						
Client ID:	ZZZZZ	Batch ID: R11114	TestNo: GC-MS		Analysis Date: 11/1/2006	SeqNo: 165533						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)		752.8	100	1000		75.3	60	111				
Surr: Toluene-d8		33.36	0	50		66.7	57	127				

Sample ID	LCS DG	SampType: LCS DG	TestCode: TPH_GAS_S	Units: µg/Kg	Prep Date: 11/1/2006	RunNo: 11114						
Client ID:	ZZZZZ	Batch ID: R11114	TestNo: GC-MS		Analysis Date: 11/1/2006	SeqNo: 165534						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)		794.8	100	1000		79.5	60	111	752.8	5.43	30	
Surr: Toluene-d8		35.74	0	50		71.5	57	127	0	0	0	

Sample ID	MB	SampType: MBLK	TestCode: TPPH_S_GC	Units: µg/Kg	Prep Date: 11/2/2006	RunNo: 11114						
Client ID:	ZZZZZ	Batch ID: R11114	TestNo: SW8260B(TP		Analysis Date: 11/2/2006	SeqNo: 165856						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Aviation Gas)		ND	100									
TPH (Gasoline)		ND	100									
TPH (Mineral Spirits)		ND	100									
Surr: Toluene-d8		32.69	0	50		65.4	57	127				

Qualifiers: E Value above quantitation range H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit R RPD outside accepted recovery limits S Spike Recovery outside accepted recovery limits

ANALYTICAL QC SUMMARY REPORT

CLIENT: KLEINFELDER

Work Order: 0610174

Project: 72838-9

BatchID: R11129

Sample ID	SD061031A-MB	SampType:	MBLK	TestCode:	TEPH_S	Units:	mg/Kg	Prep Date:	10/31/2006	RunNo:	11129		
Client ID:	ZZZZZ	Batch ID:	R11129	TestNo:	SW8015B								
Analyte		Result		PQL	SPK value	SPK RefVal	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Stoddard Solvent	ND	0	0	69.2	53.5	127							
TPH (Diesel)	ND	2.00	0										
TPH (Hydraulic Oil)	ND	4.00	0										
TPH (Jet Fuel)	ND	0	0										
TPH (Kerosene)	ND	0	0										
TPH (Mineral Oil)	ND	0	0										
TPH (Motor Oil)	ND	4.00	0										
Surr: Pentacosane	2.305	0	3.33	0	69.2	53.5	127						

Sample ID	SD061031A-LCS	SampType:	LCS	TestCode:	TEPH_S	Units:	mg/Kg	Prep Date:	10/31/2006	RunNo:	11129		
Client ID:	ZZZZZ	Batch ID:	R11129	TestNo:	SW8015B								
Analyte		Result		PQL	SPK value	SPK RefVal	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel)	20.15	33.3	0	60.5	46.2	109							
Surr: Pentacosane	2.198	0	3.33	0	66.0	53.5	127						

Sample ID	SD061031A-LCSD	SampType:	LCSD	TestCode:	TEPH_S	Units:	mg/Kg	Prep Date:	10/31/2006	RunNo:	11129		
Client ID:	ZZZZZ	Batch ID:	R11129	TestNo:	SW8015B								
Analyte		Result		PQL	SPK value	SPK RefVal	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel)	18.26	33.3	0	54.8	46.2	109	20.15	9.83	30				
Surr: Pentacosane	2.242	0	3.33	0	67.3	53.5	127	0	0	0	0	0	0

Qualifiers: E Value above quantitation range H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit R RPD outside accepted recovery limits S Spike Recovery outside accepted recovery limits

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NA

Manifest Document No.

2. Page 1 of

3. Generator's Name and Mailing Address

CALL TRANS
1555 E MAIN

Spanish
Creek Lodge

4. Generator's Phone

(530) 604-1352 Quincy CA

5. Transporter 1 Company Name

COPTA Solid Waste

6. US EPA ID Number

NA

A. Transporter's Phone

530 422 2841

7. Transporter 2 Company Name

8. US EPA ID Number

NA

B. Transporter's Phone

9. Designated Facility Name and Site Address

William Landfill
10840 Alameda Blvd
Quincy CA 94550

10. US EPA ID Number

NA

C. Facility's Phone

925-455-7300

11. Waste Shipping Name and Description

a. non hazardous sludge
(spoil & water mix)

12. Containers No. Type

511 D 8800 P

13. Total Quantity

14. Unit Wt/Vol

D. Additional Descriptions for Materials Listed Above

Kleinfelder Steve Dalton
716-366-1701

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Wear proper clothing when handling.
Call Trans - MARK VUKICH (530) 283-242
cell (530) 604-1352

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name

Signature

Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

JOHNMACHADO

Signature

[Signature]

Month Day Year

12 10 07

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

MARK VUKICH

Signature

[Signature]

Month Day Year

12 8 07

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name

Signature

Month Day Year

12 15 07

GENERATOR

TRANSPORTER

FACILITY

TRANSPORTER #2

APPENDIX C
CRUX ORIENTED BOREHOLE LOGGING (COBL)

- | | |
|---|------|
| 1 | B-2 |
| 2 | B-3 |
| 3 | B-3b |



COMPANY: Kleinfelder, Inc.

Location: SR 70, Quincy, CA

Project: Spanish Creek Bridge

Date Logged: July 23, 2006

Borehole ID: B-2

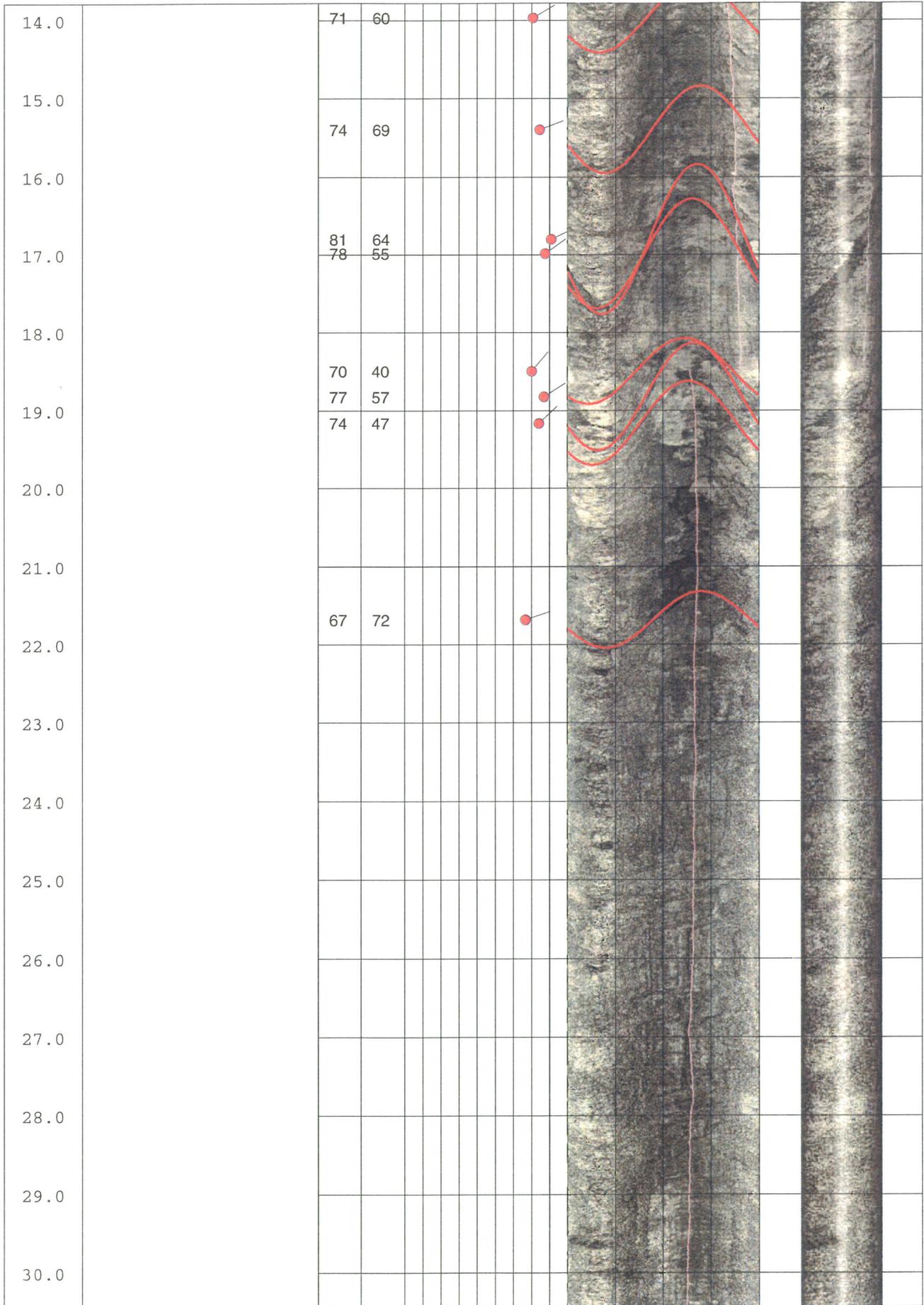
File Name: SpanCrkB2-2M.wcl

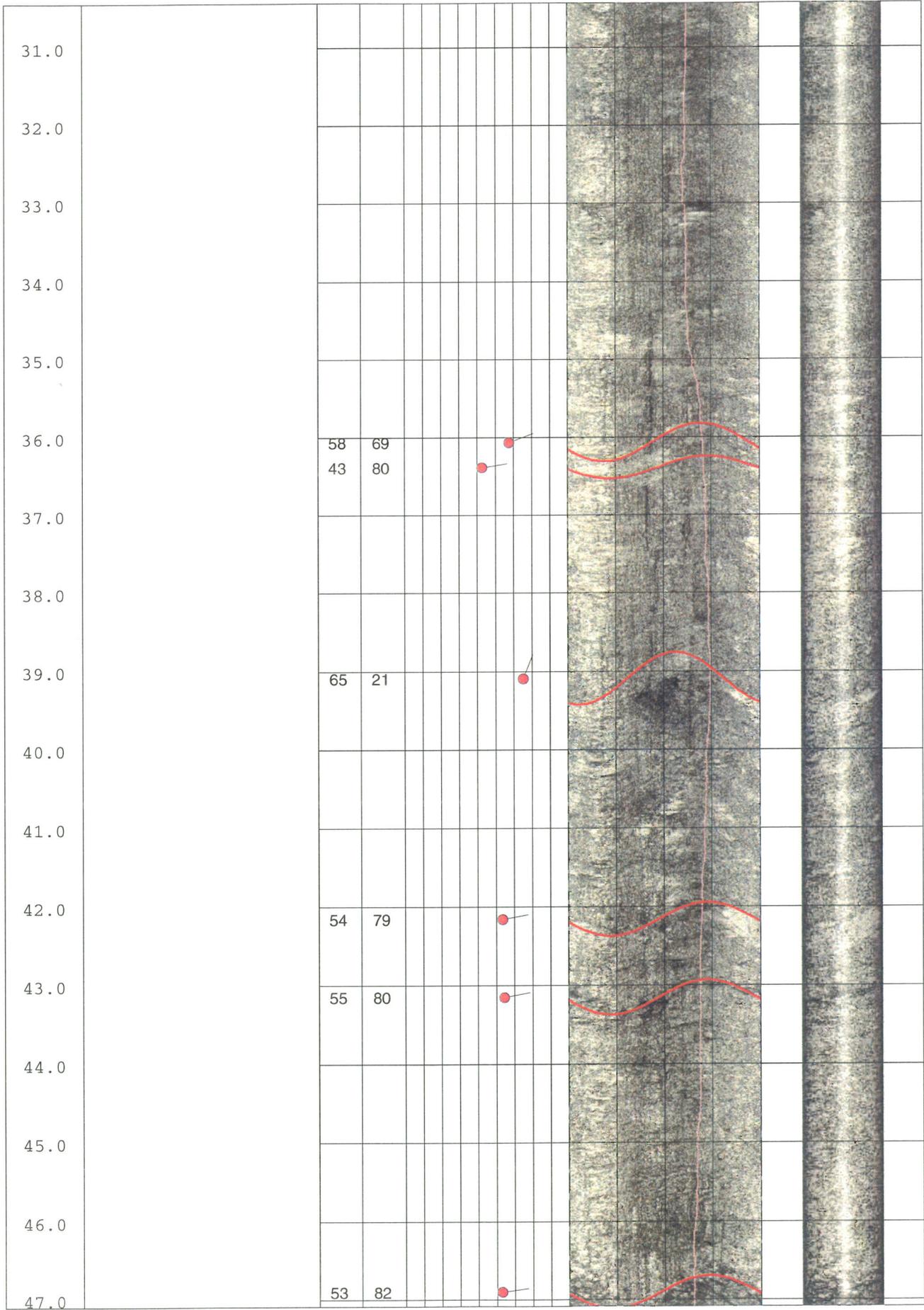
Logged By: F G Kruger

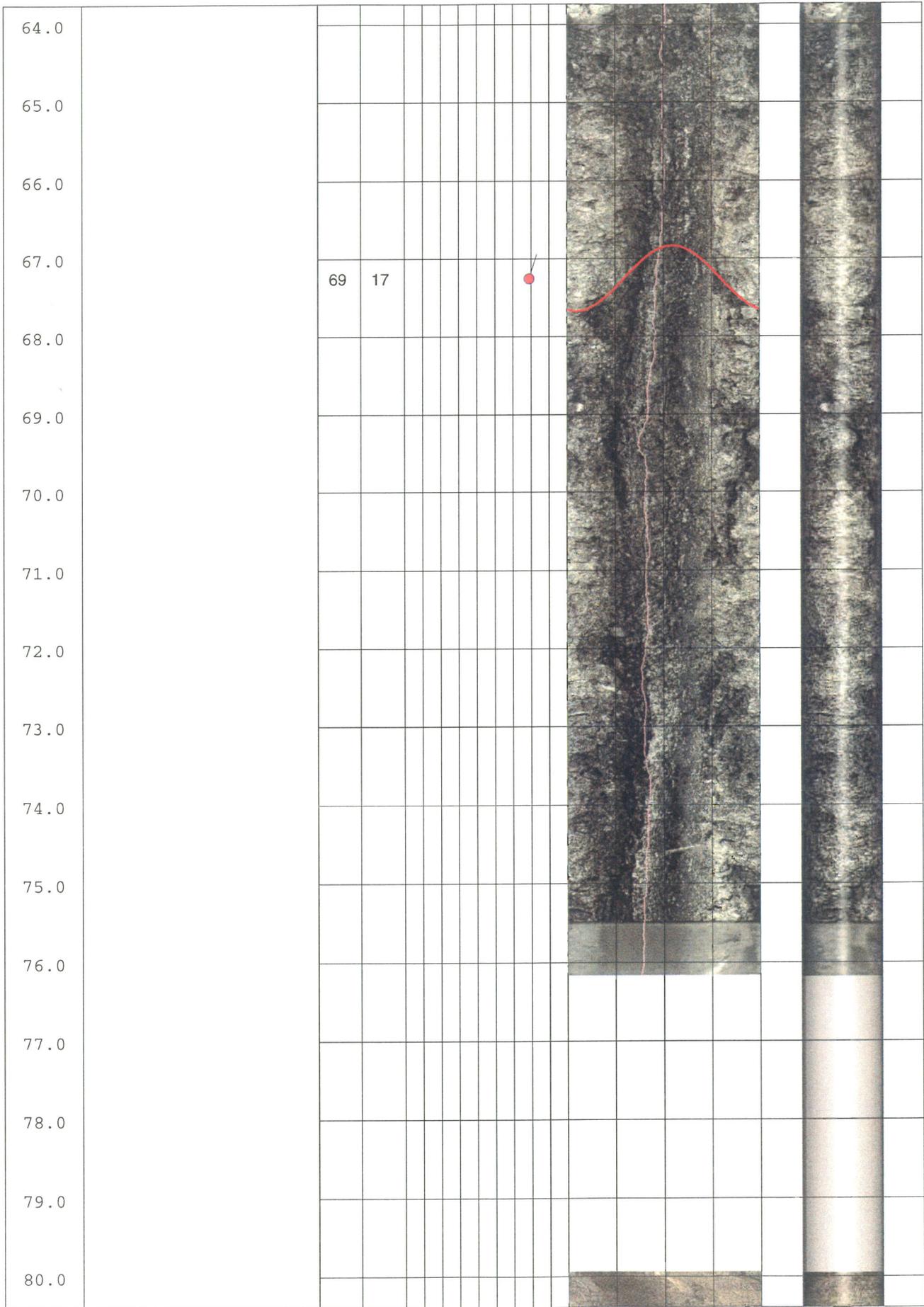
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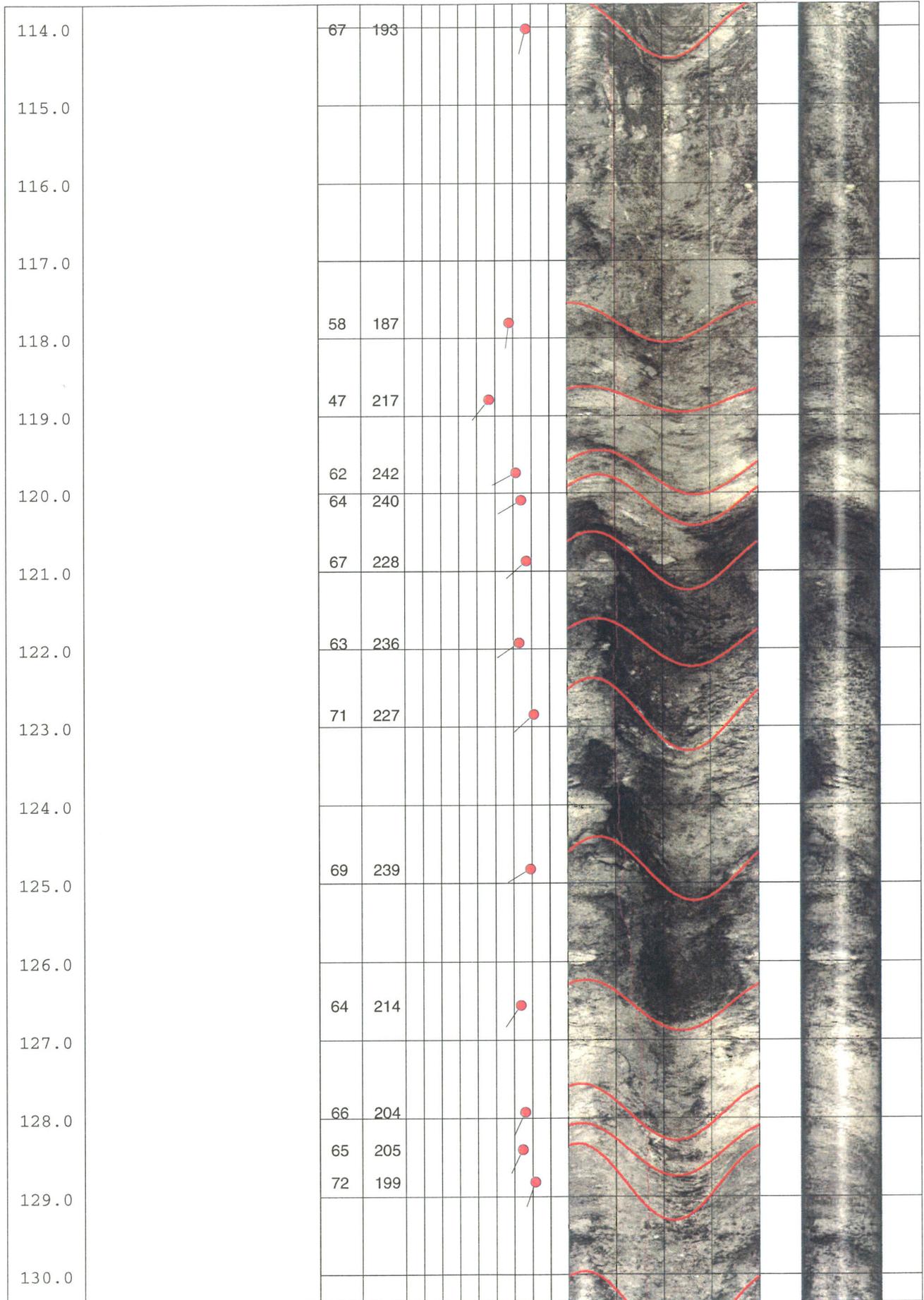
- 1) Azimuths reference True North. Magnetic declination of +15 degrees applied.
- 2) 3x Horizontal Exaggeration on Un-wrapped Images.
- 3) Dip values presented in degrees from horizontal.
- 4) Dip direction presented in degrees of azimuth.
- 5) Simulated Core Image is viewed from north, east on left, west on right.

Depth	Comment	True Dip (deg)	Dip AZ (dip)	Tadpole - True Dip (deg)	Optical Televiewer Image					Simulated Core Image		
					Apparent Trace							
					0	90	0°	90°	180°	270°	0°	
4.0	Bottom of HWT Casing											
5.0												
6.0												
7.0	Image distortion due to magnetic influence of casing.											
8.0												
9.0												
10.0		74	48									
11.0		74 65	38									
12.0		68	63									
13.0		57	54									











COMPANY: Kleinfelder, Inc.

Location: SR 70, Quincy, CA

Project: Spanish Creek Bridge

Date Logged: September 12, 2006

Borehole ID: B-3

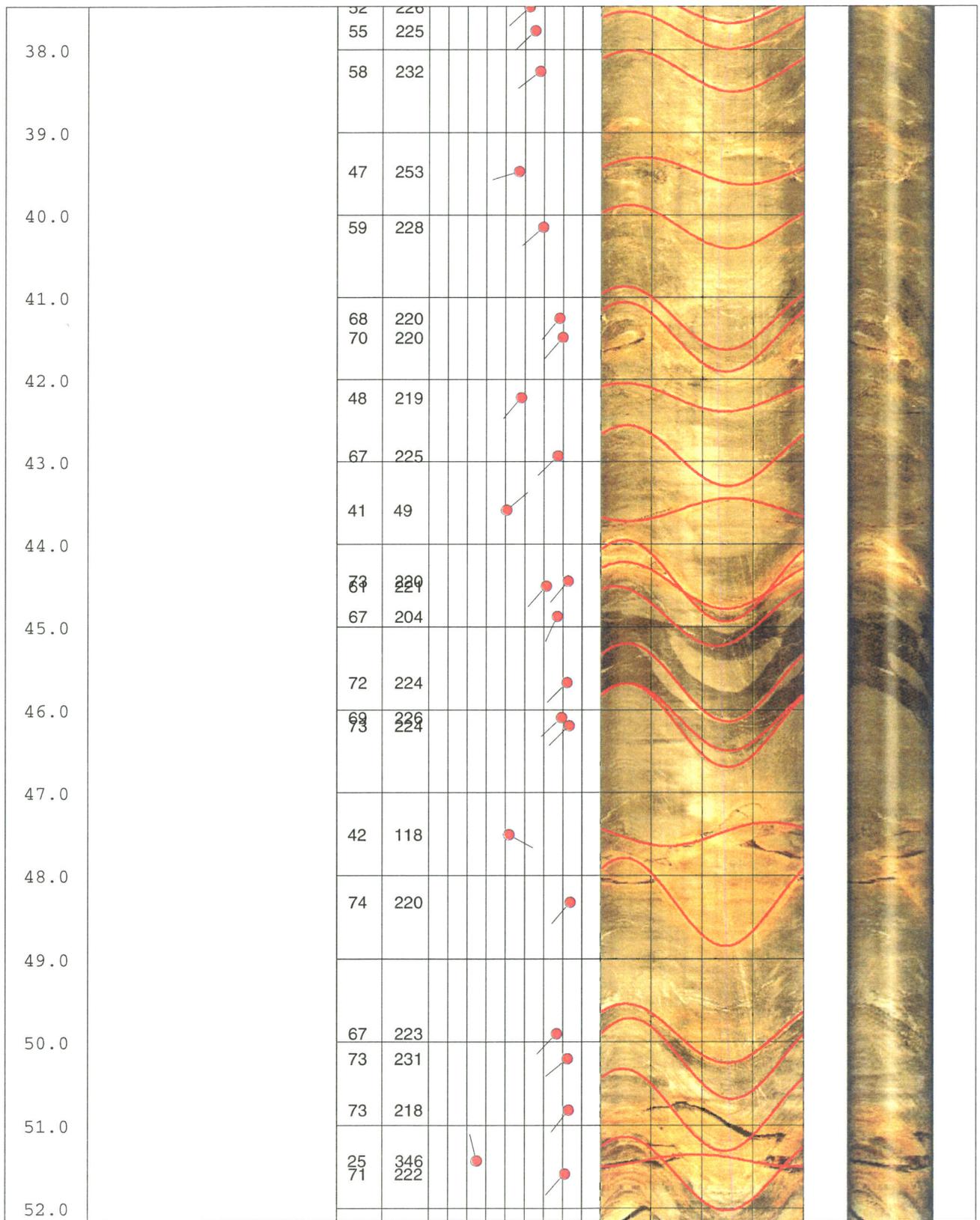
File Name: SpanB3-3M.wcl

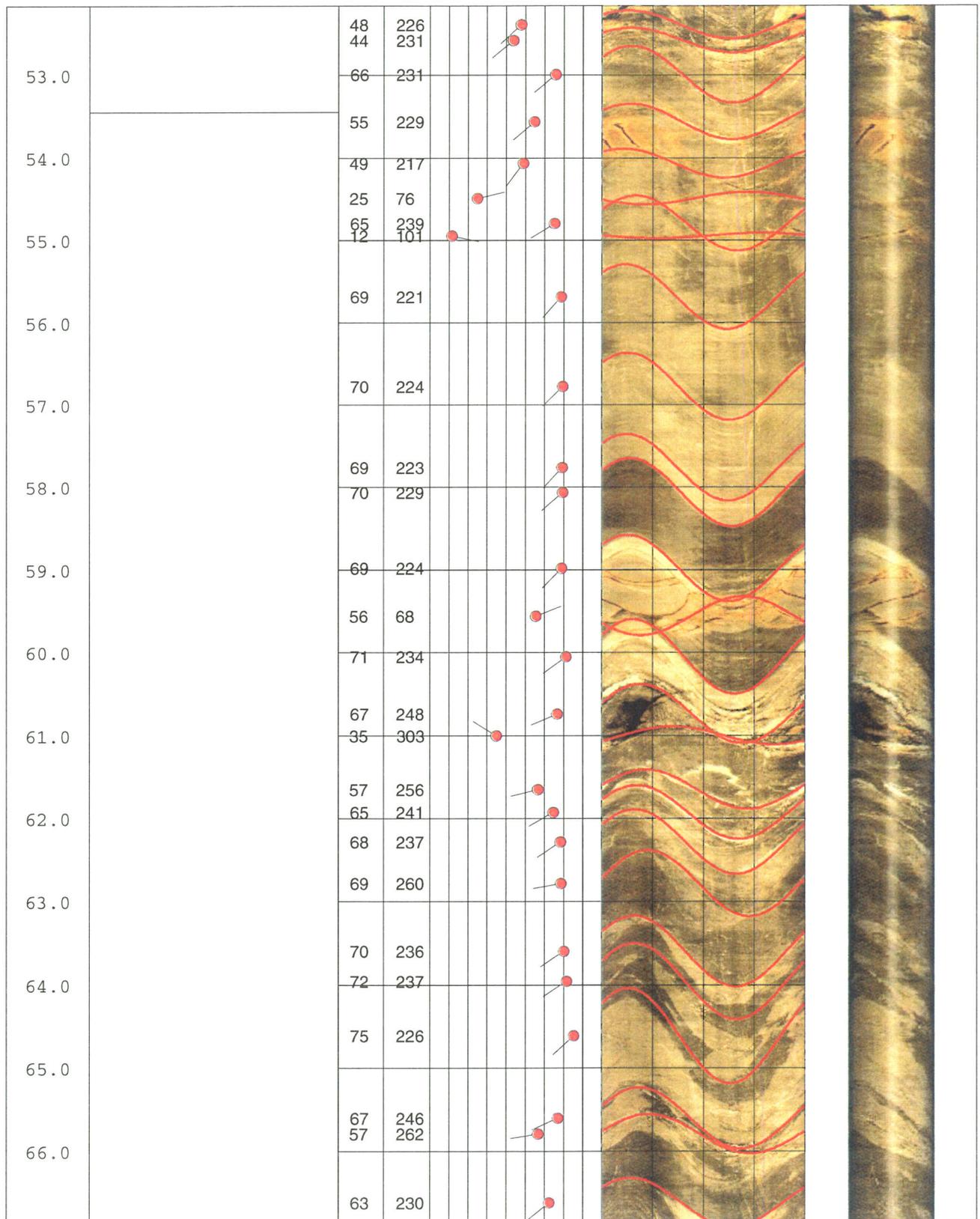
Logged By: F G Kruger

Notes:

- 1) Azimuths reference True North. Magnetic declination of +15 degrees applied.
- 2) 3x Horizontal Exaggeration on Televiewer Image.
- 3) Dip values presented in degrees from horizontal.
- 4) Dip direction presented in degrees of azimuth.
- 5) Simulated Core Image is viewed from north, east on left, west on right.

Depth	Comment	True Dip (deg)	Dip AZ (dip)	Tadpole - True Dip (deg)	Optical Televiewer Image		Simulated Core Image
					Apparent Trace		
15.0							
16.0		54	185				
17.0							
18.0							
19.0							
20.0		68	240				
		62	236				
21.0		74	253				
		64	230				
22.0							







COMPANY: Kleinfelder, Inc.

Location: SR 70, Quincy, CA

Project: Spanish Creek Bridge

Date Logged: September 15, 2006

Borehole ID: B-3B

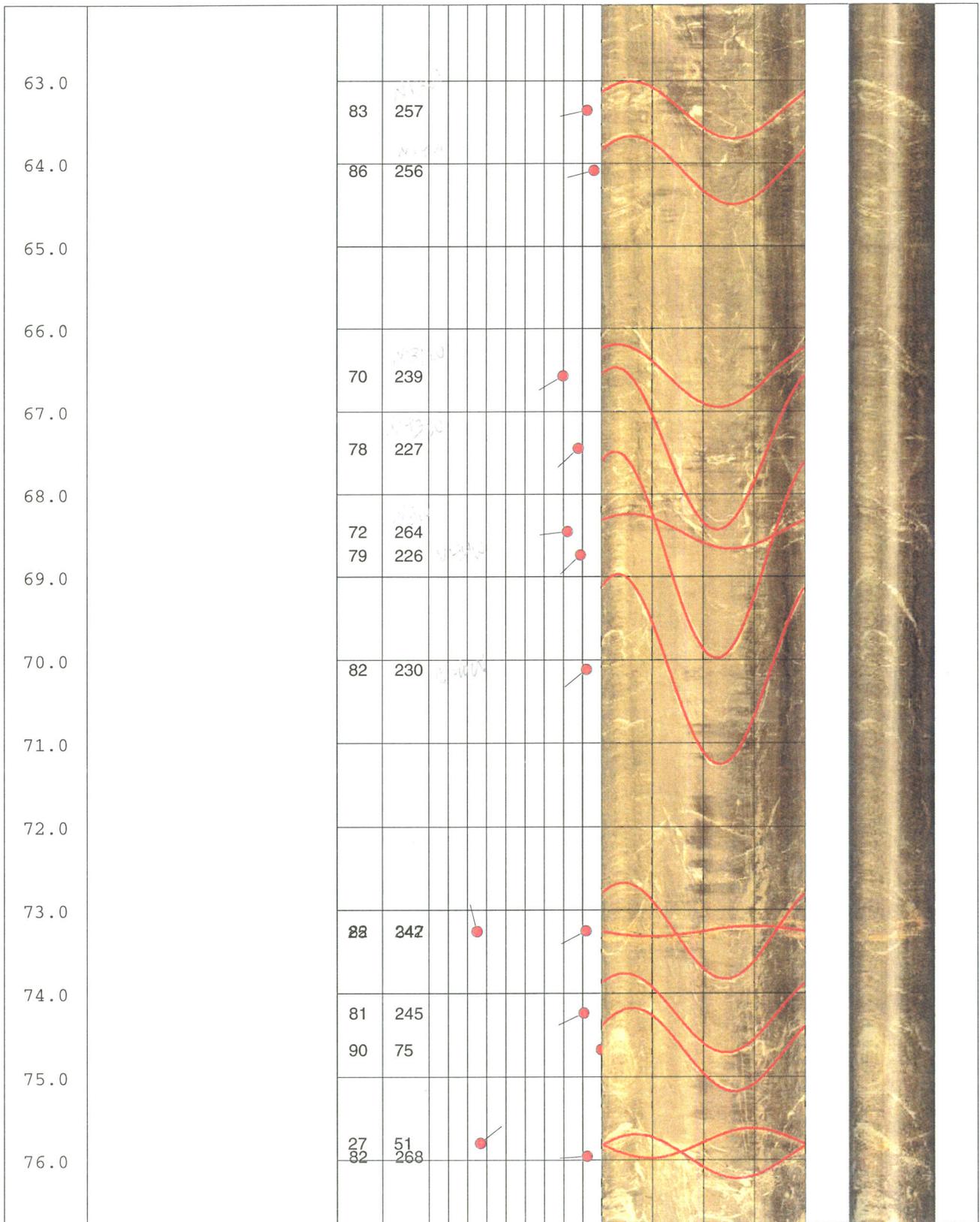
File Name: SpanB3b-3M.wcl

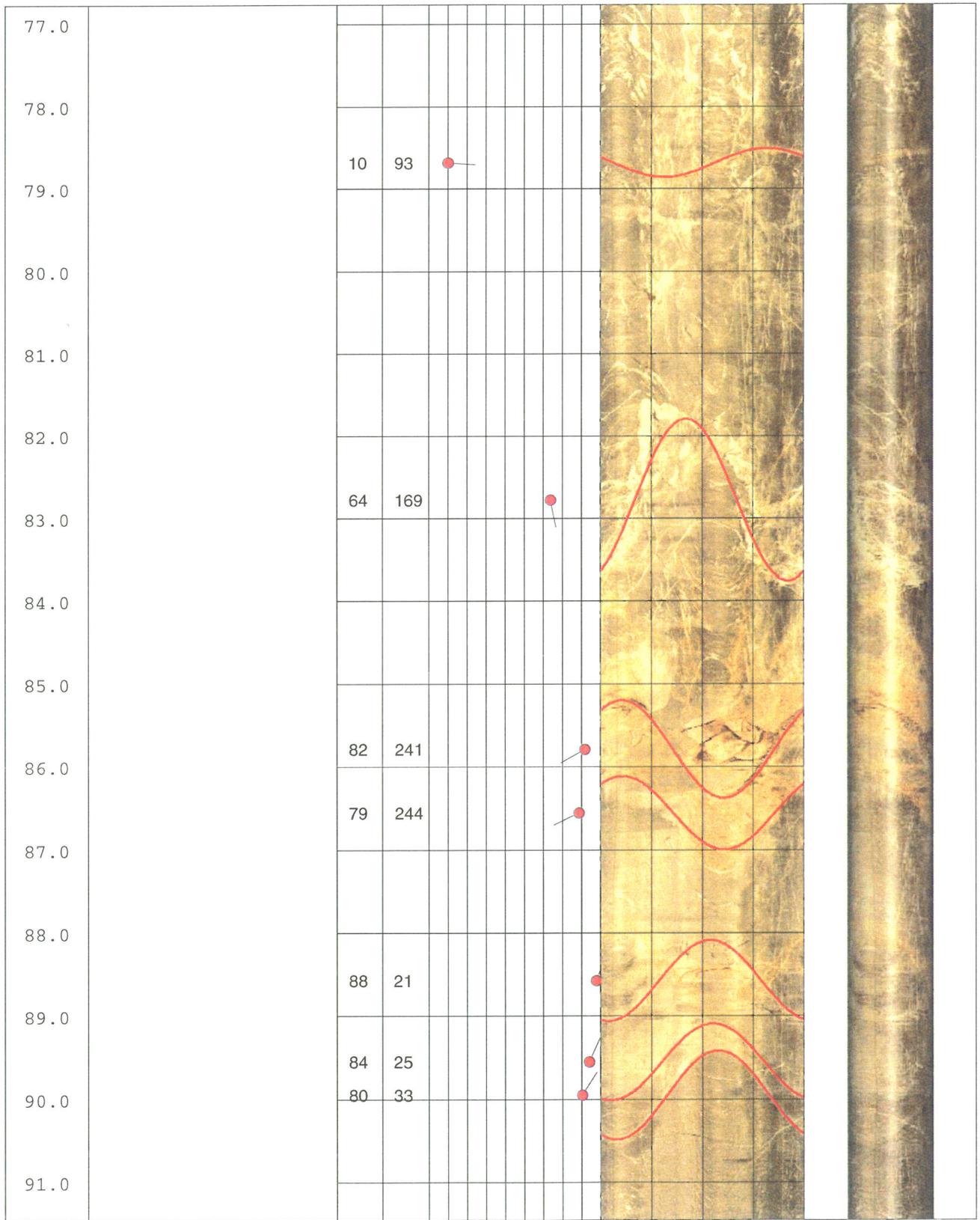
Logged By: F G Kruger

Notes:

- 1) Azimuths reference True North. Magnetic declination of +15 degrees applied.
- 2) 3x Horizontal Exaggeration on Televiwer Image.
- 3) Dip values presented in degrees from horizontal.
- 4) Dip direction presented in degrees of azimuth.
- 5) Simulated Core Image is viewed from north, east on left, west on right.

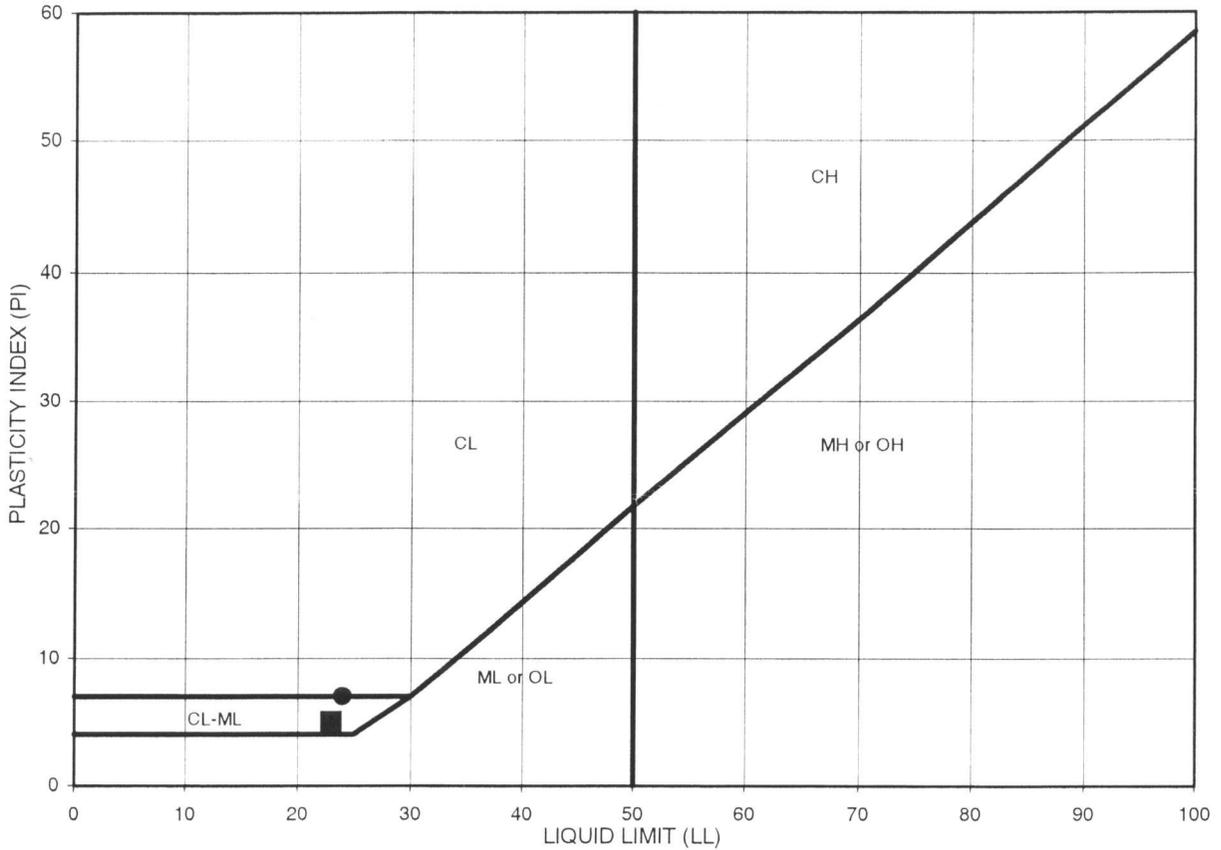
Depth	Comment	True Dip (deg)	Dip AZ (deg)	Tadpole - True Dip (deg)	Optical Televiwer Image Apparent Trace					Simulated Core Image	
					0	90	0°	90°	180°		270°
24.0											
25.0											
26.0											
27.0											
28.0											
29.0											
30.0		13	19								
31.0		27	189								
32.0		75	246								





APPENDIX D LABORATORY TESTING

1. TEST DESCRIPTIONS AND RESULTS
2. GRAIN SIZE DISTRIBUTION CURVES
3. PLASTICITY CHARTS
4. POINT LOAD TEST RESULTS



Symbol	Boring Number	Sample Number	Depth (feet)	LL	PL	PI	U.S.C.S Symbol
	B-1	B1-3	5.0	NP	NP	NP	
	B-1	B1-4	9.0	NP	NP	NP	
■	B-3	B3-2	7.5	23	18	5	CL-ML
●	B-3	B3-3	12.5	24	17	7	CL-ML

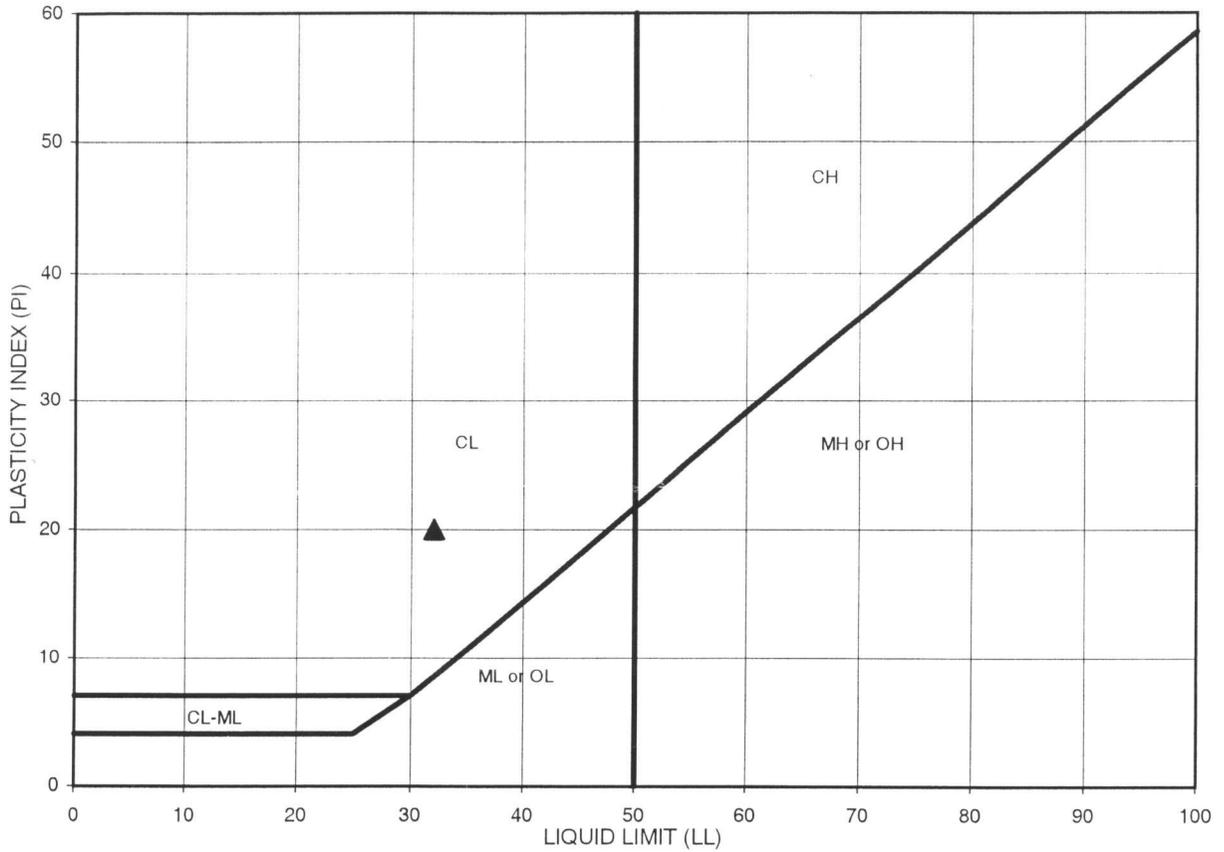
Note: NP=Non-plastic.

ATTERBERG LIMITS
ASTM D 4318-93

Project Name: Spanish Creek Bridge
 Project No.: 72838
 Date: 10/20/06
 AP No: 26-1057 Figure No.: _____

AP Engineering and Testing, Inc.

Geotechnical Testing Laboratory



Symbol	Boring Number	Sample Number	Depth (feet)	LL	PL	PI	U.S.C.S Symbol
	B-4	B4-2	13.0	NP	NP	NP	
▲	B-4	B4-8	40.0	32	12	20	CL
	B-5	B5-7	7.0	NP	NP	NP	
	B-5	B5-12	12.0	NP	NP	NP	

Note: NP=Non-plastic.

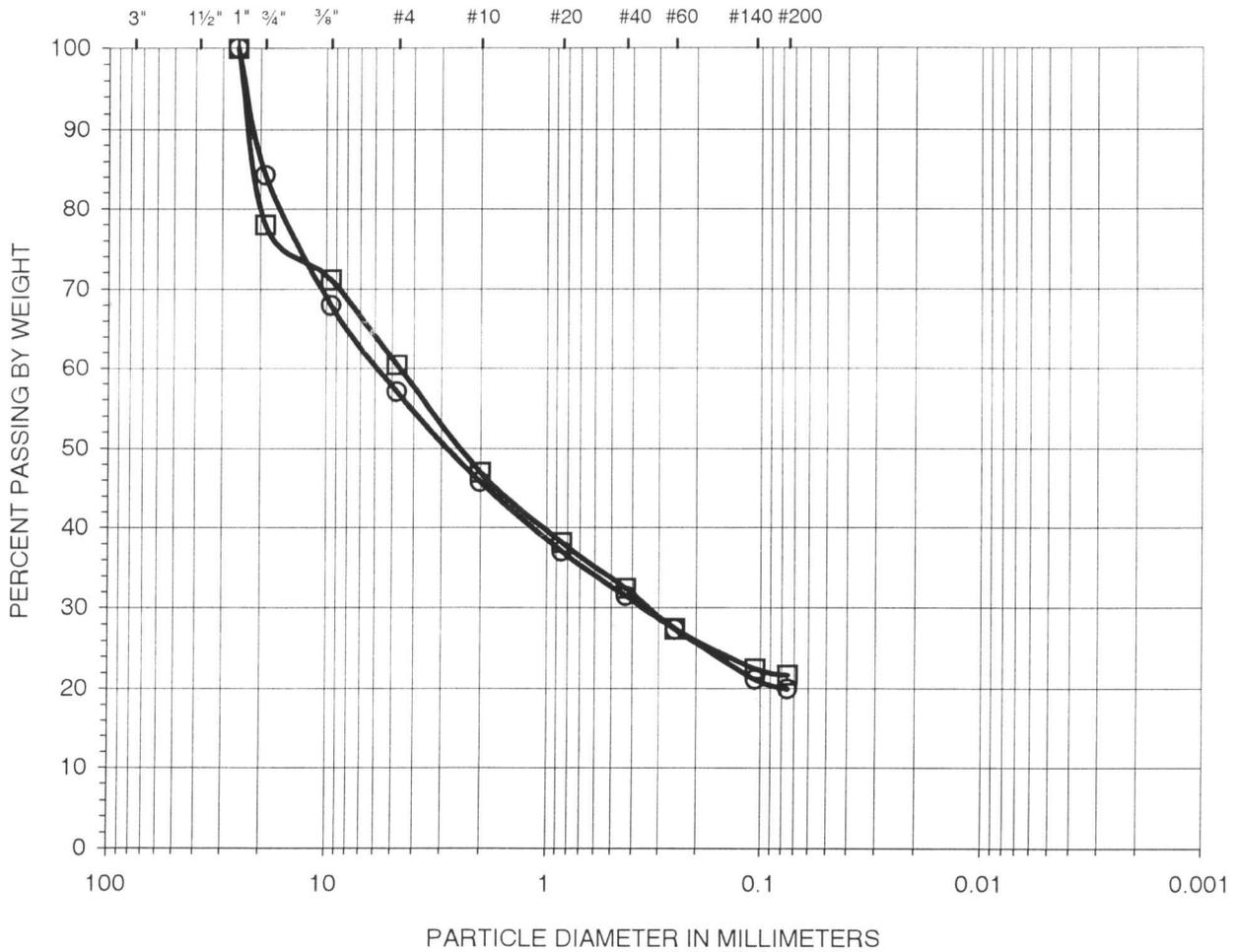
ATTERBERG LIMITS
ASTM D 4318-93

Project Name: Spanish Creek Bridge
 Project No.: 72838
 Date: 10/20/06
 AP No: 26-1057 Figure No.: _____

AP Engineering and Testing, Inc.

Geotechnical Testing Laboratory

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	
SIEVE OPENING		SIEVE NUMBER			HYDROMETER



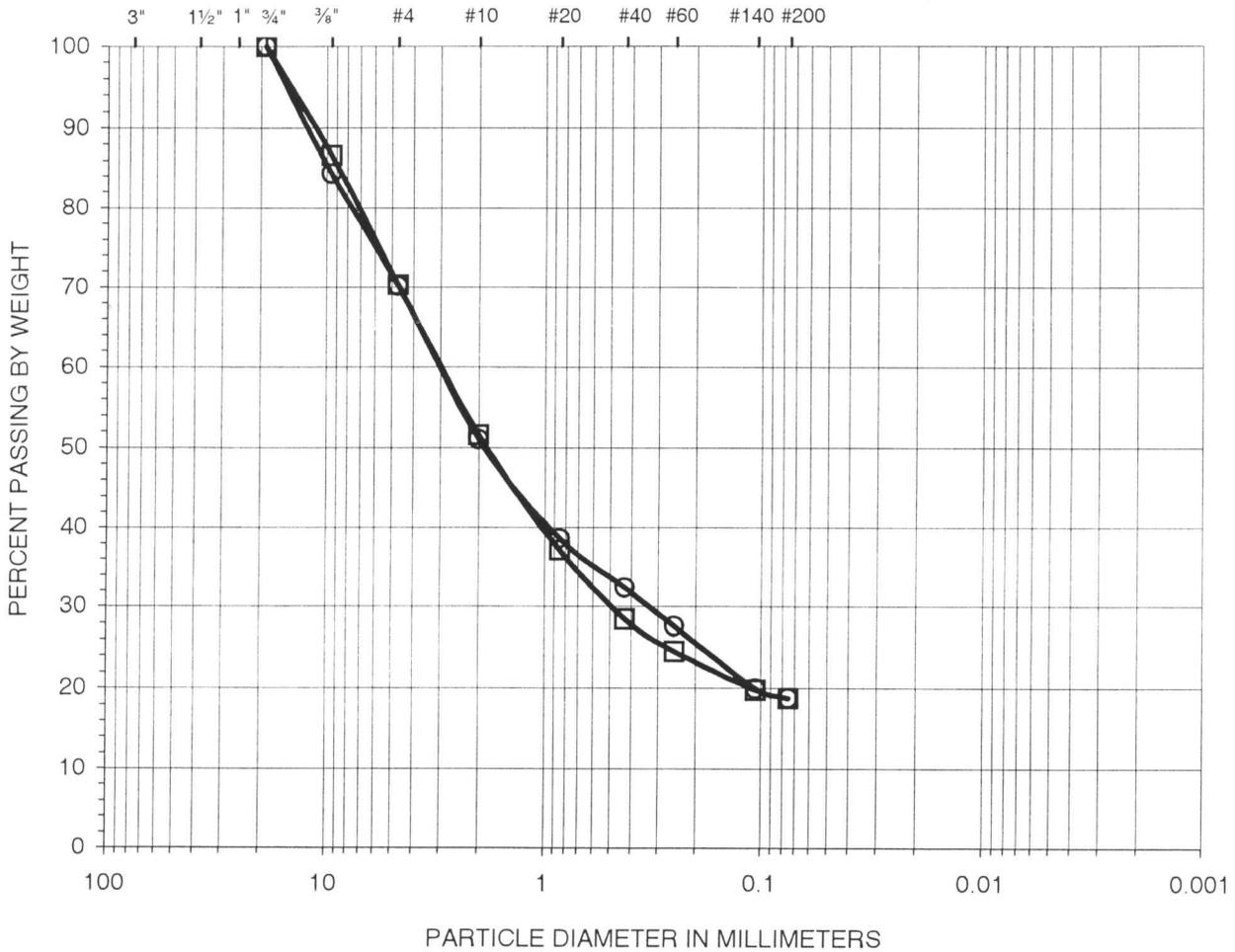
Symbol	Sample Identification	Sample Depth (feet)	Percent Passing No. 200 Sieve	Soil Type
○	B-1, B1-3	5	19.9	GM
□	B-1, B1-4	9	21.7	GM

GRAIN SIZE DISTRIBUTION CURVE

ASTM D 422

Project Name: Spanish Creek Bridge
Project No.: 72838
Date: 10/20/2006
AP No: 26-1057

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	
SIEVE OPENING		SIEVE NUMBER			HYDROMETER



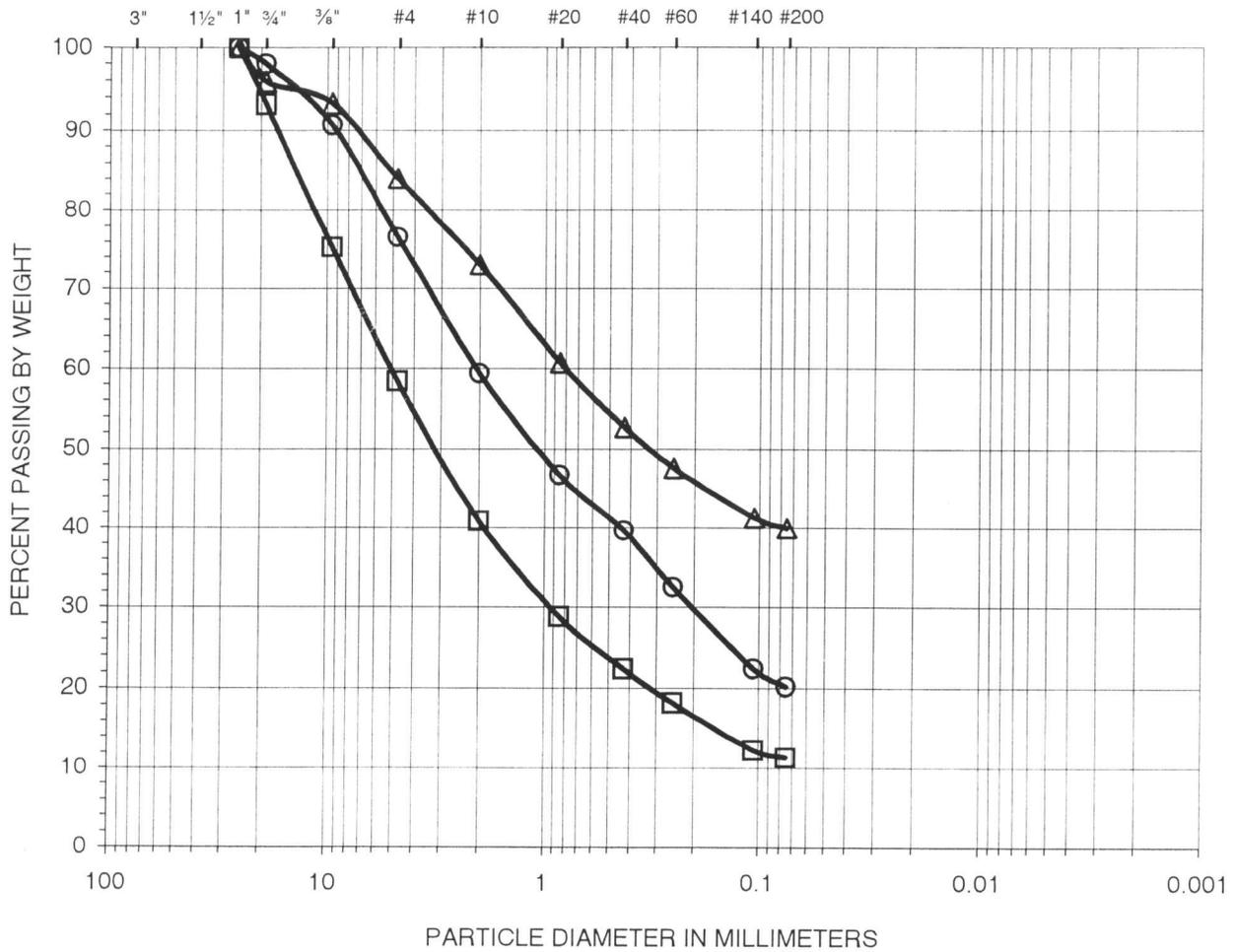
Symbol	Sample Identification	Sample Depth (feet)	Percent Passing No. 200 Sieve	Soil Type
○	B-3, B3-2	7.5	18.7	SM-SC
□	B-3, B3-3	12.5	18.8	SM-SC

GRAIN SIZE DISTRIBUTION CURVE

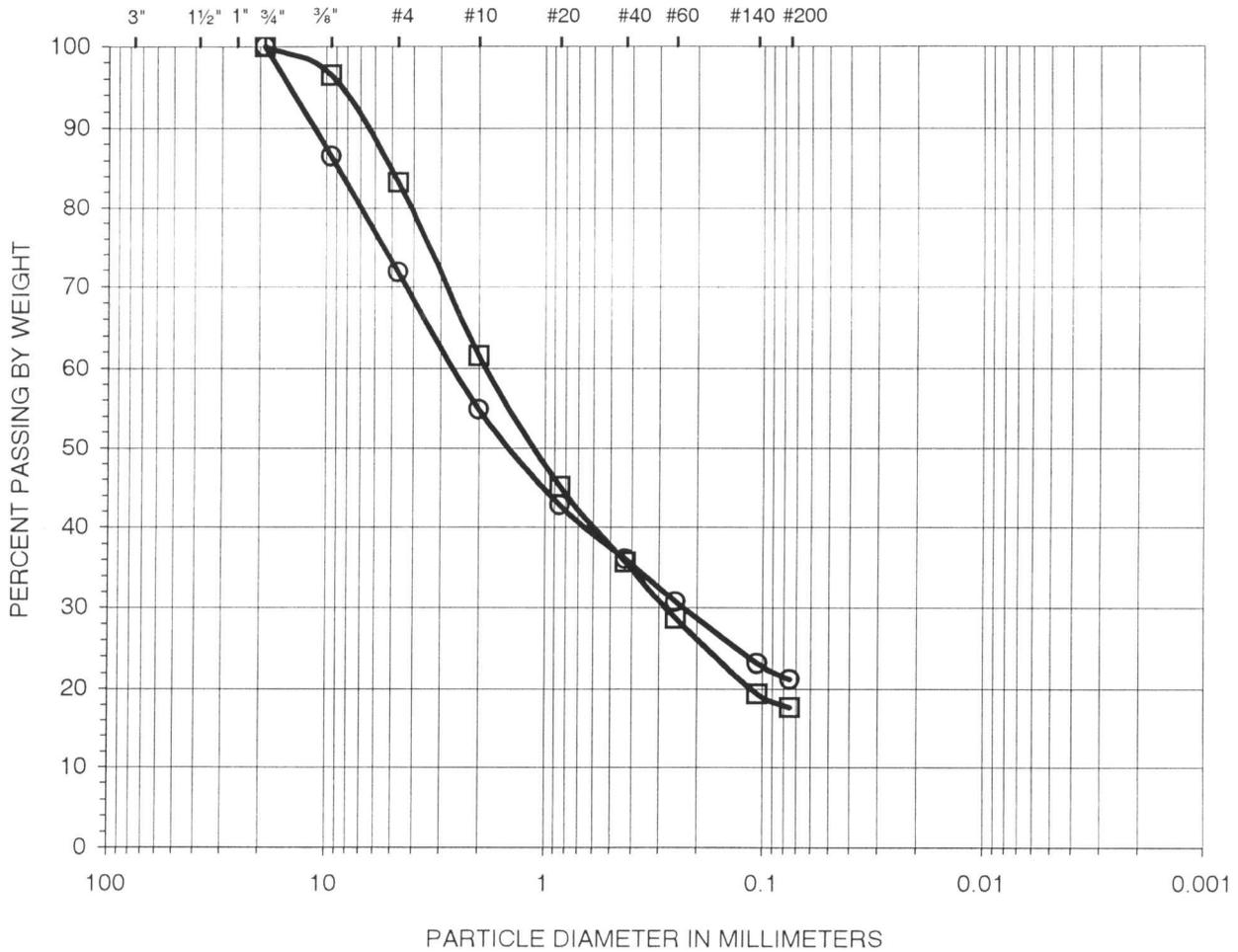
ASTM D 422

Project Name: Spanish Creek Bridge
 Project No.: 72838
 Date: 10/20/2006
 AP No: 26-1057

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	
SIEVE OPENING		SIEVE NUMBER			HYDROMETER



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	
SIEVE OPENING		SIEVE NUMBER			HYDROMETER



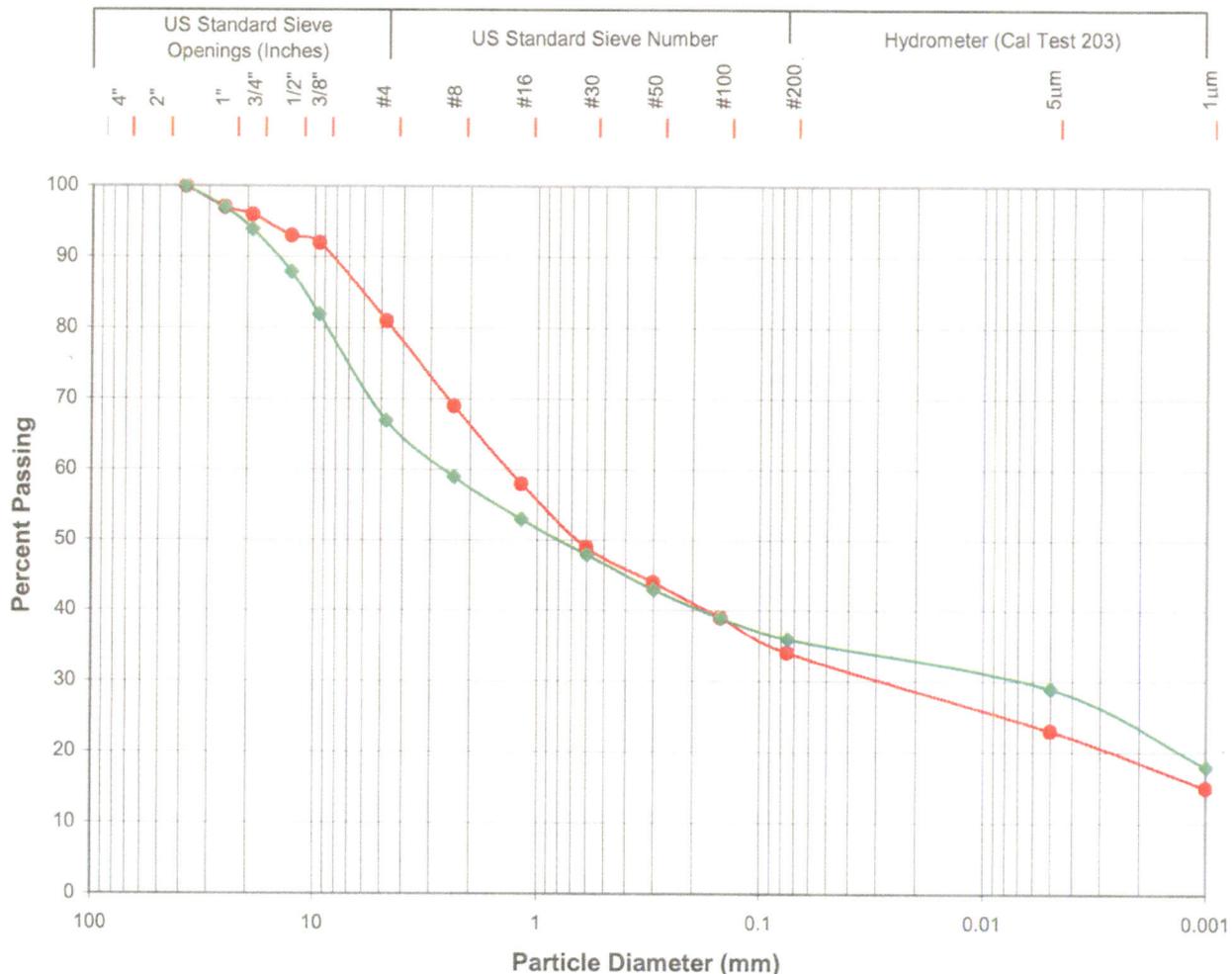
Symbol	Sample Identification	Sample Depth (feet)	Percent Passing No. 200 Sieve	Soil Type
○	B-5, B5-7	7	21.2	SM
□	B-5, B5-12	12	17.7	SM

GRAIN SIZE DISTRIBUTION CURVE

ASTM D 422

Project Name: Spanish Creek Bridge
Project No.: 72838
Date: 10/20/2006
AP No: 26-1057

Particle-Size Analysis Test Results



GRAVELS		SANDS			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		

Sample ID:

● Boring No. B-2, 53.8' to 54.4' depth
 ◆ Boring No. B-2, 92.0' to 92.8' depth



CALTRANS
 Division of Engineering
 Services
 Geotechnical Services

Project: Spanish Creek Bridge
EA: 02-373101
D.-Co.-Rt.-: 02-PLU-70 PM 35.3
Date: July-09

Point Load Strength Index of Rock; ASTM D 5731 - 08

Dist-EA: 02-373101

Dist-Co-Rte-PM: PLU-70 PM 35.3

GL Tracking Nos.: 06-174, 09-020
Report Date: July 9, 2009

Boring I. D.	Depth (feet)		Depth (m)	Test Type	Initial Fracture Block Contact Points, D (mm)	Final Fracture Block Contact Points, D' (mm)	Equivalent Diameter, D _e (mm) per Section 10.1 of ASTM D 5731-08	Width, W (mm)	Length, L (mm)	Failure Load (lbs)	Uncorrected Point Load Strength Index, L _c per Eq. #4 of ASTM D 5731-08		Size Correction Factor, F _s per Eq. #4 of ASTM D 5731-08	Size Corrected Point Load Strength Index, L _{sc} per Eq. #5 of ASTM D 5731-08		Generalized Index to Strength Conversion Factor, K, per Table 1 of ASTM D 5731-08 (approximate where appropriate)	Estimated Uniaxial Comp. Strength, % per Eq. #6 of ASTM D 5731-08		Remarks
	top	bottom									(MPa)	(PSI)		(MPa)	(PSI)		(MPa)	(PSI)	
B-1b	18	18.4	5.5	5.6	60.0	60.0	60.00		60.2	>8,800	>10.87	1.09	>11.80	>1,712	24.5	>266	>38,638	Test load hydraulic pressure gage reached maximum capability (equivalent to 8,800 lbs) with no observable failure to specimen. ">" symbol implies actual value would exceed based on assumed failure surface for valid diametral test per Figure 5(c) of ASTM D 5731-08.	
B-1b	19.7	21.7	6.0	6.6	45.0	27.5	46.18	60.90	37.5	1,496	3.12	0.96	3.01	437	22	69	9,958		
B-1b	95	95.8	29.0	29.2	60.2	56.0	58.06	60.0	60.0	598	0.79	1.07	0.84	122	24.5	19	2,806		
B-2	83	93.4	28.3	28.5	12.5	8.0	17.57	30.3	15.2	669	9.64	1.398	6.02	873	17	164	23,767		
B-2b	90	90.5	27.4	27.6	41.2	30.1	47.95	60.0	41.2	211	0.41	0.98	0.40	58	23	9	1,363	Size and shape requirements do not comply with Figure 3 of ASTM D 5731-08.	
B-3	15.5	15.7	4.7	4.8	59.5	55.0	57.21	60.0	60.0	4,048	5.50	1.06	5.85	848	24.5	135	19,552		
B-3	28.4	29	8.7	8.8	60.0	56.5	58.22	60.0	2,112	2,777	401.9	1.07	2.97	430	24.5	68	9,848		
B-3	69	69.5	21.0	21.2	60.0	55.0	57.45	60.0	2,376	3,20	464.5	1.06	3.41	494	24.5	78	11,381		
B-3b	25	25.7	7.6	7.8	60.0	59.5	59.25	60.0	60.0	>8,800	>11.15	1.08	>12.04	>1,746	24.5	>273	>39,629	Test load hydraulic pressure gage reached maximum capability (equivalent to 8,800 lbs) with no observable failure to specimen (some patten penetration). ">" symbol implies actual value would exceed based on assumed failure surface for valid diametral test per Figure 5(c) of ASTM D 5731-08.	
B-3b	32	32.3	9.8	9.8	60.0	55.0	57.45	60.0	60.0	528	0.71	1.06	0.76	110	24.5	17	2,529		
B-3b	38.1	37	11.0	11.3	60.0	56.0	57.97	60.0	60.0	1,056	1.40	1.07	1.49	217	24.5	34	4,968		
B-3b	70.5	71	21.5	21.6	39.5	29.5	47.83	60.9	41.5	4,840	9.41	0.98	9.23	1,338	23	216	31,397	Fracture surface passes through only one loading point. "Inset core test" per ASTM D 5731-08. Provided values based on D _e per valid irregular lump test per Figure 3(c) of ASTM D 5731-08.	

NOTES:
Test Type Abbreviations: D - Diametral, A - Axial, B - Block, I - Irregular Lump.
Orientation of Load (if anisotropic): P - Perpendicular to plane of weakness, L - Parallel to plane of weakness

B-1b 18'-18.4'

B-1b 19.7'-21.7'

B-1b 95'-95.8'

B-2 93'-93.4'

B-2b 90'-90.5'

B-3 15.5'-15.7'

B-3 28.4'-29'

B-3 69'-69.5'



No Image Available

B-3b 25'-25.7'

B-3b 32'-32.3'

B-3b 36.1'-37'

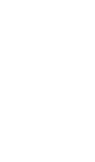
B-3b 70.5'-71'

B-3b 90'-90.5'

B-3b 15.5'-15.7'

B-3b 28.4'-29'

B-3b 69'-69.5'



**POINT LOAD TEST RESULTS
SPECIMENS FROM BORINGS FOR
BRIDGE NO. 09-0015 BRIDGE RETROFIT STUDY**

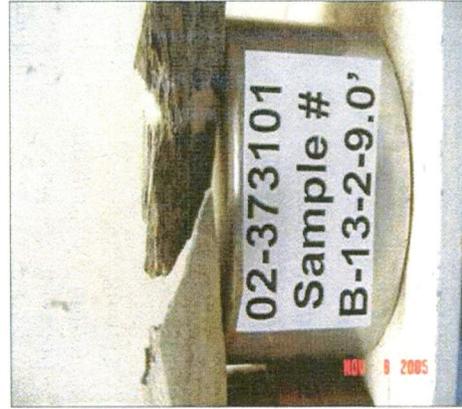
**SPANISH CREEK BRIDGE REPLACEMENT
FOUNDATION REPORT
BRIDGE NO. 09-0077
EA: 02-373101**

EA # 02-373101 Location: 02-P-11-70 PM 35.3 Date 11/9/2005
 Tested By GR
 Checked By [Signature]

ROCK #	Test Type	Length for D or Width for A, B, I (mm)	Distance Between Platen, D (mm)	Max. Pressure (psi)	Final Distance Between Platen D' (mm)	Failure Load, P (lbs)	Equivalent Core Diameter, D _e (in)	Uncorrected Point Load Strength I _s (psi)	Point Load Strength Index I _s (50) (psi)	Uniaxial Compressive Strength, σ _c (psi)
99-13-1-3.8'	i	33.1	18.0	270.0	6.0	475	1.08	404.1	309.0	5408.0
99-13-2-9.0'	i	33.1	15.5	375.0	4.0	660	1.01	651.8	481.9	8434.0
99-13-3-21.7'	i	33.2	23.5	1040.0	8.5	1830	1.24	1188.8	965.9	18351.2
99-14-1-23.9'	i	33.2	19.5	1025.0	12.0	1804	1.13	1412.0	1100.0	19250.5



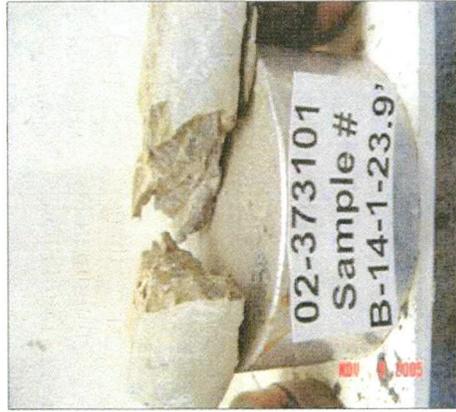
After



After



After



After



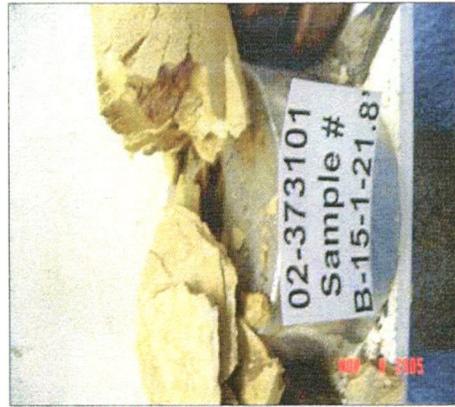
Date 11/9/2005
 Tested By GR
 Checked By WV/g

EA # 02-373101 Location: 02-P-14-70 PM 35.3

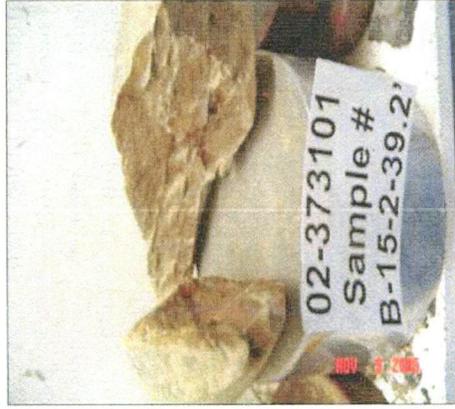
ROCK #	Test Type	Length for D or Width for A, B, I (mm)	Distance Between Platen, D (mm)	Max. Pressure (psi)	Final Distance Between Platen D' (mm)	Failure Load, P (lbs)	Equivalent Core Diameter, D _e (in)	Uncorrected Point Load Strength I _s (psi)	Point Load Strength Index I _{s(50)} (psi)	Uniaxial Compressive Strength, σ _c (psi)
99-14-2-27.8'	i	33.3	14.0	1135.0	8.0	1998	0.96	2171.2	1571.1	27493.4
99-15-1-21.8'	D	79.6	31.0	240.0	21.5	422	1.22	283.6	228.7	4345.1
99-15-2-39.2'	D	60.5	32.5	190.0	19.5	334	1.28	204.3	168.3	3196.9
99-15-3-45.1'	D	70.7	32.0	790.0	23.5	1390	1.26	876.0	716.6	13615.8



After



After



After



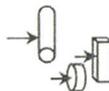
After

Test Types:

D = diametral

A = axial

B = block



i = irregular lump test

p = perpendicular

l = parallel to plane of weakness

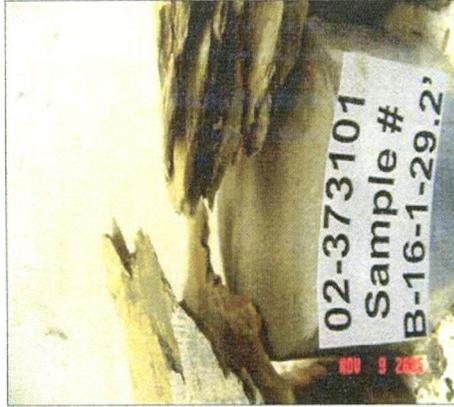
Date 11/9/2005
 Tested By GR
 Checked By WP/11/9

EA # 02-373101 Location: 02-P L V-70 PM 35.3

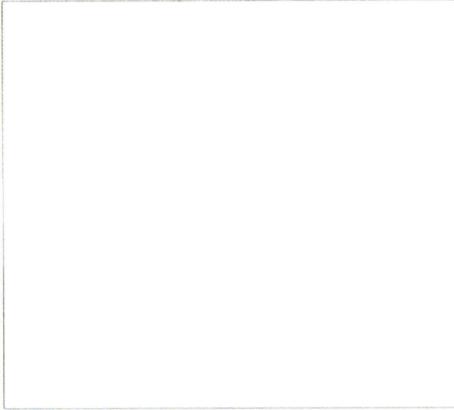
ROCK #	Test Type	Length for D or Width for A, B, I (mm)	Distance Between Platen, D (mm)	Max. Pressure (psi)	Final Distance Between Platen D' (mm)	Failure Load, P (lbs)	Equivalent Core Diameter, D _e (in)	Uncorrected Point Load Strength I _s (psi)	Point Load Strength Index I _s (50) (psi)	Uniaxial Compressive Strength, σ _c (psi)
99-15-4-50.2'	D	102.5	33.8	750	28.0	1320	1.33	745.4	625.0	11875.1
99-16-1-29.2'	i	60.7	32.0	280	20.5	493	1.96	128.6	128.2	2693.1



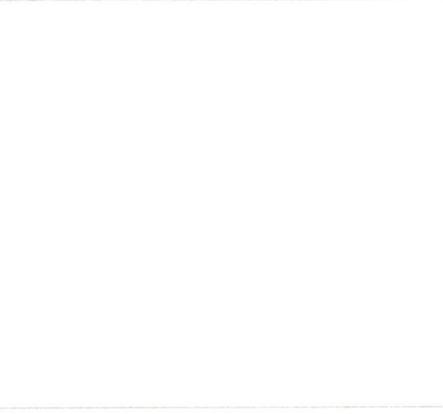
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After



After



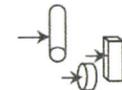
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Test Types:

D = diametral

A = axial

B = block



i = irregular lump test

p = perpendicular

l = parallel to plane of weakness

APPENDIX E
DOWNHOLE GEOPHYSICAL SURVEY OF BORING B-1

Memorandum

*Flex your power!
Be energy efficient!*

To: DOUG BRITTSAN
Senior, Transportation Engineer, Branch C
Geotechnical Design North
Division of Engineering Services

Date: February 16 2007

File: 02-PLU-70-PM 35.3
02-373100

Attn: Mark Hagy

From: DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES-MS#5

Subject: Downhole Seismic Survey, Foundation Investigation at the Spanish Creek Bridge

Introduction

This report documents the results of a downhole seismic survey to evaluate the velocity structure of the rock at this location. Steep terrain prevented drilling of the proposed skewback location on the Oroville side of Spanish Creek. Seismic was employed in an attempt to fill in needed foundation data

Results and Conclusions

Foundation plans call for the construction of skewbacks on either side of Spanish Creek for the new bridge. The Oroville side, (south side) could not be drilled due to steep terrain, so Boring B-1, located at the south abutment, was utilized to record multiple downhole shots into a surface geophone spread over the proposed skewback location. Figure 1 shows the general layout of the seismic survey. Elevations used in this report were taken from foundation plans and therefore are not exact. Relative elevations of each shot point and geophone were surveyed in the field, and tied to the assumed elevation of the existing bridge deck transition to the roadway. The assigned elevation of the bridge deck is 971.00 meters.

Models generated from this survey indicate high velocity rock exists at depth below the skewback location. Figure 2. shows the velocity model.

Data Acquisition and Processing

Seismic refraction data were recorded using an EG&G Smartseis 24channel seismograph with 14 MHz geophones. The profile was 48 meters long. Blasting caps were placed down the borehole at predetermined depths. Refraction data from each shot were also stored in the seismograph's memory. Both profile geometry and refraction data were backed-up to paper and floppy disk upon completion of the survey.

Interpretation of the survey results used SeisOpt Pro, V4.0 . SeisOpt Pro is an automatic surface, cross-hole and surface-to-borehole interpretation package that contains modules for performing velocity optimization and visualization. The program uses only the first-arrival travel times and the survey geometry to derive subsurface velocity information. It uses a nonlinear optimization technique called adaptive simulated annealing and it involves forward modeling.

Profiles in this report are presented in terms of velocity units. A velocity unit is a three-dimensional unit, which due to its elastic properties and density, propagates seismic waves at a characteristic velocity or within a characteristic velocity range. Velocities denoted in this report and in the seismic refraction sections are expressed in meters per second. At least one velocity is present within a geological rock unit. In addition, each zone of weathering, or fracturing within that geological unit can constitute its own velocity unit. Conversely, when two rock units such as water saturated gravel and moderately weathered rock propagate seismic waves at the same velocity and are adjacent to each other, both units would be part of the same velocity unit. Lastly, discontinuous velocities might result from variation in the degree of alteration in the form of physical and chemical weathering and should be considered in the interpretation of the data.

Thank you for the opportunity to work on this project. If you have any questions or need additional assistance, please contact me at (916) 227-1307 or Mr. Bill Owen at (916) 227-0227.

Report by:

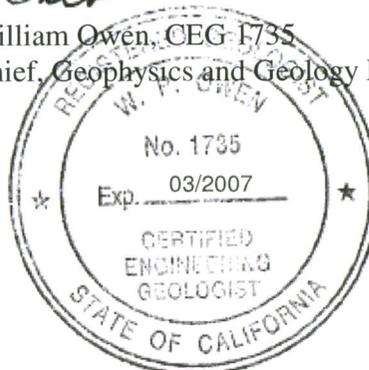


Dennison Leeds
Engineering Geologist
Geophysics and Geology Branch

Reviewed By:



William Owen, CEG F735
Chief, Geophysics and Geology Branch



c: Project File.
DL/WO
02_PLU_70_35.3_2007b_SEI.doc

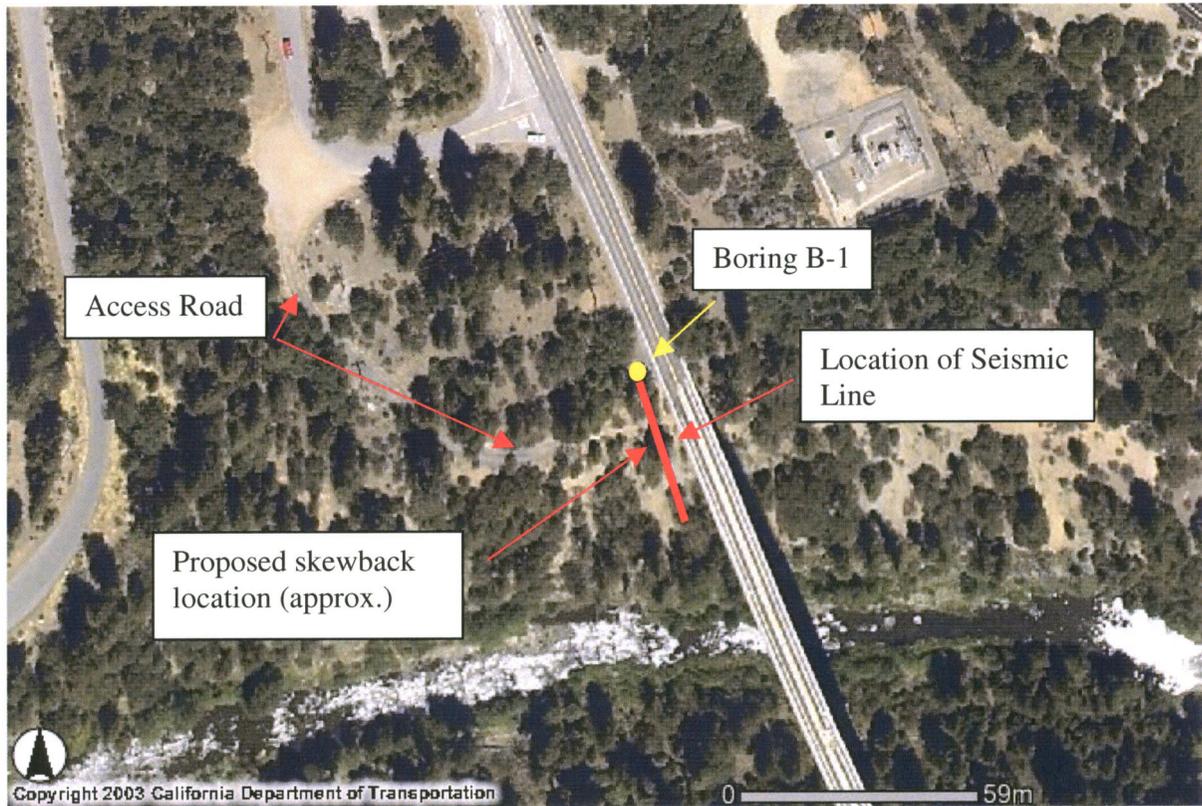


Figure 1. Aerial photo showing general layout of the seismic line and Boring B-1.

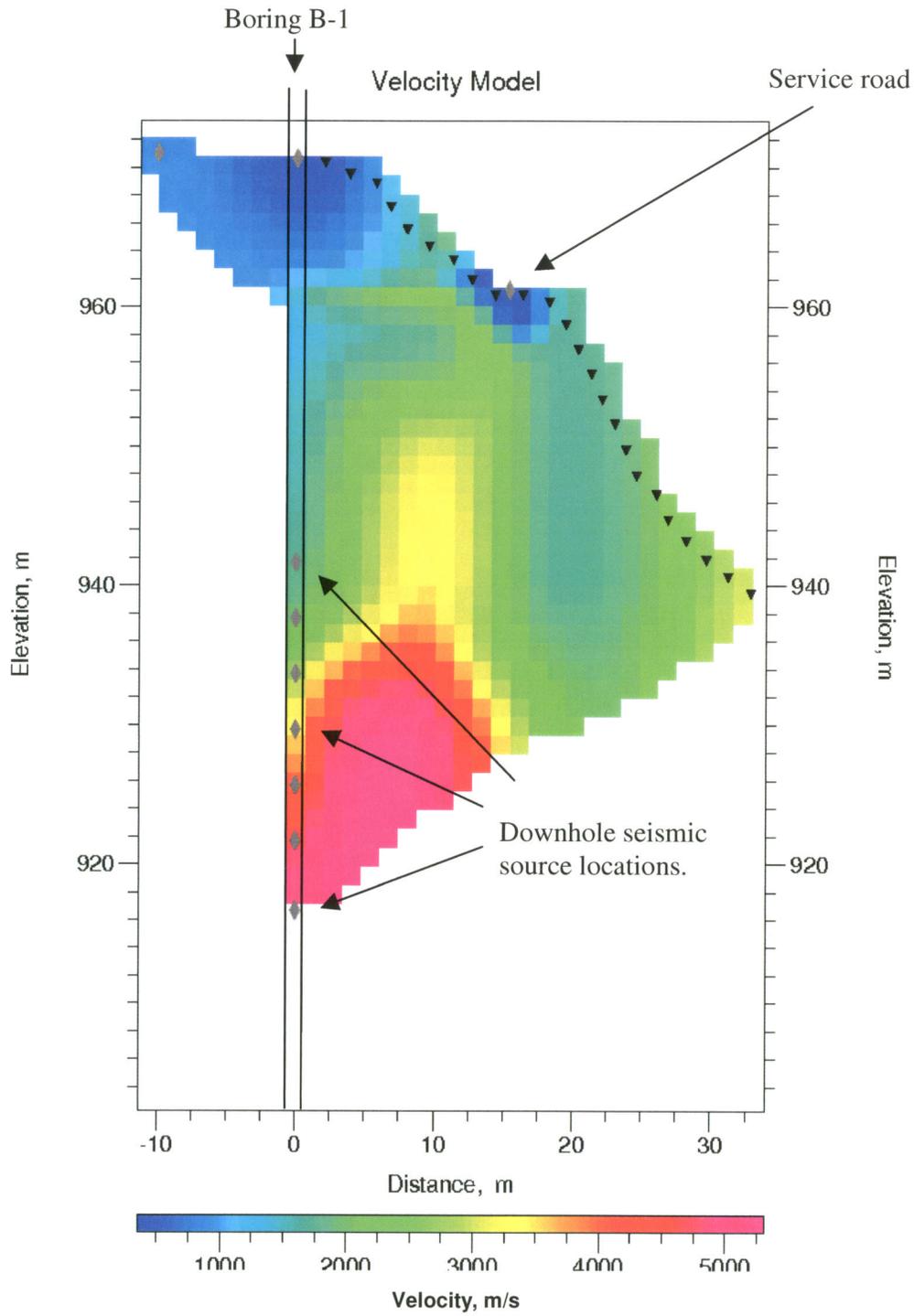


Figure 2. Velocity model for Spanish Creek Line 3.

Memorandum

To: **JEFF SIMS**
Structure Design Section 1
Office of Bridge Design North

Date: October 18, 2005

Attn: **Eric Watson**

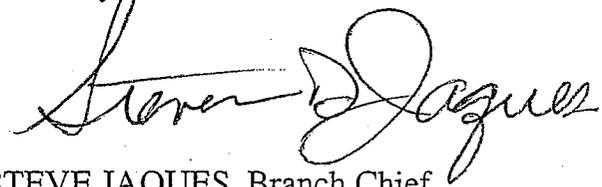
File: Spanish Creek Bridge
(Br. No. 09-0077)
02-PLU-70-KP56.8
EA 02-373100

From: **Department of Transportation**
Division of Engineering Services
Office of Design and Technical Services
Structure Hydraulics and Hydrology, MS#9-HYD-1/2I

Subject: Final Report (Hydrology & Hydraulics) for Spanish Creek Bridge Replacement

~~The Final Hydraulic Report for the above referenced project is attached for your~~
records. If you have any questions, please call Tony Nedwick at 916-227-4757
(CALNET 498-4757) or me at 916-227-8303 (CALNET 498-8303).

Sincerely,



STEVE JAQUES, Branch Chief
Hydrology/Hydraulics Office

Attachment

DIVISION OF STRUCTURES FINAL HYDRAULIC REPORT

Spanish Creek Bridge Replacement

Located on Route 70 in Plumas County

JOB:

Spanish Creek Bridge Replacement
EA 02-373100

LOCATION:

Br. No. 09-0077, 02-PLU-70-KP 56.8

DATE:

October 18, 2005

WRITTEN BY:
Tony Nedwick

REVIEWED BY:
Steve Jaques

Hydrology/Hydraulics Report

General:

This is the Final Hydraulic Report for Spanish Creek Bridge Replacement. The proposed bridge is located along Highway 70, at KP 56.8 in Plumas County. The hydraulic data for stream flow modeling and scour analysis are based on the following:

1. Caltrans Bridge Maintenance Records
2. FEMA Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM) for Plumas County, California, dated March 02, 2005
3. A field inspection conducted by Structure Hydraulics on January 31, 2005
4. Foundation Plans provided by Preliminary Investigation Branch- North, dated March 01, 2005
5. General Plans from Design Section 1, dated August 16 and September 19, 2005

Note: All calculated elevations in this report are based on NGVD29 (Vertical) and NAD83 (Horizontal) from the Foundation Plans dated 03/01/2005. Please verify datum references on the new bridge layouts and make elevation adjustments as required.

District 2 proposes improvements along State Highway 70 with a new highway alignment including a replacement for the existing Spanish Creek Bridge (Br. No. 09-0015). The proposed Spanish Creek Bridge (Br. No. 09-0077) will be a seven-span box girder arch bridge. Abutment 1, Bent 2, Bent 7 and Abutment 8 will all be founded on spread footings while Bents 3, 4, and 5 will be attached to the arch. Bent 2 will share a common footing with the north end of the arch. Depending upon the alternative chosen, Bent 6 will either be attached to the arch or founded on a common spread footing along with the south end of the arch. The proposed structure has a total length of 191.2 m and a width of 12.87 m.

Basin:

The Spanish Creek is a primary channel through this portion of Plumas County. The total drainage area at the proposed bridge is approximately 196 mi² (507 km²),

estimated with WMS. The 2005 FEMA study for Plumas County does not cover the entire watershed. The study stops upstream of Oakland Camp Road, with a total drainage area of 169 mi² (437 km²). Therefore, the FEMA discharges are less than the actual discharges at the site. Spanish Creek is located near the Town of Quincy in the central portion of Plumas County. The characterized topography is rugged mountains and canyons, most of which is heavily forested and includes many lakes and streams surrounded by grassy meadows. The temperature in this area fluctuates widely due to the elevation and location within the Sierra Nevada Mountain Range. The average daily high temperature ranges from 90 degrees Fahrenheit in the summer to the 25 degrees in the winter, with overnight temperatures being slightly cooler. The average annual precipitation varies from 39 inches per year in the valleys near the structure, up to 95 inches per year in higher elevations of the Sierra Nevada Mountain Range. Flooding may be caused by either general rainstorms or cloudburst storms. General rainstorms can occur from late fall to early spring, but mostly occurring during the winter months. Cloudburst storms can occur in the spring, summer and fall.

Discharge:

Three different methods were used for determining the discharges in Spanish Creek:

1. Data from FEMA Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM) for Plumas County, California, dated March 02, 2005. Since the project watershed is larger than the FEMA study watershed, the FEMA values were adjusted using a basin transfer method.
2. Gage method by using the data of USGS gage station #11402000-Spanish Creek at Keddie, CA.
3. WMS (Watershed Modeling System)

The results of all discharges are in TABLE 1 for comparison, and the most conservative discharges were used for this hydraulic study.

TABLE 1

Flood Frequency Discharge	50 year	100 year
FEMA, 2005 (adjusted basin size)	19,457 cfs	24,370 cfs
Gage method	23,795 cfs	28,609 cfs
WMS method	22,461 cfs*	29,542 cfs*

* Discharge used for the hydraulics modeling

Hydraulic Analysis:

HEC-RAS 3.1 (River Analysis System), developed by the US Army Corps of Engineers, was used for the hydraulic analysis with the results listed in TABLE 2. The average channel slope of 0.007 was obtained from the WMS (Watershed Modeling System software). The channel cross-sections are based off survey data. The Manning's roughness coefficient (0.045) was estimated and compared with the values in the FEMA Flood Insurance Study.

Stage/Velocity:

The 50-year and 100-year water surface elevations and velocities were modeled with both the previously mentioned methods. The water surface elevations are based on survey information, with the datum referenced to the existing structures as-built plans, NGVD 1929. The high water elevation at the upstream face of the structure is shown in TABLE 2.

TABLE 2

Storm event	Discharge (cfs)	Water Surface Elev. (ft)
50 -Year	22,461	3,053.0
100 -Year	29,542	3,055.1

- 930.55 m
 - 931.195

Based on the existing channel conditions the maximum channel velocities are estimated to be 17.1 ft/s for the 100-year event. The average velocities for the 100-year event are estimated at the upstream face of the proposed structure and are shown in TABLE 3.

TABLE 3

Storm event	Discharge (cfs)	Average Velocity (ft/s)
50 -Year	22,461	16.0
100 -Year	29,542	16.5

Streambed:

The channel is a natural mountain stream with steep banks and moderate slopes. Channel bed material consists of coarse grained sand, gravel, cobbles and boulders. There is bedrock near the surface. The footings of the existing structure are socketed into slate bedrock.

Waterway:

The required waterway is the opening area below the high water elevation for water passing through the bridge. The proposed structure will be sufficient to pass the discharge plus any freeboard. The minimum required waterway is shown in TABLE 4.

TABLE 4

Storm event	Discharge (cfs)	Waterway Area (ft ²)
50 -Year	22,461	1,395.0
100 -Year	29,542	1,784.1

Drift:

Debris is not an issue since all substructure members will be placed on the embankments, well above the 100-year water surface elevation.

Minimum Soffit Elevation:

Based on the structure plans provided by Structure Design, the proposed soffit elevation will be approximately 130 ft above the 100-year water surface elevation. See Table 5.

TABLE 5

Min. Soffit Elevation
3,055.1 feet

Scour:

The spread footing foundations are proposed to be founded well above the 100-year water surface elevation and into bedrock. Therefore, there are no scour concerns for this site.

Summary Information for Bridge Designer:

Below is a summary of key design parameters based on the hydrology and hydraulic analysis performed for these structures. The minimum soffit elevation for the structure was determined by using the 100-year water surface elevation with no additional freeboard.

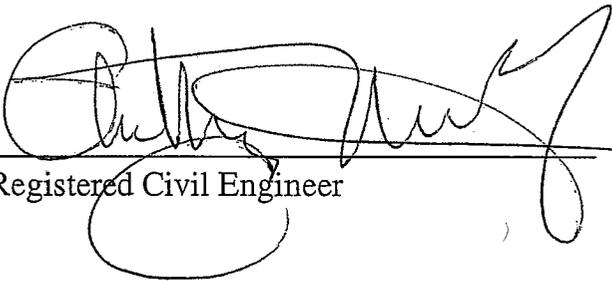
Hydrologic Summary Spanish Creek 09-0077		
Drainage Area: 196 mi ²		
	Design Flood	Base Flood
Frequency	50-year	100-year
Discharge	22,461 cfs (636 m ³ /s)	29,542 cfs (837 m ³ /s)
Water Surface Elevation at Bridge	3,053.9 ft (930.82 m)	3,056.1 ft (931.50 m)
<small>Flood plain data are based upon information available when the plans were prepared and are shown to meet federal requirements. The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigation.</small>		

Minimum Soffit Elevation*	3,056.1 ft (931.50 m)
----------------------------------	-----------------------

* Based upon the Bridge Channel Profile provided by Structure Design

Spanish Creek Bridge
Br. No 09-0077
02-PLU-70-KP 56.8
EA 02-373100

This report has been prepared under my direction as the professional engineer in responsible charge of the work, in accordance with the provisions of the Professional Engineers Act of the State of California.


Registered Civil Engineer



Registration Number: C60368

10/18/05
Date:

SPANISH CREEK SHOCRETE WALL _ 10/20/2009**GRAPHICS PACKAGE**

A pre-construction meeting for this project is required to confirm the native found colors, and percentages of occurrence within a measured area at the site (please refer to specs).

Contractor is required to produce stained samples, representative of the various rock colors native to the site, applied and arranged as close as possible to that occurring within a measured area. The stain shall consist of a base and accent stain material. Stained to closely and realistically simulate the appearance of natural rock in the local vicinity including the multiple colors, shades, flecking, and veining and shall be blended to look natural. It shall also demonstrate the colors that may be apparent from aging, such as staining from oxidation, rusting and/or organic staining from soil and/or vegetation.

Rock samples are available for viewing at the Department of Transportation, Division of Engineering Services, Bridge Architecture and Aesthetics, Third Floor, 1801 30th Street, Sacramento, California by contacting (916) 227-8005 a minimum of 3 days in advance.

A representative of Bridge Architecture and Aesthetics did a preliminary study and a color palette was chosen based on FED-STD-595 COLORS. The final colors of the stained shotcrete shall conform to the colors nos. specified in this graphics package and as also described in the job specifications (unless alternate colors are introduced and agreed upon that meet with the aesthetic requirements and are proven to match appearance of existing geology). Coloring for the architecturally textured shotcrete shall include a base color, a minimum of four applied colors, colors for shadowing, rusting and veining, and a sealant. Color pallet shall include a base color that closely matches color no. 30372 and four applied colors that shall closely match color nos. 30450, 30475, 31090 and 33245. A dark tone that closely matches color no. 37031 shall be used for graying over the base color and for shadowing effects. The color pallet shall also include colors for rusting similar to color nos. 32300 and 32169 and veining similar to color no. 33711.

Route 70 Mile Marker 29



Route 70 Mile Marker 31



Typical rock forms and geology at North end of bridge near RW site.



ROCK OUTCROPPINGS SOUTH OF BRIDGE



CLOSE-UP OF ROCK SHOWING COLOR



Rocks found at North end of bridge near RW site.



ROCK SAMPLE FOUND BETWEEN POSTMILE 29.00 TO 31.00
NORTH OF BRIDGE SITE ON ROUTE 70 - SHOWS 4 SIDES OF ROCK





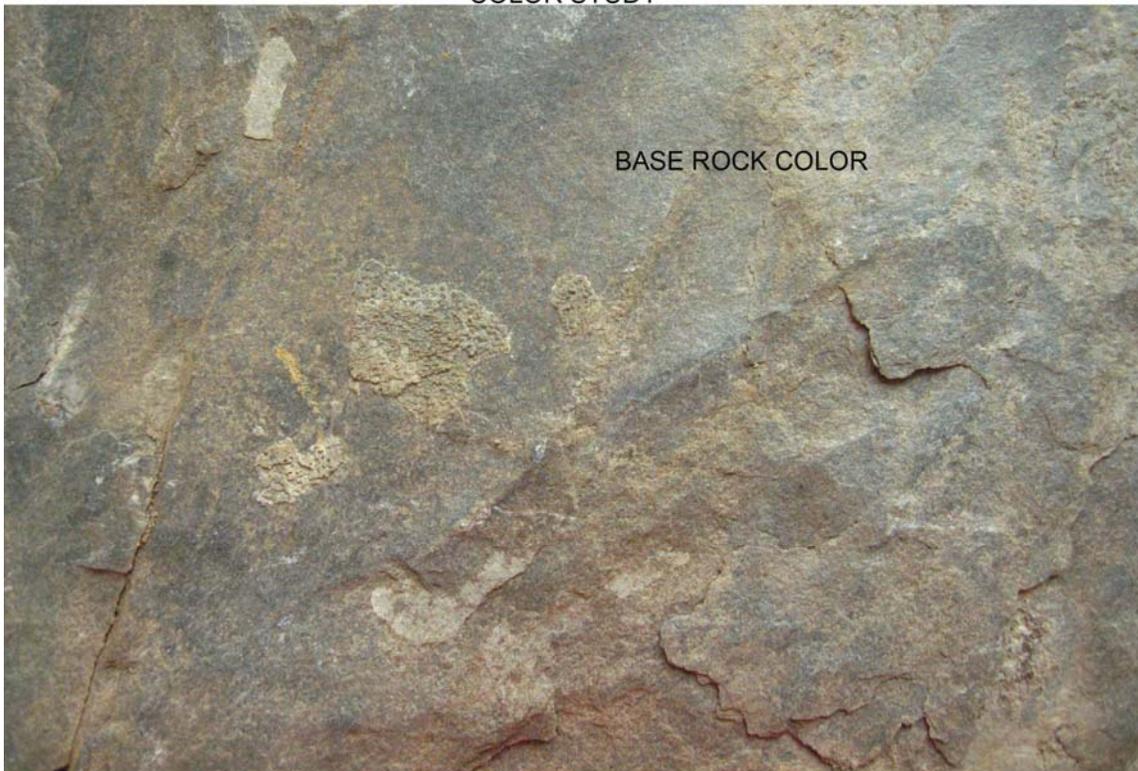
COMMON ROCKS SAMPLES FOUND AT AND NEAR NORTH BRIDGE SITE





SECONDARY COLOR SHOWS
RUSTING AND QUARTZ DEPOSITS

COLOR STUDY



BASE ROCK COLOR

FS 30372

BASE COLOR - FS 30372

BLACK - FS 37031

FS 37031

FS 30450 FS 30475

MIDDLE TONES - FS 30450,
30475, 31090, 33245

FS 31090 FS 33245

FS 33711 FS 32300

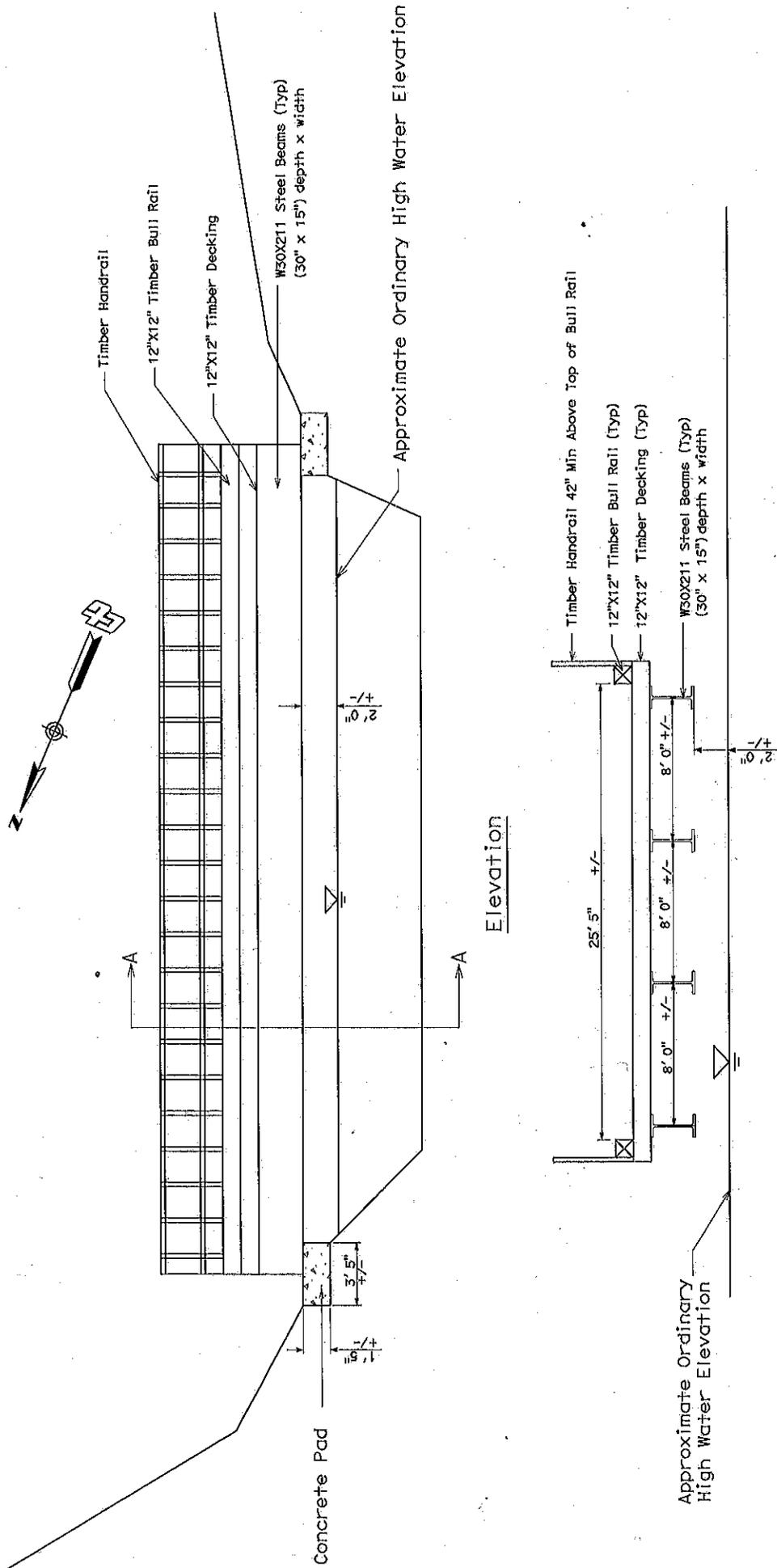
RUSTING/VEINING - FS 33711,
FS 32300, FS 32169

FS 32169

Note: Please order color swatches for exact colors.

Conceptual Design of Temporary Stream Crossing and Work Platform

CONCEPTUAL DESIGN OF TEMPORARY STREAM CROSSING AND WORK PLATFORM
 UNDERNEATH THE PROPOSED AND EXISTING BRIDGES
 (LOCATIONS 2 & 3)



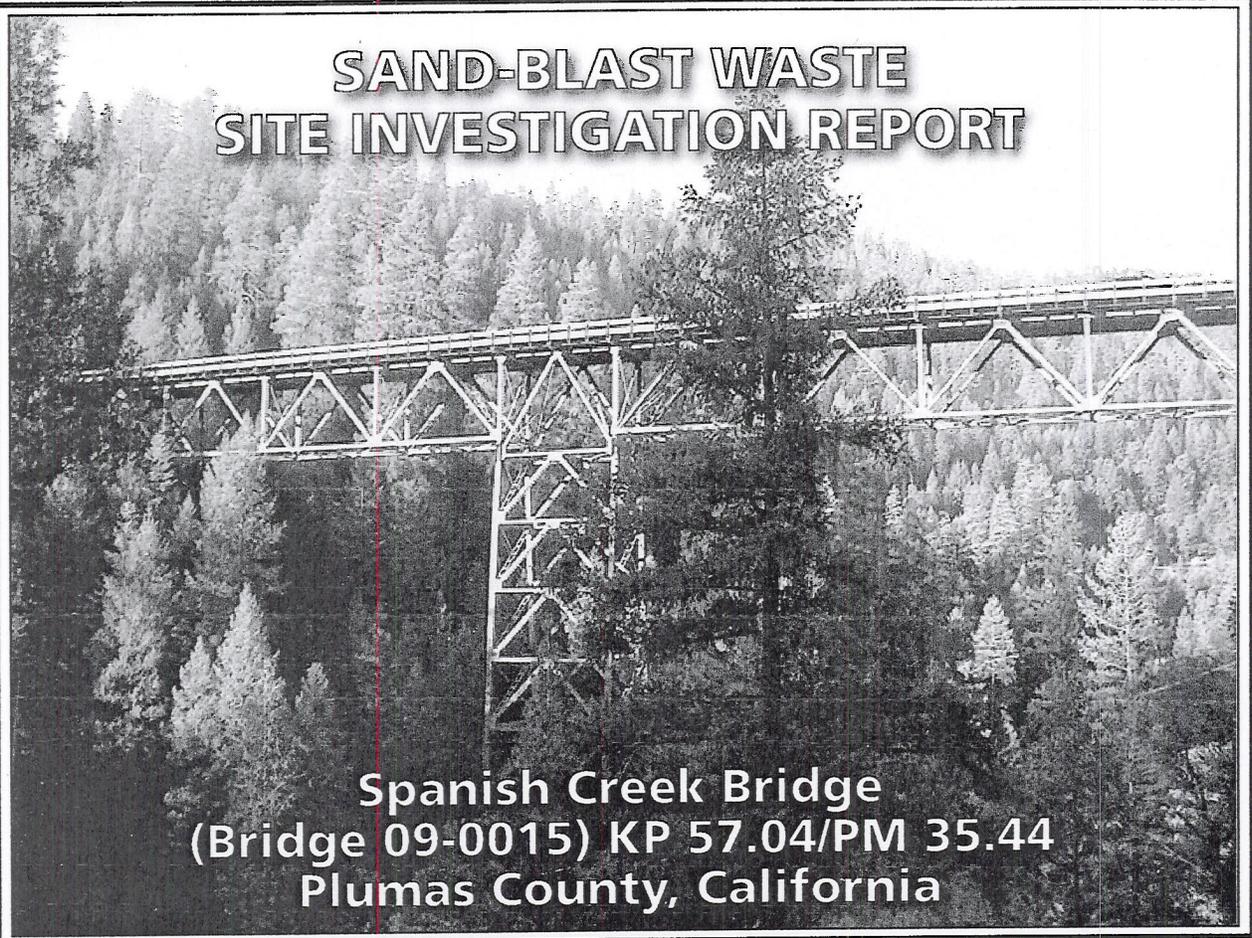
Spanish Creek 02-373101
 Single Span Temporary Trestle

Typical Section A-A

Note: Not to Scale
 By: C. Kean 2/06/09

**Sand-Blast Waste Site Investigation Report
&
Asbestos and Lead-Containing Paint
Survey Report**

SAND-BLAST WASTE SITE INVESTIGATION REPORT



Spanish Creek Bridge
(Bridge 09-0015) KP 57.04/PM 35.44
Plumas County, California

PREPARED FOR:

**CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 2
1657 RIVERSIDE DRIVE
REDDING, CALIFORNIA 96049**



PREPARED BY:

**GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DRIVE, SUITE 800
RANCHO CORDOVA, CALIFORNIA 95742**



GEOCON

**GEOCON PROJECT NO. S8875-06-56
TASK ORDER NO. 56
EA NO. 02-373100**

OCTOBER 2005

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FIGURES

1. Vicinity Map
2. Site Plan

TABLE

1. Summary of Lead and Soil pH Analytical Results

APPENDICES

- A. Laboratory Reports and Chain-of-Custody Documentation
- B. Lead Statistics and Regression Analysis Results

SAND-BLAST WASTE SITE INVESTIGATION REPORT

1.0 INTRODUCTION

This Sand-Blast Waste Site Investigation report for the Spanish Creek Bridge replacement project was prepared by Geocon Consultants, Inc. under California Department of Transportation (Caltrans) Contract No. 03A0937 and Task Order (TO) No. 56.

1.1 Project Description and Proposed Improvements

The project site consists of the area beneath the existing Spanish Creek Bridge (Bridge No. 09-0015) (the Bridge) on State Route 70, Kilometer Post (KP) 56.97 [Post Mile (PM) 65.4], located approximately 8 kilometers (5 miles) north of Quincy, Plumas County, California (the Site). The existing bridge is of painted steel truss construction, was built in 1931, and is approximately 188 meters (m) [617 feet (ft)] long, 7.3 m (24 ft) wide and approximately 40 m (130 ft) tall. Caltrans intends to construct a replacement bridge adjacent to and west of the existing Bridge prior to demolishing the existing Bridge. Construction activities for the replacement bridge will require soil excavation. The area beneath the Bridge is steep and rocky and is covered with brush and timber. The approximate project location is depicted on the attached Vicinity Map, Figure 1. The layout of the existing Bridge and proposed replacement bridge alignment are depicted on the Site Plan, Figure 2.

1.2 General Objectives

The purpose of the scope of services outlined in TO No. 56 was to evaluate whether impacts due to sand-blast waste from bridge maintenance activities exist in the surface and near surface soils within the project boundaries. Additionally, a lead-containing paint (LCP) and asbestos-containing material (ACM) bridge survey was performed. The results of the LCP and ACM study will be summarized in a separate report. The investigative results will be used by Caltrans to inform the construction contractor if lead-impacted soil is present within the project boundaries for health, safety and soil management/disposal purposes.

2.0 BACKGROUND

2.1 Potential Lead Soil Impacts

Elevated lead levels in soil may exist beneath and adjacent to the existing Bridge due to historical bridge maintenance activities including sand-blasting of LCP and repainting operations.

2.2 Hazardous Waste Determination Criteria

Regulatory criteria to classify a waste as "California hazardous" for handling and disposal purposes are contained in the *California Code of Regulations (CCR)*, Title 22, Division 4.5, Chapter 11, Article 3, § 66261.24. Criteria to classify a waste as "Resource, Conservation, and Recovery Act (RCRA) hazardous" are contained in Chapter 40 of the Code of Federal Regulations (40 CFR), Section 261.

For a waste containing metals, the waste is classified as California hazardous when: 1) the total metal content exceeds the respective Total Threshold Limit Concentration (TTLC); or 2) the soluble metal content exceeds the respective Soluble Threshold Limit Concentration (STLC) based on the standard Waste Extraction Test (WET). A waste has the potential of exceeding the STLC when the waste's total metal content is greater than or equal to ten times the respective STLC value, since the WET uses a 1:10 dilution ratio. Hence, when a total metal is detected at a concentration greater than or equal to ten times the respective STLC, and assuming that 100 percent of the total metals are soluble, soluble metal analysis is required. A material is classified as RCRA hazardous, or Federal hazardous, when the soluble metal content exceeds the Federal regulatory level based on the Toxicity Characteristic Leaching Procedure (TCLP).

The above regulatory criteria are based on chemical concentrations. Wastes may also be classified as hazardous based on other criteria such as ignitability; however, for the purposes of this investigation, toxicity (i.e., lead concentrations) is the primary factor considered for waste classification since waste generated during the construction activities would not likely warrant testing for ignitability or other criteria. Waste that is classified as either California hazardous or RCRA hazardous requires management as a hazardous waste.

Per Section 25157.8 of the California Health and Safety Code (HSC), waste that contains total lead in excess of 350 milligrams per kilogram (mg/kg) must be disposed of at a Class I hazardous waste landfill facility.

3.0 SCOPE OF SERVICES

The following scope of services was performed as requested by Caltrans in TO No. 56.

3.1 Pre-field Activities

- Contacted the local public utilities via Underground Service Alert (Ticket No. 0369072) on September 26, 2005, to attempt to delineate subsurface public utilities and conduits in proximity to the proposed boring locations.
- Prepared a Health and Safety Plan dated September 2005 to provide guidelines on the use of personal protective equipment during the field activities.
- Retained the services of Advanced Technology Laboratories (ATL) (ELAP No. 1838), a Caltrans-approved and California-certified analytical laboratory, to perform the chemical analyses of soil samples.

3.2 Field Activities

The field activities consisted of collecting soil samples beneath the Bridge on September 29, 2005. Fifty-five soil samples were collected from 20 hand-auger soil borings (B1 through B20). The soil borings were excavated to an approximate maximum depth of 0.61 m (24 inches) below ground surface (bgs). Soil samples were collected at general depths from surface to approximately 0.2 m (0 to 8 inches), from 0.2 to 0.41 m (8 to 16 inches) and from 0.41 to 0.61 m (16 to 24 inches) bgs. The approximate boring locations are depicted on Figure 2.

4.0 INVESTIGATIVE METHODS

4.1 Boring And Paint Sample Location Rationale

Ten hand-auger borings (B1 through B10) were performed on the north side of Spanish Creek. Borings B1 through B7 were performed directly beneath the Bridge and borings B8 through B10 performed west of the existing Bridge within the proposed alignment of the replacement bridge. Ten additional hand-auger borings (B11 through B20) were performed on the south side of Spanish Creek adjacent to the west of the existing Bridge within the proposed alignment of the replacement bridge.

4.2 Soil Sampling Procedures

A total of 55 soil samples were obtained directly from the hand-auger and transferred to Ziploc® re-sealable plastic bags. The soil samples were field-homogenized within the sample bags and subsequently labeled, placed in an ice chest, and delivered to ATL under standard chain-of-custody documentation.

The sampling equipment was cleansed prior to the collection of each soil sample by washing the equipment with an Alconox™ solution followed by a rinse with deionized water. The borings were backfilled with the soil cuttings. The field sampling activities were performed under the direct supervision of Geocon's project manager.

4.3 Laboratory Analyses

The laboratory was instructed to homogenize the soil samples prior to analysis in accordance with Contract 03A0937 requirements. Total lead and pH analyses were performed under expedited 48-hour turn-around-time (TAT). WET and TCLP analyses were performed under expedited 72-hour TAT. The soil samples collected within the project boundaries were submitted to ATL for the following analyses:

- Fifty-five soil samples were tested for total lead following United States Environmental Protection Agency (EPA) Test Method 6010B.
- Thirty soil samples were further analyzed for WET soluble lead following EPA Test Method 7420.
- Six soil samples chosen at random were analyzed for soil pH following EPA Test Method 9045C.
- Eight soil samples were further analyzed for TCLP soluble lead following EPA Test Methods 1311 and 7420.

Quality assurance/quality control (QA/QC) procedures were performed for each method of analysis with specificity for each analyte listed in the test method's QA/QC. The laboratory QA/QC procedures included the following:

- One method blank for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One sample analyzed in duplicate for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One spiked sample for every ten samples, batch of samples or type of matrix, whichever was more frequent, with the spike made at ten times the detection limit or at the analyte level.

Prior to submitting the soil samples to the laboratory, the chain-of-custody documentation was reviewed for accuracy and completeness. Geocon also reviewed the analytical laboratory QA/QC provided with the laboratory report. These data show acceptable non-detect results for the method blanks and appropriate recoveries for the laboratory control samples. However, for the matrix spikes associated with samples B4-0.2, B7-0.41, B12-0.0 and B19-0.0, the spike recoveries were not within the acceptable limits. These samples were qualified by the laboratory, stating "spike recovery outside accepted recovery limits." This is likely due to the concentration existing in the samples prior to the spike concentration. Also, two of the duplicate results had a relative percent differences (RPDs) of 30.2% and 50.4%, both greater than the accepted RPD limit of 20%. These samples were qualified by the laboratory, stating "RPD outside accepted recovery limits." This result may be due to lack of matrix homogeneity. Based on the other laboratory QA/QC, no qualification of the data presented herein is necessary, and the data are of sufficient quality for the purposes of this report. Reproductions of the laboratory reports and chain-of-custody documentation are presented in Appendix A.

5.0 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

5.1 Site Geology and Hydrogeology

Soil encountered during the excavation of borings was generally comprised of miscellaneous colluvium consisting of loose, dry, sand and silt with angular gravels. Groundwater was not encountered during the excavation of the soil borings. Green paint droppings, 2.5 to 7.6 centimeters (1 to 3 inches) in diameter, likely originating from the green bridge paint, was observed throughout the Site in shallow soil. Evidence of sand-blast material/waste was not observed beneath the existing Bridge.

5.2 Soil Analytical Results

Soil analytical results for the Site are summarized hereinafter. The analytical results of the soil samples are summarized on Table 1. Laboratory reports and chain-of-custody documentation are presented in Appendix A.

Total lead was detected in each of the 55 soil samples analyzed at concentrations ranging from 11 to 2,500 mg/kg. Thirty of the 55 soil samples had reported total lead concentrations greater than 50 mg/kg (ten times the STLC value for lead of 5.0 milligrams per liter [mg/l]).

WET soluble lead was detected in each of the 30 soil samples analyzed at concentrations ranging from 1.1 to 85 mg/l. Twenty-eight of the 30 soil samples had reported WET soluble lead concentrations exceeding the STLC value for lead of 5.0 mg/l.

Eight of the 55 samples had total lead concentrations exceeding the TTLC value for lead of 1,000 mg/kg and were further analyzed for TCLP soluble lead. Each of these eight soil samples reported TCLP soluble lead at concentrations ranging from 3.3 to 19 mg/l with seven of the eight samples reported at concentrations greater than the federal RCRA hazardous waste threshold of 5.0 mg/l.

5.3 Statistical Evaluation for Lead Detected in Soil Samples

Statistical methods were applied to the total lead data to evaluate: 1) the upper confidence limits (UCLs) of the true means of the total lead concentrations for each sampling depth; and 2) if an acceptable correlation between total and soluble lead concentrations exists that would allow the prediction of soluble lead concentrations based on calculated UCLs. The statistical methods used are discussed in a book entitled *Statistical Methods for Environmental Pollution Monitoring*, by Richard Gilbert; in an EPA *Technology Support Center Issue* document entitled, *The Lognormal Distribution in Environmental Applications*, by Ashok Singh et. Al., dated December 1997; and in a book entitled *An Introduction to the Bootstrap*, by Bradley Efron and Robert J. Tibshirani.

including zero, which indicates the lack of any sort of linear relationship at all. The *correlation coefficient* was calculated for the 30 (x, y) data points (i.e., soil samples analyzed for both total lead [x] and soluble [WET] lead [y]) and equaled 0.896. A *correlation coefficient* greater than or equal to 0.8 is an acceptable indicator that a correlation exists.

For the *correlation coefficient* that indicates a linear relationship between total and soluble (WET) lead concentrations, it is possible to compute the line of dependence or a best-fit line between the two variables. A least squares method was used to find the equation of a best-fit line (regression line) by forcing the y-intercept equal to zero since that is a known point. The equation of the regression line was determined to be $y = 0.0962(x)$, where x represents total lead concentrations and y represents predicted soluble lead (WET) concentrations.

This equation was used to estimate the expected WET soluble lead concentrations for the UCLs calculated in Section 5.3.2. Regression analysis results and a scatter plot depicting the 30 (x, y) data points along with the regression line are included in Appendix B. The predicted WET soluble lead concentrations and statistical results are summarized in the table below.

SAMPLE DEPTH (meters)	90% TOTAL LEAD UCL (mg/kg)	PREDICTED SOLUBLE LEAD (mg/l)	95% TOTAL LEAD UCL (mg/kg)	PREDICTED SOLUBLE LEAD (mg/l)	TOTAL LEAD MEAN (mg/kg)	MINIMUM VALUE (mg/kg)	MAXIMUM VALUE (mg/kg)
0 to 0.2	745	72	793	76	564.8	13	1,900
0.2 to 0.4	500	48	543	52	354.7	11	1,700
0.41 to 0.6	480	46	574	55	288.8	12	2,500

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Soil Waste Disposal/Reuse Classification

Elevated lead levels above regulatory hazardous waste thresholds were encountered to the maximum depth explored of 0.61 m (2 ft) beneath the existing Bridge and beneath the proposed replacement bridge alignment. We recommend that further sampling and analytical testing be performed in areas of planned construction excavations to further characterize the vertical and lateral extent of elevated lead levels.

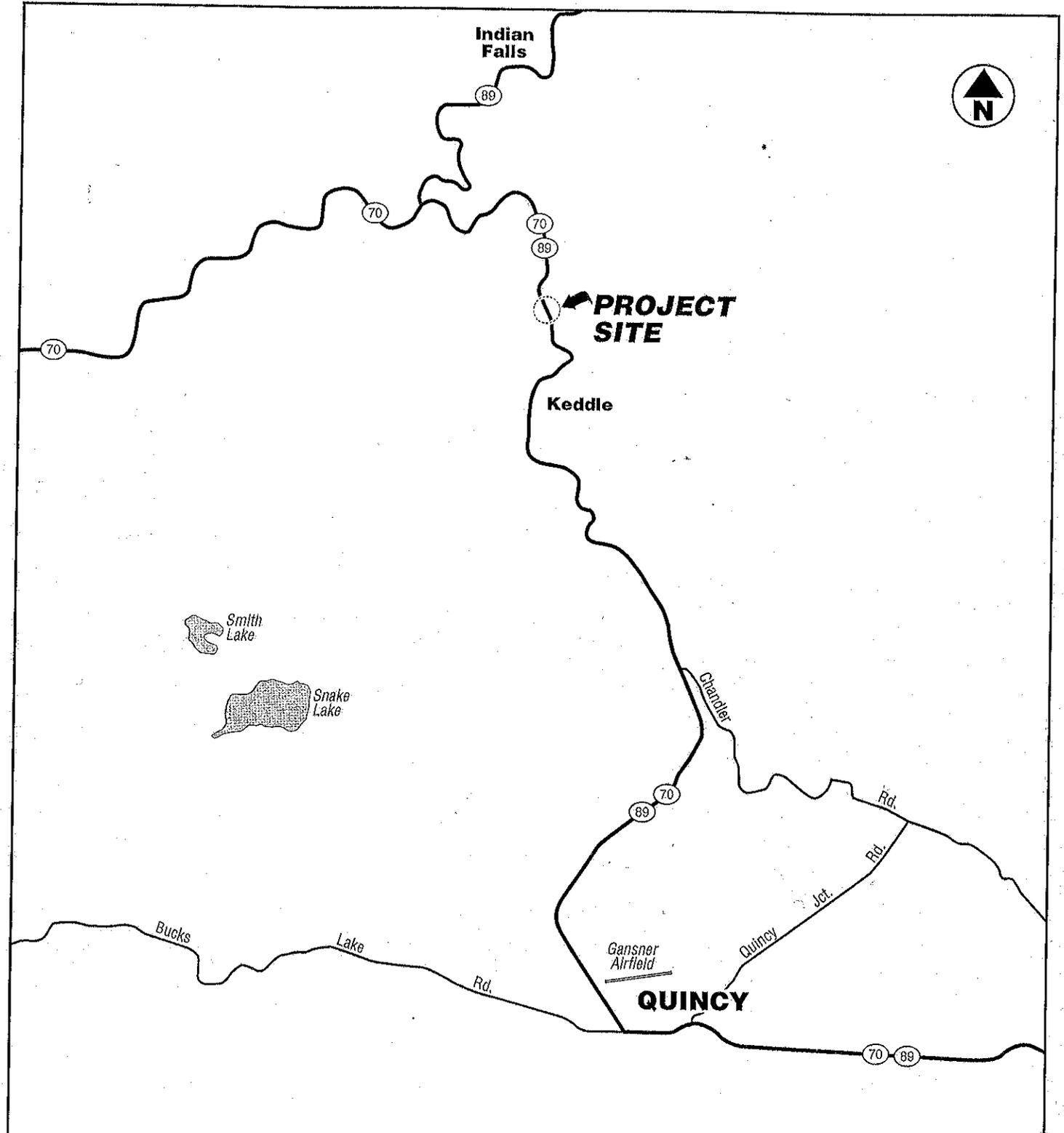
Based on the elevated total and soluble lead concentrations detected in the soil samples collected from the Site, excavated soil extending to a depth of at least 0.61 m (2 ft) should be either (1) managed and disposed of as a hazardous waste or (2) stockpiled separately and resampled to confirm total and soluble lead concentrations for proper waste disposal evaluation. Based on soluble lead concentrations greater than the federal regulatory TCLP value of 5.0 mg/l for soil samples collected from borings B1, B4, B5 and B6, excess shallow soil material generated beneath the existing Bridge may require disposal as a RCRA hazardous waste.

Per Caltrans requirements, the contractor(s) should prepare a project-specific Lead Compliance Plan (CCR Title 8, Section 1532.1, the "Lead in Construction" standard) to prevent or minimize worker exposure to lead-impacted soil. The plan should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other health and safety protocols and procedures for the handling of lead-impacted soil.

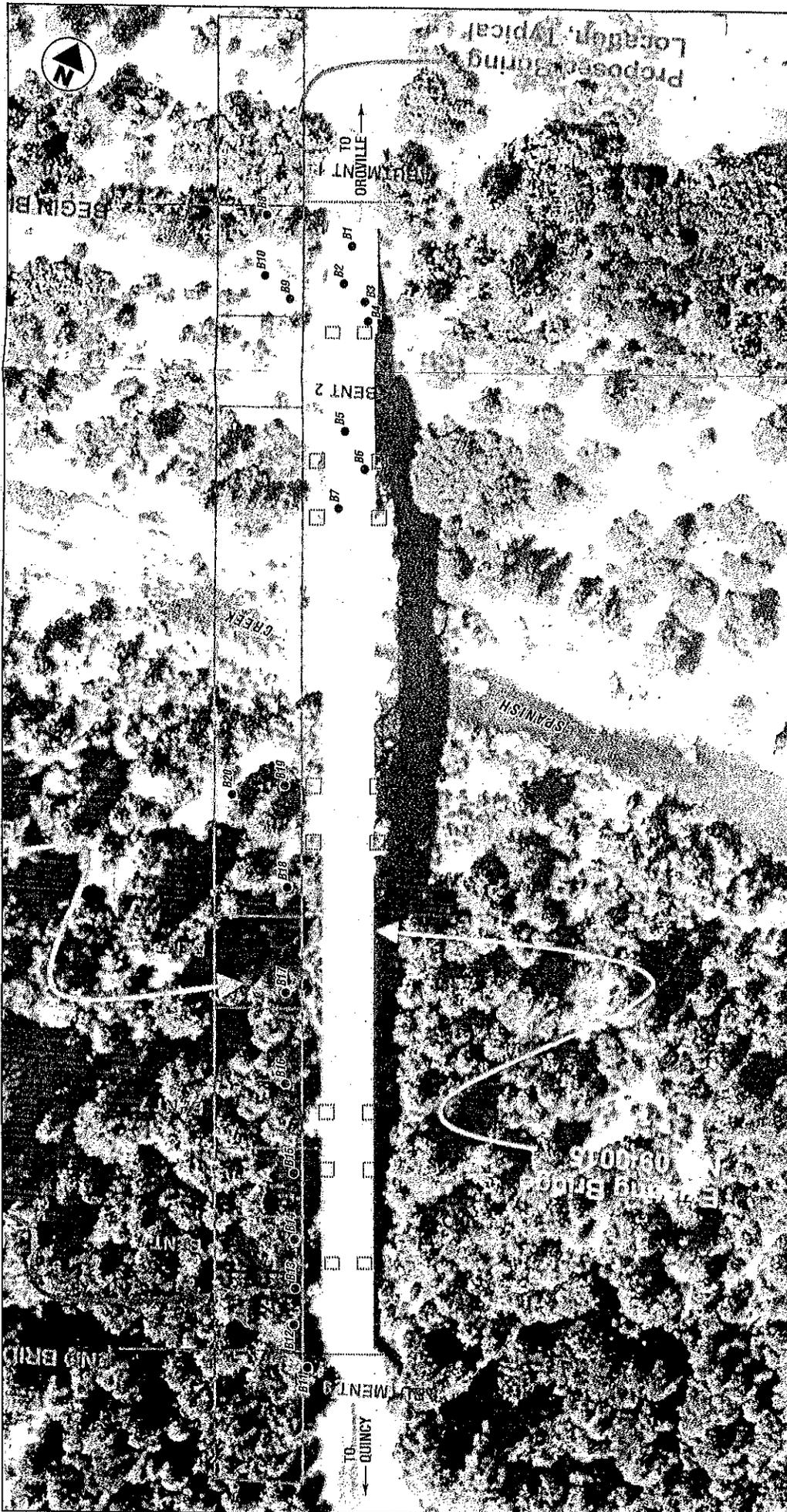
7.0 REPORT LIMITATIONS

This report has been prepared exclusively for Caltrans. The information contained herein is only valid as of the date of the report, and will require an update to reflect additional information obtained.

This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein. Therefore, the report should be deemed conclusive with respect to only the information obtained. We make no warranty, express or implied, with respect to the content of this report or any subsequent reports, correspondence or consultation. Geocon strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.



 GEOCON CONSULTANTS, INC. <small>3160 GOLD VALLEY DR. - SUITE 800 - RANCHO CORDOVA, CA. 95742 PHONE 916 852-9118 - FAX 916 852-9132</small>		
Spanish Creek Bridge		
Plumas County, California		VICINITY MAP
GEOCON Proj. No. S8875-06-56		
Task Order No. 56	October 2005	Figure 1



GEOCON
 CONSULTANTS, INC.
 3189 GOLD VALLEY ROAD, SUITE 100, OROVILLE, CA, 95742
 PHONE: (530) 534-1100 FAX: (530) 534-2100

Spanish Creek Bridge	
Plumas County, California	SITE PLAN
GEOCON Proj. No. 88875-08-56	October 2005
Task Order No. 56	Figure 2



LEGEND:
 B1 • Approximate Hand-Auger Boring Location

TABLE 1
 SUMMARY OF LEAD AND SOIL pH ANALYTICAL RESULTS
 CALTRANS TASK ORDER NO. 56
 EA NO: 02-373100
 SPANISH CREEK BRIDGE PM 35.4
 PLUMAS COUNTY, CALIFORNIA

SAMPLE I.D.	TOTAL LEAD (mg/kg)	SOLUBLE (WET) LEAD (mg/l)	TCLP (mg/l)	SOIL pH
B1-0.0	1,900	---	18	---
B1-0.2	140	27	---	---
B1-0.41	420	42	---	---
B2-0.0	450	42	---	7.1
B2-0.2	260	22	---	---
B2-0.41	98	7.3	---	---
B3-0.0	340	36	---	---
B3-0.2	240	13	---	---
B4-0.0	1,200	---	8.3	---
B4-0.2	1,400	---	12	---
B4-0.41	570	85	---	---
B5-0.0	1,000	---	9.9	---
B5-0.2	500	51	---	8.0
B5-0.41	280	38	---	---
B6-0.0	1,800	---	17	---
B6-0.2	1,700	---	19	---
B6-0.41	2,500	---	17	---
B7-0.0	13	---	---	---
B7-0.2	800	64	---	---
B7-0.41	290	55	---	---
B8-0.0	170	16	---	---
B8-0.2	14	---	---	---
B8-0.41	40	---	---	---
B9-0.0	36	---	---	---
B9-0.2	33	---	---	---
B10-0.0	320	32	---	6.5
B11-0.0	50	3.2	---	---
B11-0.2	42	---	---	---
B11-0.41	23	---	---	---
B12-0.0	130	9.0	---	---
B12-0.2	18	---	---	---
B12-0.41	14	---	---	---
B13-0.0	180	18	---	---
B13-0.2	120	15	---	---
B13-0.41	26	---	---	6.5
B14-0.0	86	8.7	---	---
B14-0.2	11	---	---	---
B15-0.0	450	26	---	---
B15-0.2	93	5.4	---	---
B15-0.41	42	---	---	---

TABLE 1
 SUMMARY OF LEAD AND SOIL pH ANALYTICAL RESULTS
 CALTRANS TASK ORDER NO. 56
 EA NO. 02-373100
 SPANISH CREEK BRIDGE PM 35.4
 PLUMAS COUNTY, CALIFORNIA

SAMPLE I.D.	TOTAL LEAD (mg/kg)	SOLUBLE (WET) LEAD (mg/l)	TCLP (mg/l)	SOIL pH
B16-0.0	530	56	---	---
B16-0.2	290	37	---	---
B16-0.41	30	---	---	---
B17-0.0	280	22	---	---
B17-0.2	96	6.5	---	---
B17-0.41	49	---	---	---
B18-0.0	140	7.6	---	---
B18-0.2	25	---	---	---
B18-0.41	17	---	---	6.5
B19-0.0	1,600	---	3.3	---
B19-0.2	900	78	---	---
B19-0.41	210	11	---	---
B20-0.0	620	53	---	---
B20-0.2	57	1.1	---	6.3
B20-0.41	12	---	---	---

Notes:

WET = Waste Extraction Test

TCLP = Toxicity Characteristic Leaching Procedure

mg/kg = Milligrams per kilogram

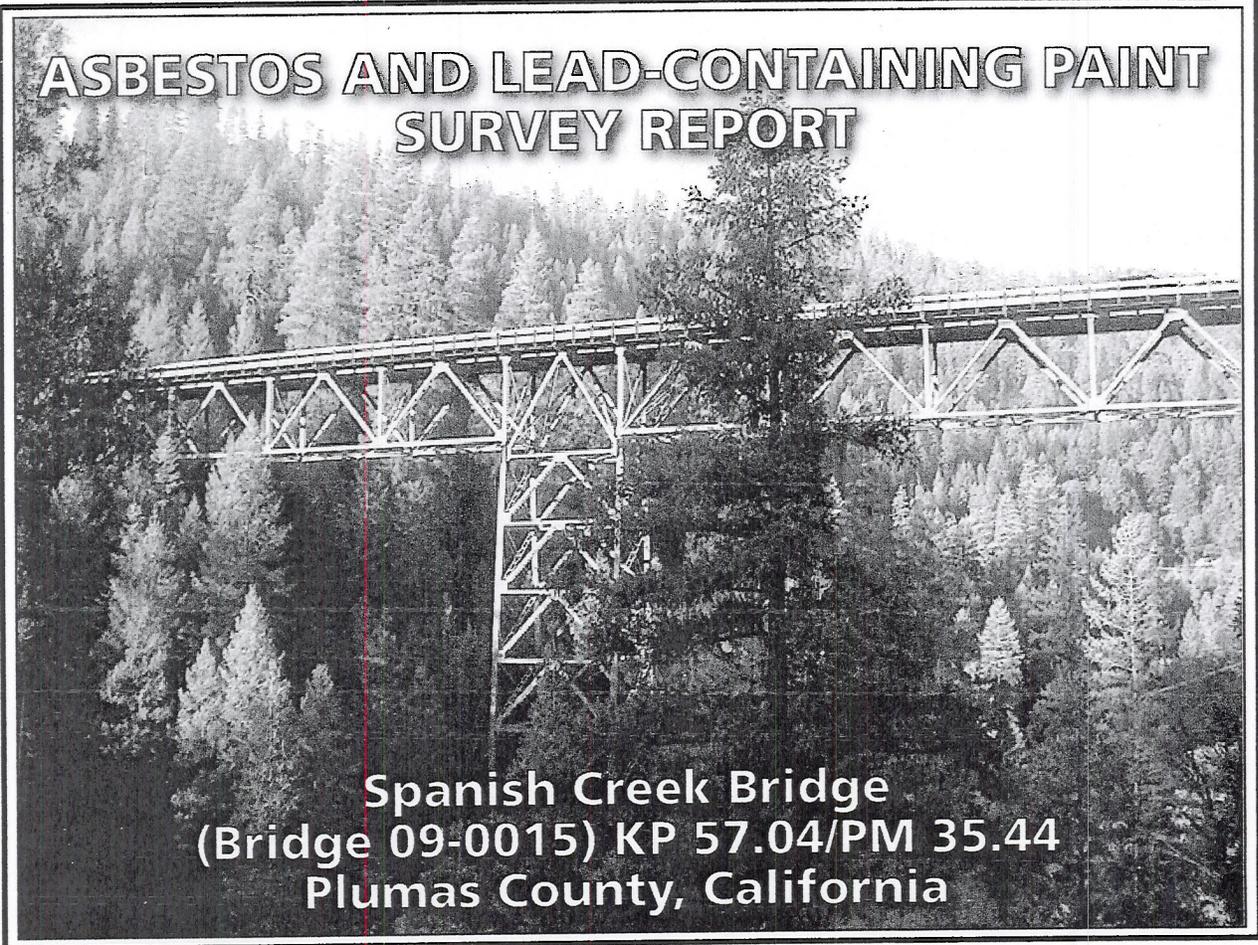
mg/l = Milligrams per liter

--- = Not analyzed

Sample Intervals: 0.0 = 0 to 0.2 meters, 0.2 = 0.2 to 0.41 meters and 0.41 = 0.41 to 0.61 meters.

27 = Bold where the reported concentration equals or exceeds the soluble threshold limit concentration or TCLP Federal (RCRA) regulatory level

ASBESTOS AND LEAD-CONTAINING PAINT SURVEY REPORT



**Spanish Creek Bridge
(Bridge 09-0015) KP 57.04/PM 35.44
Plumas County, California**

PREPARED FOR:

**CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 2
1657 RIVERSIDE DRIVE
REDDING, CALIFORNIA 96049**



PREPARED BY:

**GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DRIVE, SUITE 800
RANCHO CORDOVA, CALIFORNIA 95742**



**GEOCON PROJECT NO. S8875-06-56
TASK ORDER NO. 56
EA NO. 02-373100**

NOVEMBER 2005

GEOCON

CONSULTANTS, INC.

G E O T E C H N I C A L ■ E N V I R O N M E N T A L ■ M A T E R I A L S



Project No. S8875-06-56
November 1, 2005

Tom Graves, Task Order Manager
Caltrans – District 2
1657 Riverside Drive
Redding, California 96049

Subject: SPANISH CREEK BRIDGE (BRIDGE 09-0015)
KILOMETER POST 57.04/POST MILE 35.44
CONTRACT NO. 03A0937
TASK ORDER NO. 56, EA NO. 02-373100
ASBESTOS AND LEAD-CONTAINING PAINT SURVEY REPORT

Dear Mr. Graves:

In accordance with California Department of Transportation Contract No. 03A0937 and Task Order No. 56, Geocon Consultants, Inc. has performed an asbestos and lead-containing paint (LCP) survey of the Spanish Creek Bridge located at Kilometer Post 57.04 (Post Mile 35.44) on State Route 70 in Plumas County, California. The scope of services provided by Geocon included surveying the bridge for suspect asbestos-containing materials and LCP, collecting bulk samples, and submitting the samples to laboratories for analyses.

The accompanying report summarizes the services performed and laboratory analysis.

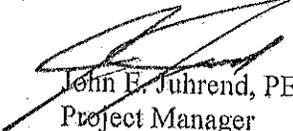
The contents of this report reflect the views of Geocon Consultants, Inc., who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

Please contact us if you have questions concerning the contents of this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.


David A. Watts, CAC
Project Scientist


John E. Juhrend, PE, CEG
Project Manager

DAW:JEJ:gm

(5 + 3 CDs) Addressee

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ASBESTOS AND LEAD-CONTAINING PAINT SURVEY REPORT

1.0 INTRODUCTION

This asbestos and lead-containing paint (LCP) survey report was prepared by Geocon Consultants, Inc. under Caltrans Contract No. 03A0937, Task Order No. 56 (TO-56).

1.1 Project Description

The project consists of the Spanish Creek Bridge (Bridge 09-0015) located at Kilometer Post 57.04 (Post Mile 35.44) on State Route (SR) 70 in Plumas County, California. The project location is depicted on the Vicinity Map, Figure 1.

1.2 General Objectives

The purpose of the scope of services outlined in TO-56 was to determine the presence and quantity of asbestos and LCP on the bridge prior to demolition activities. The information obtained from this investigation will be used by Caltrans for waste profiling, determining California Occupational Safety and Health Administration (Cal/OSHA) applicability, and coordinating asbestos and LCP disturbance activities.

It was not Geocon's intent during this inspection to conduct an evaluation of lead-based paint hazards in accordance with U.S. Department of Housing and Urban Development (HUD) guidelines. HUD protocol generally requires a very extensive sampling strategy that includes sampling of paint on each surface type.

2.0 BACKGROUND

2.1 Asbestos

The *Code of Federal Regulations (CFR)*, 40 CFR 61, Subpart M, National Emissions Standards for Hazardous Air Pollutants (NESHAP) and Federal Occupational Safety and Health Administration (FED OSHA) classify asbestos-containing material (ACM) as any material or product that contains *greater than* 1% asbestos. Nonfriable ACM is classified by NESHAP as either Category I or Category II material defined as follows:

- **Category I** – asbestos-containing packings, gaskets, resilient floor coverings, and asphalt roofing products.
- **Category II** – all remaining types of nonfriable asbestos-containing material not included in Category I that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Regulated asbestos-containing material (RACM), a hazardous waste, is classified as any manufactured material that contains *greater than* 1% asbestos by dry weight *and* is:

- Friable (can be crumbled, pulverized, or reduced to powder by hand pressure); or
- Category I material that has become friable; or
- Category I material that has been subjected to sanding grinding, cutting or abrading; or
- Category II nonfriable material that has a high probability of becoming crumbled, pulverized, or reduced to a powder during demolition or renovation activities.

Activities that disturb materials containing *any* amount of asbestos are subject to certain requirements of the Cal/OSHA asbestos standard contained in Title 8, CCR Section 1529. Typically, removal or disturbance of more than 100 square feet of material containing more than 0.1% asbestos must be performed by a registered asbestos abatement contractor, but associated waste labeling is not required if the material contains 1% or less asbestos. When the asbestos content of a material exceeds 1%, virtually all requirements of the standard become effective.

Materials containing more than 1% asbestos are also subject to NESHAP regulations (40 CFR Part 61, Subpart M). RACM (friable ACM and nonfriable ACM that will become friable during demolition operations) must be removed from structures prior to demolition. Certain nonfriable ACM and materials containing 1% or less asbestos may remain in structures during demolition; however, there are waste handling/disposal issues and Cal/OSHA work requirements that may make it cost ineffective to do so. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

With respect to potential worker exposure, notification, and registration requirements, Cal/OSHA defines asbestos-containing construction material as construction material that contains more than 0.1% asbestos (Title 8, CCR 341.6).

2.2 Lead Paint

Construction activities (including demolition) that disturb materials or paints containing *any* amount of lead are subject to certain requirements of the Cal/OSHA lead standard contained in Title 8, CCR, Section 1532.1. Deteriorated paint is defined by Title 17, CCR, Division 1, Chapter 8, §35022 as a surface coating that is cracking, chalking, flaking, chipping, peeling, non-intact, failed, or otherwise separating from a component. Demolition of a deteriorated LCP component would require waste characterization and appropriate disposal. Intact LCP on a component is currently accepted by most landfill facilities; however, contractors are responsible for segregating and characterizing waste streams prior to disposal.

For a solid waste containing lead, the waste is classified as California hazardous when: 1) the total lead content equals or exceeds the respective Total Threshold Limit Concentration (TTLC) of 1,000 milligrams per kilogram (mg/kg); or 2) the soluble lead content equals or exceeds the respective Soluble Threshold Limit Concentration (STLC) of 5 milligrams per liter (mg/l) based on the standard Waste Extraction Test (WET). A waste has the potential for exceeding the lead STLC when the waste's total lead content is greater than or equal to ten times the respective STLC value since the WET uses a 1:10 dilution ratio. Hence, when total lead is detected at a concentration greater than or equal to 50 mg/kg, and assuming that 100 percent of the total lead is soluble, soluble lead analysis is required. Lead-containing waste is classified as "Resource, Conservation, and Recovery Act" (RCRA) hazardous, or Federal hazardous, when the soluble lead content equals or exceeds the Federal regulatory level of 5 mg/l based on the Toxicity Characteristic Leaching Procedure (TCLP).

The above regulatory criteria are based on chemical concentrations. Wastes may also be classified as hazardous based on other criteria such as ignitability; however, for the purposes of this investigation, toxicity (i.e., lead concentrations) is the primary factor considered for waste classification since waste generated during the construction activities would not likely warrant testing for ignitability or other criteria. Waste that is classified as either California hazardous or RCRA hazardous requires management as a hazardous waste. Per Section 25157.8 of the California Health and Safety Code (HSC); on or after January 1, 1999, no person shall dispose waste that contains total lead in excess of 350 mg/kg to land other than a Class I hazardous waste disposal facility.

Potential hazards exist to workers who remove or cut through LCP coatings during demolition. Dust containing hazardous concentrations of lead may be generated during scraping or cutting materials coated with lead-containing paint. Torching of these materials may produce lead oxide fumes. Therefore, air monitoring and/or respiratory protection may be required during the demolition of materials coated with LCP. Guidelines regarding regulatory provisions for construction work where workers may be exposed to lead are presented in the Title 8, CCR, Section 1532.1.

3.0 SCOPE OF SERVICES

Mr. David Watts, a California-Certified Asbestos Consultant (CAC), certification No. 98-2404 (expiration September 16, 2006), and Certified Lead Paint Inspector/Assessor and Project Monitor with the California Department of Health Services (DHS), certification numbers I-1734 and M-1734 (expiration December 4, 2006), performed an asbestos and LCP survey at the bridge on September 29, 2005.

3.1 Asbestos

Suspect ACM were grouped into homogeneous areas with representative samples randomly collected from each. In addition, each potential ACM was evaluated for condition (evidence of deterioration, physical damage, and water damage) and friability. A total of two bulk asbestos samples were collected.

Geocon's procedures for inspection and sampling in accordance with TO-56 are discussed below:

- Collected bulk asbestos samples after first wetting friable material with a light mist of water. The samples were then cut from the substrate and transferred to a labeled container. Note that when multiple samples were collected, the sampling locations were distributed throughout the homogeneous area (spaces where the material was observed).
- Relinquished bulk asbestos samples to EMSL Analytical, Inc., a California-licensed and Caltrans-approved subcontractor, for asbestos analysis in accordance with United States Environmental Protection Agency (EPA) Test Method 600/R-93/116 using polarized light microscopy (PLM) under standard chain-of-custody procedures. EMSL Analytical, Inc. is a laboratory accredited by the National Institute of Standards and Technology National Voluntary Laboratory Accreditation Program (NIST-NVLAP) for bulk asbestos fiber analysis. The laboratory analyses were requested on a 7-workday turn-around-time.

Geocon asbestos sample identification numbers, material descriptions, approximate quantities, friability assessments, conditions, and photo references are summarized on Table 1. Approximate sample locations are presented on Figure 2. Photos of the materials sampled are presented on Figure 3.

In addition to survey activities, Geocon reviewed architectural plans of the bridge as part of our investigation. Geocon observed no evidence of asbestos use on the architectural plans provided by Caltrans.

3.2 Lead Paint

A total of two bulk paint samples were collected from suspect LCP observed at the bridge. Geocon's sampling procedures in accordance with TO-56 are discussed below:

- Collected bulk samples of suspect LCP using techniques presented in HUD guidelines. In addition, each painted area was evaluated for evidence of deterioration such as flaking or cracking.
- Relinquished bulk LCP samples to Advanced Technology Laboratories, a California-licensed and Caltrans-approved subcontractor, for lead analyses in accordance with EPA Test Method 6010B under standard chain-of-custody procedures. Advanced Technology Laboratories is accredited by the DHS for lead analysis. The laboratory analyses were requested on a 7-workday turn-around-time.

Geocon paint sample identification numbers, paint descriptions, approximate peeling/flaking quantities, and photo references are summarized on Table 2. The approximate sample locations are presented on Figure 2. Photos of the materials sampled are presented on Figure 3.

4.0 INVESTIGATIVE RESULTS

4.1 Asbestos Analytical Results

A summary of the analytical laboratory test results for asbestos is presented on Table 1.

Asbestos was not detected in samples of the suspect materials collected during the survey. Reproductions of the laboratory report and chain-of-custody documentation are presented in Appendix A.

4.2 Paint Analytical Results

A summary of the analytical laboratory test results for lead is presented on Table 2. The laboratory analyses indicated that total lead at concentrations of 67,000 and 25,000 mg/kg, respectively, was detected in samples representing intact green paint observed on the bridge truss and girder systems.

Reproductions of the laboratory report and chain-of-custody documentation are presented in Appendix A.

5.0 RECOMMENDATIONS

Based on our findings, Geocon recommends the following:

5.1 Asbestos

Since no asbestos was detected during the survey, the Cal/OSHA asbestos standard does not apply for planned demolition activities at the bridge. In addition, demolition debris from the bridge would not be considered as a California hazardous waste based on asbestos content.

However, written notification to U.S. EPA Region IX and the California Air Resources Board is required ten working days prior to commencement of *any* demolition activity (whether asbestos is present or not). For notification instructions, please see the following internet link: <http://www.arb.ca.gov/enf/asbestosform.htm>.

5.2 Lead Paint

We recommend that all paints at the bridge be treated as lead-containing for purposes of determining the applicability of the Cal/OSHA lead standard during any future maintenance, renovation, and demolition activities. This recommendation is based on LCP sample results and the fact that lead was a common ingredient of paints manufactured before 1978 and is still an ingredient of some industrial paints. Construction activities (including demolition) that disturb materials containing *any* amount of lead are subject to certain requirements of the Cal/OSHA lead standard contained in Title 8, CCR Section 1532.1. We recommend the use of personnel who have lead-related construction certification as supervisors or workers, as appropriate, from the California DHS for personnel performing "trigger tasks" as defined in Title 8 CCR Section 1532.1(d). Common trigger tasks include manual scraping or sanding, heat gun applications, power tool cleaning, spray painting with lead paint, abrasive blasting, welding, cutting, grinding, and torch burning. Contractors should consult the Cal/OSHA lead standard for additional guidance.

In accordance with Title 8, CCR, Section 1532.1(p), written notification to the nearest Cal/OSHA district office is required at least 24 hours prior to certain lead-related work.

Contractors are responsible for informing the landfill of the contractor's intent to dispose of RCRA waste, California hazardous waste, and/or architectural components containing intact LCP. Some landfills may require additional waste characterization. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

6.0 REPORT LIMITATIONS

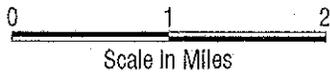
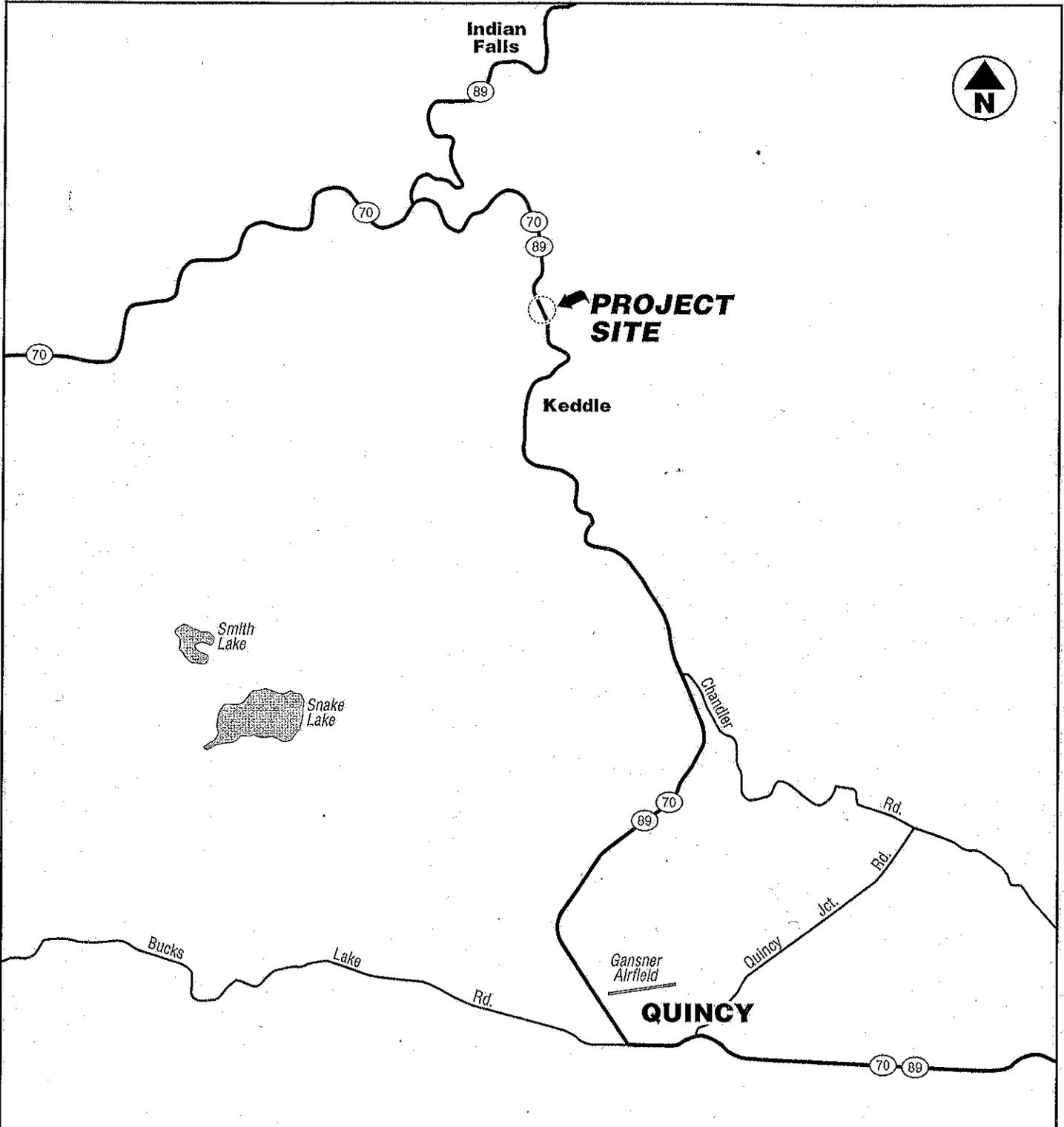
The asbestos and LCP survey was conducted in conformance with generally accepted standards of practice for identifying and evaluating asbestos and LCP in structures. Due to the nature of structure surveys, asbestos and LCP use, and laboratory analytical limitations, some ACM or LCP at the bridge may not have been identified. Spaces such as cavities, voids, crawlspaces, and pipe chases, may have been concealed to Geocon's investigator. Previous renovation work may have concealed or covered spaces or materials, or may have partially demolished materials and left debris in inaccessible areas. Additionally, renovation activities may have partially replaced ACM with indistinguishable non-ACM. Asbestos and/or LCP may exist in areas that were not accessible or sampled in conjunction with this TO.

During renovation or demolition operations, suspect materials may be uncovered which are different from those accessible for sampling during this assessment. Personnel in charge of renovation/demolition should be alerted to note materials uncovered during such activities that differ substantially from those included in this or previous assessment reports. If suspect ACM and/or deteriorated LCP are found, additional sampling and analysis should be performed to determine if the materials contain asbestos or lead.

This report has been prepared exclusively for Caltrans. The information contained herein is only valid as of the date of the report, and will require an update to reflect additional information obtained.

This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein. Therefore, the report should be deemed conclusive with respect to only the information obtained. We make no warranty, expressed or implied, with respect to the content of this report or any subsequent reports, correspondence or consultation. Geocon strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.

The contents of this report reflect the views of the author who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.



<p>GEOCON CONSULTANTS, INC.</p> <p>8160 GOLD VALLEY DR. - SUITE 800 - RANCHO CORDOVA, CA. 95742 PHONE 916 852-9118 - FAX 916 852-9132</p>			
<p>Spanish Creek Bridge</p>			
<p>Plumas County, California</p>		<p>VICINITY MAP</p>	
<p>GEOCON Proj. No. S8875-06-56</p>			
<p>Task Order No. 56</p>		<p>November 2005</p>	<p>Figure 1</p>

TABLE 1

SUMMARY OF ASBESTOS RESULTS
 SPANISH CREEK BRIDGE REPLACEMENT PROJECT
 CALTRANS CONTRACT 03A0937, TASK ORDER NO. 56, EA 02-373100
 PLUMAS COUNTY, CALIFORNIA

Polarized Light Microscopy (PLM) - EPA Test Method 600/R-93/116

Sample No.	Description of Material	Approximate Quantity	Friable	Condition	Site Photo	Asbestos Concentration
1A	Expansion joint material - abutments	NA	NA	NA	3	ND
1B						ND

Notes:

NA = Not applicable (no asbestos detected)

ND = Not detected

TABLE 2

SUMMARY OF PAINT RESULTS - TOTAL LEAD ANALYSIS
 SPANISH CREEK BRIDGE REPLACEMENT PROJECT
 CALTRANS CONTRACT 03A0937, TASK ORDER NO. 56, EA 02-373100
 PLUMAS COUNTY, CALIFORNIA

Sample No.	Paint Description	Approximate Quantity Peeling/Flaking	Site Photo	Total Lead (mg/kg)
P1	Green paint (truss and girder systems)	Intact	2	67,000
P2				25,000

Notes:

mg/kg = milligrams per kilogram (EPA 6010)

Optional Disposal Site

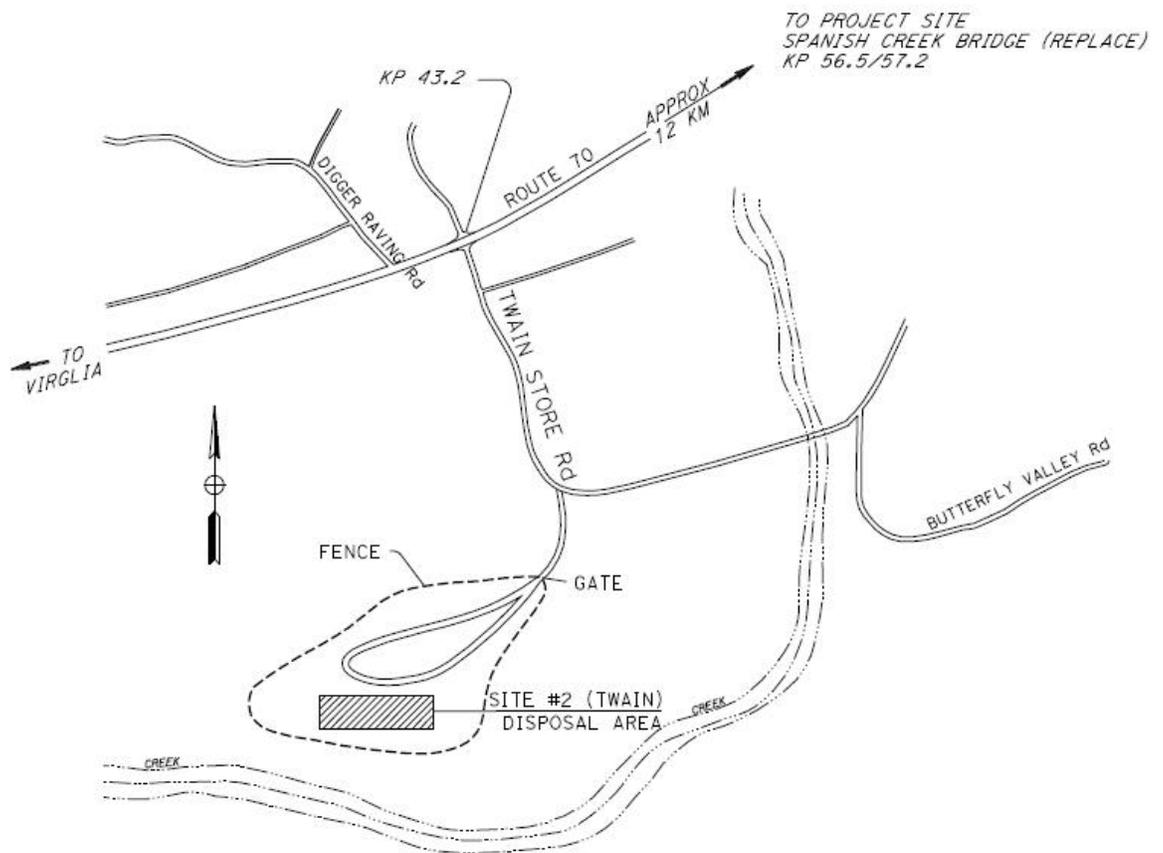
Optional Disposal Site Site #2 (TWAIN)

Project Contract No: 02-373104
02-PLU 70, KP 56.5/57.2

NOTES:

This Special Use Permit, by the U.S. Department of Agriculture, Forest Service, only allows use of Site #2 (TWAIN).

Optional Disposal Site, Site #2 (TWAIN)



VERBAL AGREEMENT BETWEEN CALTRANS AND FOREST SERVICE TO EXTEND THE DISPOSAL SITE AGREEMENT SINCE THE DATE ON THE AGREEMENT SHOWS IT EXPIRED IN 2006. (Davinder Minhas – Aug 2008)

Hi Davinder. Per our telecon this afternoon, I asked Jill Nystrom (our R/W liaison for the Forest Service permits) to send me some kind of written confirmation of the verbal OK from the Forest Service for the extension of the Special Use Permits, which we discussed (including Twain Disposal Site). Hopefully the email below will be adequate for your project files.

If you have any questions, please let me know.
Thank you.

Linda Garner
District 2 Roadside Maintenance
Disposal Site/SMARA Coordinator
(530) 225-3375

----- Forwarded by Linda S Garner/D02/Caltrans/CAGov on 08/13/2008 03:01 PM -----

Jill Nystrom/D02/Caltrans/CAGov

08/13/2008 02:57 PM

To

Linda S
Garner/D02/Caltrans/CA
Gov@DOT

cc

Subject

Twain Disposal Site

Hi Linda,

Although the existing Special Use Permit issued to us by Plumas National Forest for the Twain Disposal Site has expired, we have been given verbal permission by Peggy Gustafson from their office to continue using the site.

Thank you,

Jill

U.S. DEPARTMENT OF AGRICULTURE Forest Service AMENDMENT FOR SPECIAL-USE PERMIT	Holder No.	Type Site	Authority	
	1 0 1 1-0 4	5 2 2	0 0 2	
	Issue Date	Expir. Date	Region	
	0 5 / 29 / 97	1 2 / 3 1 / 0 6	0 5	
	Forest	District	State	County
	1 1	0 2	0 6	0 6 3

AMENDMENT NUMBER 1

This Amendment is attached to and made a part of the Term special-use permit for stockpiles issued to State of Calif., Department of Transportation, on 08-13-96 which is hereby amended as follows:

Add additional site at Windy Point, the area will be used to deposit slide material from the canyon due to the recent high water.

T.22N., R.5E., Section 18, M.D.M. approximately 1 acre.

This Amendment is accepted subject to the conditions set forth herein, and to conditions ---- to ---- attached hereto and made a part of this Amendment.

Holder: Lisa Harvey Authorized Officer: Mark J. Madrid
 MARK J. MADRID
 Holder: _____ Title: Forest Supervisor
 Date: 5-8-97 Date: 5/29/97

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082.

This information is needed by the Forest Service to evaluate requests to use National Forest System lands and manage those lands to protect natural resources, administer the use, and ensure public health and safety. This information is required to obtain or retain a benefit. The authority for that requirement is provided by the Organic Act of 1897 and the Federal Land Policy and Management Act of 1976, which authorize the Secretary of Agriculture to promulgate rules and regulations for authorizing and managing National Forest System lands. These statutes, along with the Term Permit Act, National Forest Ski Area Permit Act, Granger-Thye Act, Mineral Leasing Act, Alaska Term Permit Act, Act of September 3, 1954, Wilderness Act, National Forest Roads and Trails Act, Act of November 16, 1973, Archeological Resources Protection Act, and Alaska National Interest Lands Conservation Act, authorize the Secretary of Agriculture to issue authorizations for the use and occupancy of National

Forest System lands. The Secretary of Agriculture's regulations at 36 CFR Part 251, Subpart B, establish procedures for issuing those authorizations.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

Public reporting burden for this collection of information, if requested, is estimated to average 1 hour per response for annual financial information; average 1 hour per response to prepare or update operation and/or maintenance plan; average 1 hour per response for inspection reports; and an average of 1 hour for each request that may include such things as reports, logs, facility and user information, sublease information, and other similar miscellaneous information requests. This includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, AG Box 7630, Washington D.C. 20250; and to the Office of Management and Budget, Paperwork Reduction Project (OMB # 0596-0082), Washington, D.C. 20503.

TERMS AND CONDITIONS

I. AUTHORITY AND GENERAL TERMS OF THE PERMIT

- A. Authority. This permit is issued pursuant to the authorities enumerated at Title 36, Code of Federal Regulations, Section 251 Subpart B, as amended. This permit, and the activities or use authorized, shall be subject to the terms and conditions of the Secretary's regulations and any subsequent amendment to them.
- B. Authorized Officer. The authorized officer is the Forest Supervisor or a delegated subordinate officer.
- C. License. This permit is a license for the use of federally owned land and does not grant any permanent, possessory interest in real property, nor shall this permit constitute a contract for purposes of the Contract Disputes Act of 1978 (41 U.S.C. 611). Loss of the privileges granted by this permit by revocation, termination, or suspension is not compensable to the holder.
- D. Amendment. This permit may be amended in whole or in part by the Forest Service when, at the discretion of the authorized officer, such action is deemed necessary or desirable to incorporate new terms, conditions, and stipulations as may be required by law, regulation, land management plans, or other management decisions.
- E. Existing Rights. This permit is subject to all valid rights and claims of third parties. The United States is not liable to the holder for the exercise of any such right or claim.
- F. Nonexclusive Use. Unless expressly provided in additional terms, this permit is not exclusive. The Forest Service reserves the right to use or allow others to use any part of the permit area for any purpose.
- G. Public Access and Use. Unless specifically limited under additional terms to this permit, the holder agrees to allow the public free and unrestricted access to and use of the permit area at all times for all lawful purposes. To facilitate public use of the permit area, all existing roads or roads as may be constructed by the holder shall remain open to the public, except for roads as may be closed by joint agreement of the holder and the authorized officer.
- H. Forest Service Right of Entry and Inspection. The Forest Service shall have free and unrestricted access at all times, including the right to enter into all buildings, dwellings, and other facilities to ensure compliance with the terms and conditions of this permit. In addition, the Forest Service may enter the authorized facilities for any purpose or reason consistent with any right or obligation of the United States under any law or regulation.
- I. Assignability. This permit is not assignable or transferable. If the holder through death, voluntary sale or transfer, enforcement of contract, foreclosure, or other valid legal proceeding shall cease to be the owner of the improvements, this permit shall terminate.

J. Permit Limitations. Nothing in this permit allows or implies permission to build or maintain any structure or facility, or to conduct any activity unless specifically provided for in this permit. Any use not specifically identified in this permit must be approved by the authorized officer in the form of a new permit or permit amendment.

II. TENURE AND ISSUANCE OF A NEW PERMIT

A. Expiration at the End of the Authorized Period. This permit will expire at midnight on December 31, 2004. Expiration shall occur by operation of law and shall not require notice, any decision document, or any environmental analysis or other documentation.

B. Minimum Use or Occupancy of the Permit Area. Use or occupancy of the permit area shall be exercised at least 365 days each year, unless otherwise authorized in writing under additional terms of this permit.

C. Notification to Authorized Officer. If the holder desires issuance of a new permit after expiration, the holder shall notify the authorized officer in writing not less than six (6) months prior to the expiration date of this permit.

D. Conditions for Issuance of a New Permit. At the expiration or termination of an existing permit, a new permit may be issued to the holder of the previous permit or to a new holder subject to the following conditions:

1. The authorized use is compatible with the land use allocation in the Forest Land and Resource Management Plan.
2. The permit area is being used for the purposes previously authorized.
3. The permit area is being operated and maintained in accordance with the provisions of the permit.
4. The holder has shown previous good faith compliance with the terms and conditions of all prior or other existing permits, and has not engaged in any activity or transaction contrary to Federal contracts, permits, laws, or regulation.

E. Discretion of Forest Service. Notwithstanding any provisions of any prior or other permit, the authorized officer may prescribe new terms, conditions, and stipulations when a new permit is issued. The decision whether to issue a new permit to a holder or successor in interest is at the absolute discretion of the Forest Service.

III. RESPONSIBILITIES OF THE HOLDER

A. Plans. If required by the authorized officer, all plans for development, layout, construction, reconstruction, or alteration of improvements on the permit area, as well as revisions of such plans, must be prepared by a licensed engineer, architect, and/or landscape architect. Such plans must be approved in writing by the authorized officer or a designated representative before the commencement of any work. A holder may be required to furnish as-built plans, maps, or surveys, or other similar information, upon completion of construction.

B. Maintenance. The holder shall maintain the improvements and permit area to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the authorized officer, and consistent with applicable Federal, State, and local health and safety and other requirements.

C. Hazard Analysis. The holder has a continuing responsibility to identify and abate hazardous conditions on the permit area which could affect the improvements or pose a risk of injury to individuals. Any actions to abate such hazards shall be performed after consultation with the authorized officer.

D. Compliance with Laws, Regulations, and other Legal Requirements. The holder, in exercising the uses authorized by this permit, will assume responsibility for compliance with the regulations of the Department of Agriculture and all Federal, State, county, and municipal laws, ordinances, or regulations which are applicable to the area or operations covered by this permit. The obligations of the holder under this permit are not contingent upon any duty of the Forest Service to inspect the premises. A failure by the Forest Service, or other governmental officials, to inspect is not a defense to noncompliance with any of the terms and conditions of this permit.

E. Fire Prevention and Suppression. The holder shall take all reasonable precautions to prevent and suppress forest fires. Open fires are prohibited except with written permit from the authorized officer or the authorized officer's agent.

F. Change of Address. The holder shall immediately notify the authorized officer of a change in address.

G. Change in Ownership of the Authorized Improvements. This permit is not assignable and terminates upon change of ownership of the improvements. The holder shall immediately notify the authorized officer when a change in ownership is pending. Notification by the present holder and potential owner shall be executed using Form FS-2700-3, Special Use Application and Report, or Form FS-2700-3a, Request for Termination of and Application for Special-Use Permit. Upon receipt of the proper documentation, the authorized officer may issue a permit to the new owner of the improvements.

IV. LIABILITY

For purposes of this section, "holder" includes the holder's heirs, assigns, agents, employees, and contractors.

A. Risk of Loss. The holder assumes all risk of loss of the property. Loss to the property may result from, but is not limited to, theft, vandalism, fire, avalanches, rising waters, winds, falling limbs or trees, and acts of God. If the authorized improvements are destroyed or substantially damaged, the authorized officer shall conduct an analysis to determine whether the improvements can be safely occupied in the future and whether rebuilding should be allowed.

B. Damage to Property of the United States. The holder has an affirmative duty to protect from injury and damage the land, property, and other interest of the United States. Damage includes, but is not limited to, fire suppression costs and all costs and damages associated with or resulting from the release or threatened release of a hazardous substance occurring during or as a result of the holder's activities on, or related to, the lands property, and other interests covered by the permit.

1. The holder shall compensate in full the United States for damages occurring under the terms of this permit or under any law or regulation applicable to the National Forests. The holder shall be liable for all injury, loss, or damage, including fire suppression, or other costs associated with rehabilitation or restoration of natural resources, associated with the holder's use or occupancy. Compensation shall include, but

is not limited to, the value of resources damaged or destroyed, the costs of restoration, cleanup, or other mitigation, fire suppression or other types of abatement costs, and all administrative, legal (including attorney fees), and other costs in connection therewith.

2. With respect to roads, the holder shall be liable for damages to all roads and trails of the United States open to public use caused by the holder's use to the same extent as provided under paragraph IV (B) (1), except that liability shall not include reasonable and ordinary wear and tear.

3. In addition to liability provided in this paragraph, the holder may incur strict liability for certain high hazard situations if so provided by additional clauses appended to this permit.

C. Indemnification and Liability of the United States. The holder shall comply with all applicable federal, state, and local laws and regulations, including but not limited to the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq, the Oil Pollution Act, 33 U.S.C. 2701 et seq, the Clean Air Act, 42 U.S.C. 7401 et seq, the Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq, and the Comprehensive Environmental Response, Control, and Liability Act, 42 U.S.C. 9601 et seq, as subsequently amended. The holder shall indemnify, defend, and hold the United States harmless for any violations incurred under any such laws and regulations or for any costs, damages, claims, liabilities, and judgements arising from past, present, and future acts or omissions of the holder in connection with the use and/or occupancy authorized by this permit. This indemnification and hold harmless agreement includes, but is not limited to, acts and omissions of the holder in connection with the use and/or occupancy authorized by this permit which result in: (1) violations of the above or any applicable laws and regulations; (2) judgements, claims, or demands assessed against the United States; (3) costs, expenses, and damages incurred by the United States; or (4) other releases or threatened releases on or into land, property, and other interest of the United States by solid waste and/or hazardous substance(s).

The holder's indemnification of the United States shall also include any damage to life or property arising from the holder's occupancy or use of land, property, and other interest of the United States. The United States has no duty to inspect permit area or to warn of hazards and, if the United States does inspect the permit area, it shall incur no additional duty nor liability for identified or non-identified hazards. This covenant may be enforced by the United States in a court of competent jurisdiction.

V. TERMINATION, REVOCATION, AND SUSPENSION

A. General. For purposes of this permit, "termination", "revocation", and "suspension" refer to the cessation of uses and privileges under the permit.

"Termination" refers to the cessation of the permit under its own terms without the necessity for any decision or action by the authorized officer. Termination occurs automatically when, by the terms of the permit, a fixed or agreed upon condition, event, or time occurs. For example, the permit terminates at expiration. Terminations are not appealable.

"Revocation" refers to an action by the authorized officer to end the permit because of noncompliance with any of the prescribed terms, or for reasons in the public interest. Revocations are appealable.

"Suspension" refers to a revocation which is temporary and the privileges may be restored upon the occurrence of prescribed actions or conditions. Suspensions are appealable.

B. Revocation or Suspension. The Forest Service may suspend or revoke this permit in whole or part for:

1. Noncompliance with Federal, State, or local laws and regulations.
2. Noncompliance with the terms and conditions of this permit.
3. Reasons in the public interest.
4. Abandonment or other failure of the holder to otherwise exercise the privileges granted.

C. Opportunity to Take Corrective Action. Prior to revocation or suspension for cause pursuant to Section V (B), the authorized officer shall give the holder written notice of the grounds for each action and a reasonable time, not to exceed 90 days, to complete the corrective action prescribed by the authorized officer.

D. Removal of Improvements. Upon abandonment, revocation, termination, or expiration of this authorization, the holder shall remove within a reasonable time prescribed by the authorized officer all structures and improvements, except those owned by the United States, and shall restore the site. If the holder fails to remove all structures or improvements within the prescribed period, they shall become the property of the United States and may be sold, destroyed or otherwise disposed of without any liability to the United States. However, the holder shall remain liable for all cost associated with their removal, including costs of sale and impoundment, cleanup, and restoration of the site.

VI. FEES (Fee Waived per CFR 251.57(b)(1); FSM 2715.03(5))

A. Termination for Nonpayment. This permit shall automatically terminate without the necessity of prior notice when land use rental fees are 90 calendar days from the due date in arrears.

B. The holder shall pay N/A Dollars (\$ _____) for the period from _____, _____ to _____, _____, and thereafter at the beginning of each _____ -year period a lump sum payment for _____ years rent of _____ Dollars (\$ _____): Provided, charges for this use shall be made or readjusted whenever necessary to place the charges on a basis commensurate with the fair market value of the authorized use.

C. By January 1 of each 5-year period, payment is due. Payments due the United States for this use shall be deposited at USDA-Forest Service, P. O. Box 60000, File No. 31381, San Francisco, CA 94160-1381, in the form of a check, draft, or money order payable to "Forest Service, USDA." Payments shall be credited on the date received by the designated Forest Service collection officer or deposit location. If the due date for the fee or fee calculation statement falls on a non workday, the charges shall not apply until the close of business on the next workday.

D. Late Payment Interest. Pursuant to 31 USC 3717, and regulations at 7 CFR Part 3, Subpart B, and 4 CFR Part 102, an interest charge shall be assessed on any payment or financial statement not received by the due date. Interest shall be assessed using the most current rate prescribed by the United States Department of Treasury's Fiscal Requirements Manual (TFRM-6-8020.20). Interest shall accrue from the date the payment or financial statement was due. In the event that two or more billings are required for delinquent accounts, administrative costs to cover processing and handling of the delinquent debt will be assessed.

E. Additional Penalties. In the event of permit termination pursuant to provisions VI (A), and prior to the issuance of a new permit, a penalty of 6 percent per year shall be assessed on any fee amount overdue in excess of 90 days from the payment due date. This penalty shall accrue from the due date of the first billing or the date the fee calculation financial statement was due. The penalty is in addition to interest and any other charges specified in the above paragraph.

F. Disputed Fees. Disputed fees are due and payable by the due date. No appeal of fees will be considered by the Forest Service without full payment of the disputed amount. Adjustments, if necessary, will be made in accordance with settlement terms or appeal decision.

G. Delinquent Fees.

1. Delinquent fees and other charges shall be subject to all rights and remedies afforded the United States pursuant to Federal law and implementing regulations (31 U.S.C. 3711 et seq.).

2. The authorized officer shall require payment of fees owed the United States under any Forest Service authorization before issuance of a new permit.

VII. OTHER PROVISIONS

A. Members of Congress. No Member of or Delegate to Congress or Resident Commissioner shall benefit from this permit either directly or indirectly, except when the authorized use provides a general benefit to a corporation.

B. Appeals and Remedies. Any discretionary decisions or determinations by the authorized officer are subject to the appeal regulations at 36 CFR 251, Subpart C, or revisions thereto.

C. Removal and Planting of Vegetation. This permit does not authorize the cutting of timber or other vegetation. Trees or shrubbery may be removed or destroyed only after the authorized officer, or authorized officer's agent, has approved, and has marked or otherwise designated that which may be removed or destroyed. Timber cut or destroyed shall be paid for by the holder as follows: Merchantable timber at appraised value and young-growth timber below merchantable size at current damage appraisal value, provided that the Forest Service reserves the right to dispose of the merchantable timber to others than the holder at no stumpage cost to the holder. Trees, shrubs, and other plants may be planted in such manner and in such places about the premises as may be approved by the authorized officer.

D. Superior Clauses. In the event of any conflict between any of the preceding printed clauses or any provision thereof and any of the following clauses or any provision thereof, the preceding printed clauses shall control.

1. REFUSE DISPOSAL: (D-1)

The holder shall pack out or otherwise remove from National Forest lands and waters all refuse resulting from operations under this permit.

2. ESTHETICS: (D-3)

The holder shall protect the scenic esthetic values of the area under

this permit, and the adjacent land, as far as possible with the authorized use, during construction, operation, and maintenance of the improvements.

3. EROSION CONTROL (D-6)

Slope stabilization and the prevention of soil erosion and gullyng throughout the permitted area and adjacent lands will be accomplished by specifications attached to and made a part of this permit.

4. POLLUTION (D-15)

The holder shall take reasonable precautions to prevent pollution of or deterioration of lands or water which may result from the exercise of the privileges extended by this permit. In particular, the holder shall at all times comply with applicable, local, State, and Federal requirements for pollution abatement. Failure of the holder to so comply may result in termination or suspension of this authorization.

5. DAMAGE AND FIRE: (D-18)

The holder agrees to take all necessary precaution to avoid damage to property and resources of the United States and will, independently and upon request of the Forest Service, prevent and suppress fires on or near lands occupied, or to be occupied, under this permit, and to pay and indemnify the United States for any and all injury, loss, or damage, including but not limited to fire suppression costs, the United States may suffer as a result of claims, demands, losses, or judgments caused by the holder's use or occupancy to the maximum extent possible in accordance with State laws, ordinances, regulations, and rules.

6. PESTICIDE USE (D-23)

Pesticides may not be used to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, trash fish, etc., without the prior written approval of the Forest Service. A request for approval of planned uses of pesticides will be submitted annually by the holder on the due date established by the authorized officer. The report will cover a 12-month period of planned use beginning 3 months after the reporting date. Information essential for review will be provided in the form specified. Exceptions to this schedule may be allowed, subject to emergency request and approval, only when unexpected outbreaks of pests require control measures which were not anticipated at the time an annual report was submitted.

Only those materials registered by the U.S. Environmental Protection Agency for the specific purpose planned will be considered for use on National Forest System lands. Label instructions will be strictly followed in the application of pesticides and disposal of excess materials and containers.

7. ARCHAEOLOGICAL-PALEONTOLOGICAL DISCOVERIES (X-17)

If, prior to or during excavation work, items of archaeological, paleontological, or historic value are reported or discovered, or an unknown deposit of such items is disturbed, the holder will immediately cease excavation in the area so affected. Holder will then notify the Forest Service and will not resume excavation until written approval is given by the authorized officer.

If it deems necessary or desirable, the Forest Service may require the holder to have performed recovery, excavation, and preservation of the site and its artifacts at the holder's expense. At the option of the Forest Service, this authorization may be terminated at no liability by the United States when such termination is deemed necessary or desirable to preserve or protect archaeological, paleontological, or historic sites and artifacts.

8. SUPERSEDED PERMIT: (X-18)

This permit supersedes a special-use permit designated:

2720, State of California, Department of Transportation, expired June 1, 1991 (Holder 1011-04) and December 31, 1994 (Holder 1011-05).

9. PARKING AREA (X-28)

The holder shall restrict all parking to areas approved by the Forest Service.

10. IMPROVEMENT RELOCATION (X-33)

This permit is granted with the express understanding that should future location of United States Government-owned improvements or road right-of-way require the relocation of the holder's improvements, such relocation will be done by, and at the expense of, the holder within a reasonable time as specified by the authorized officer.

Public reporting burden for collection of information, if requested, is estimated to average 1 hour per response for annual financial information; average 1 hour per response to prepare or update operation and/or maintenance plan; average 1 hour per response for inspection reports; and an average of 1 hour for each request that may include such things as reports, logs, facility and user information, sublease information, and other similar miscellaneous information requests. This includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, AG Box 7630, Washington D.C. 20250; and to the Office of Management and Budget, Paperwork Reduction Project (OMB # 0596-0082), Washington, D.C. 20503.

This permit is accepted subject to the conditions set out above.

State of California
HOLDER NAME: Dept. of Transportation

U. S. DEPARTMENT OF AGRICULTURE
Forest Service

By: *[Signature]*
(Holder Signature)
Chief, Right of Way Field Office - Redding

By: *[Signature]*
MARK J. MADRID

(Holder Signature)

Forest Supervisor

Date: *June 28, 1996*

Date: *Aug 13, 1996*

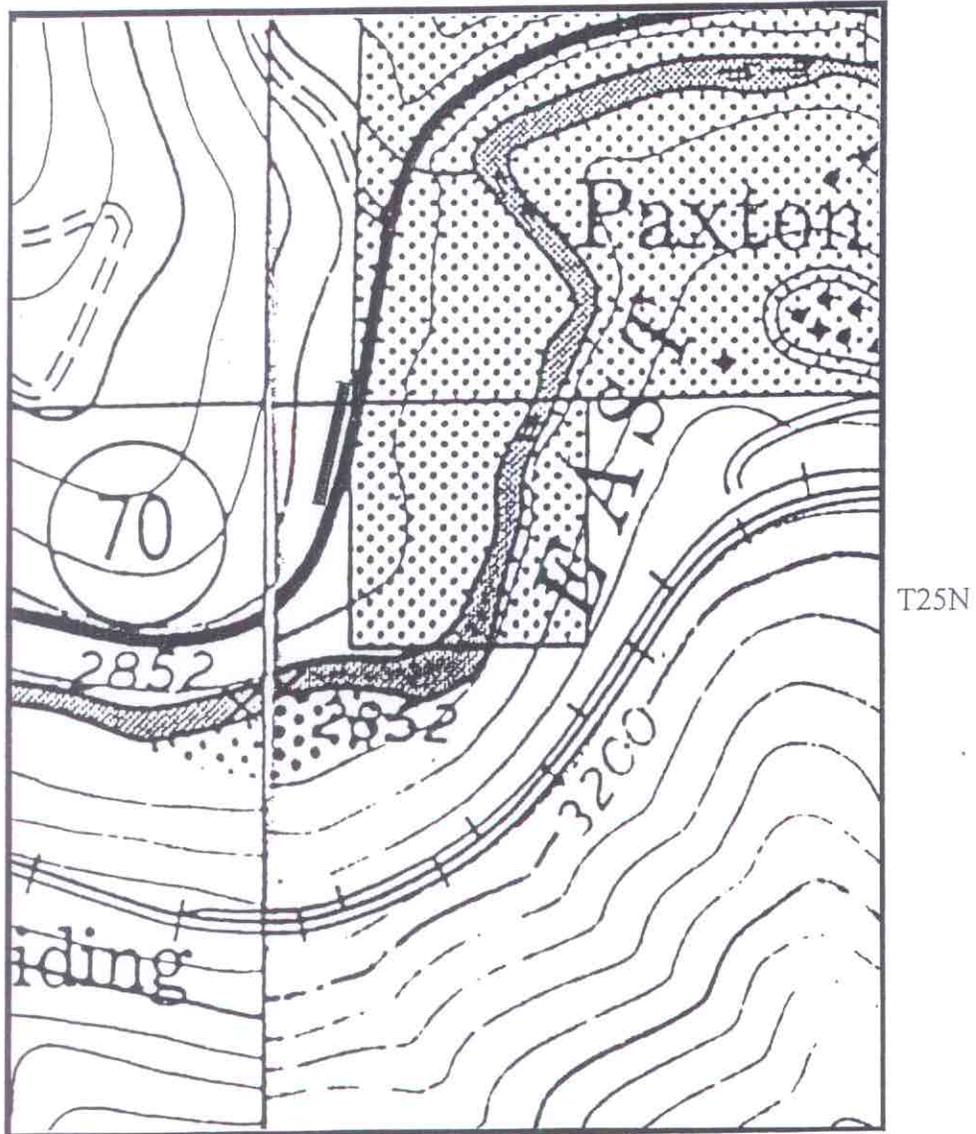
LOCATION MAP

California State Department of Transportation Disposal Sites

EXHIBIT A

(Site 1)

R9E



Permit area located in the SW 1/4 Section 8, & NW 1/4 Section 17, T25N.,
R9E., MDB&M (Permitted area delineated in red on map).

MAP NOT TO SCALE

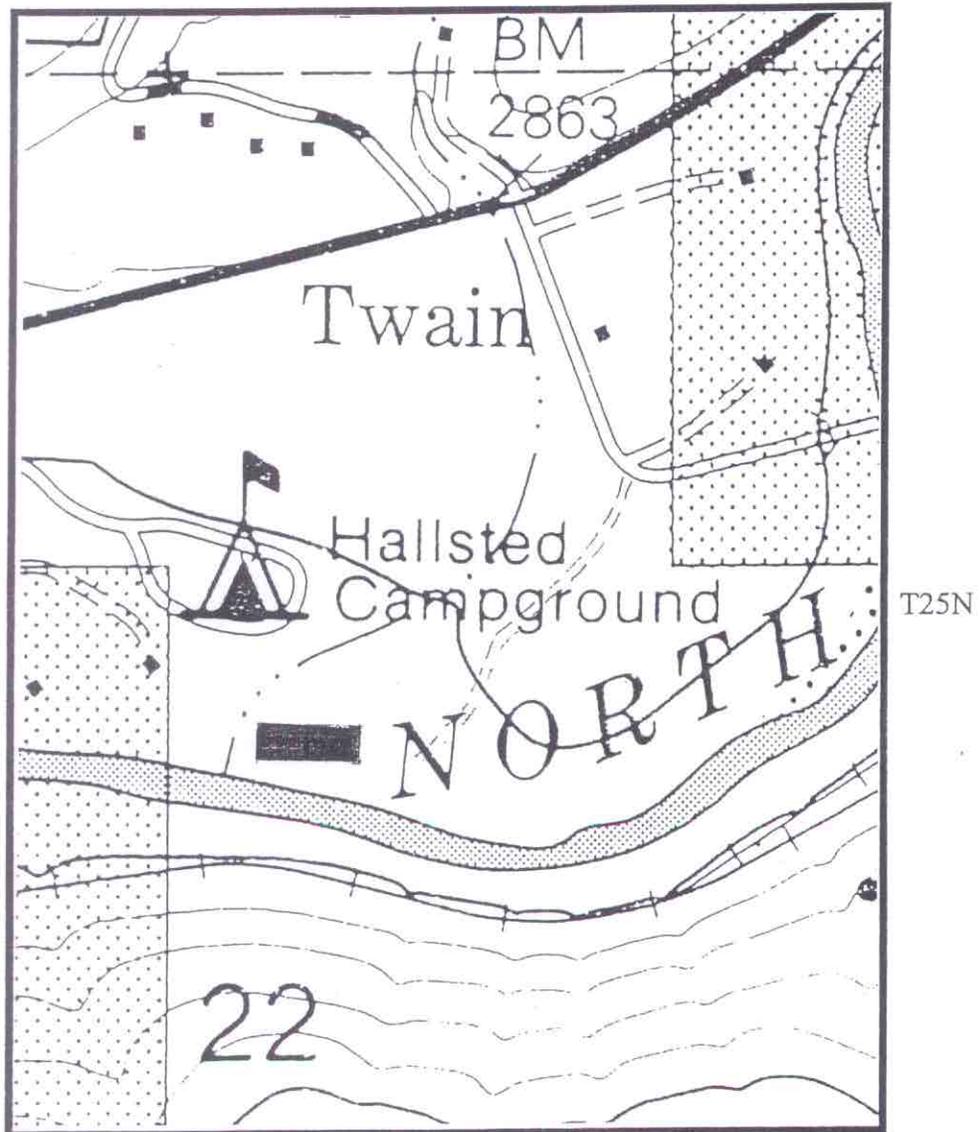
Prepared by: Dick Edwards, 11/27/95



LOCATION MAP

California State Department of Transportation Disposal Sites

EXHIBIT A
(Site 2) *Twain*
R8E



Permit area located in the NW 1/4 Section 22, T25N., R8E., MDB&M
(Permitted area delineated in red on map).

MAP NOT TO SCALE

Prepared by: Dick Edwards, 11/27/95



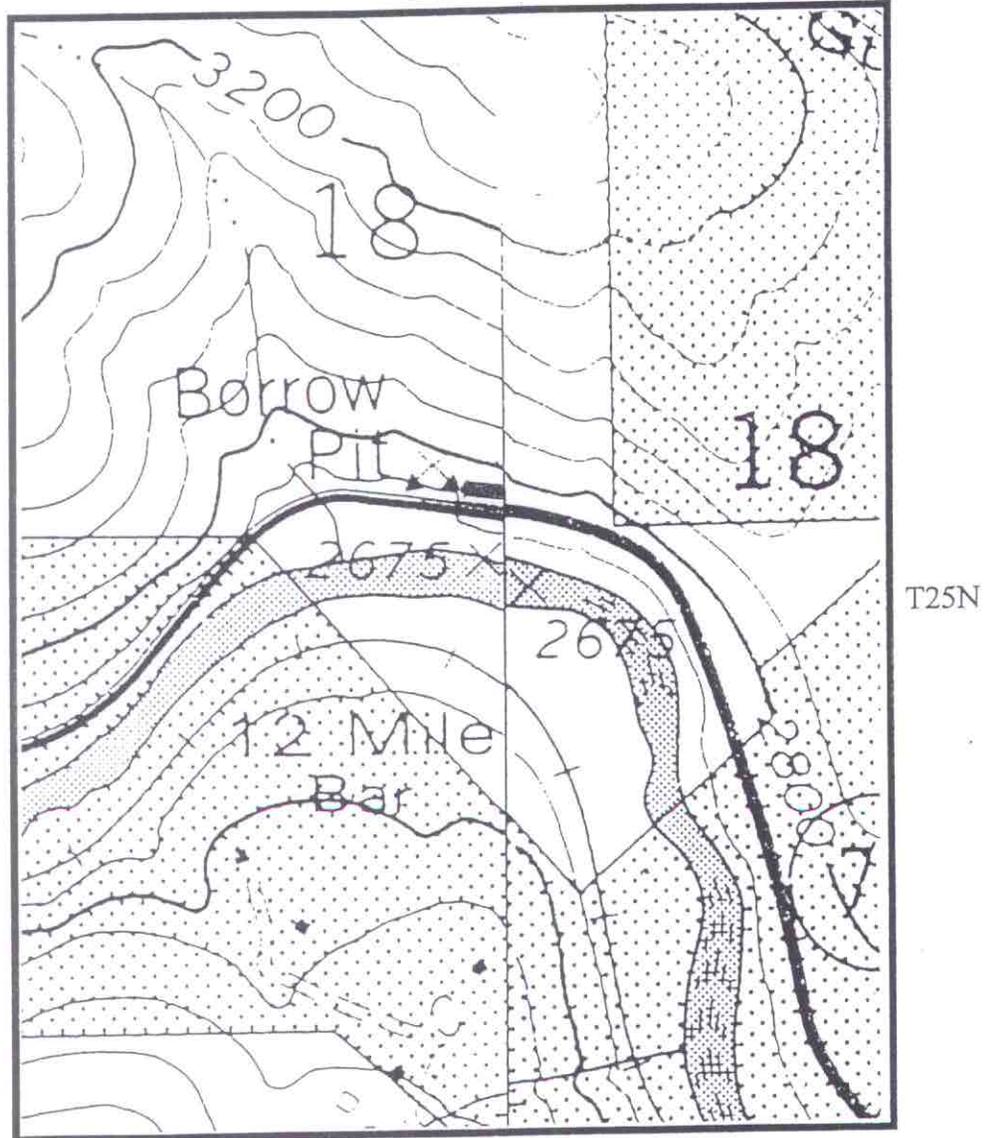
LOCATION MAP

California State Department of Transportation Disposal Sites

EXHIBIT A

(Site 3) *French Bar Inca*

R8E



Permit area located in the SW 1/4 Section 18, T25N., R8E., MDB&M
(Permitted area delineated in red on map).

MAP NOT TO SCALE

Prepared by: Dick Edwards, 11/27/95



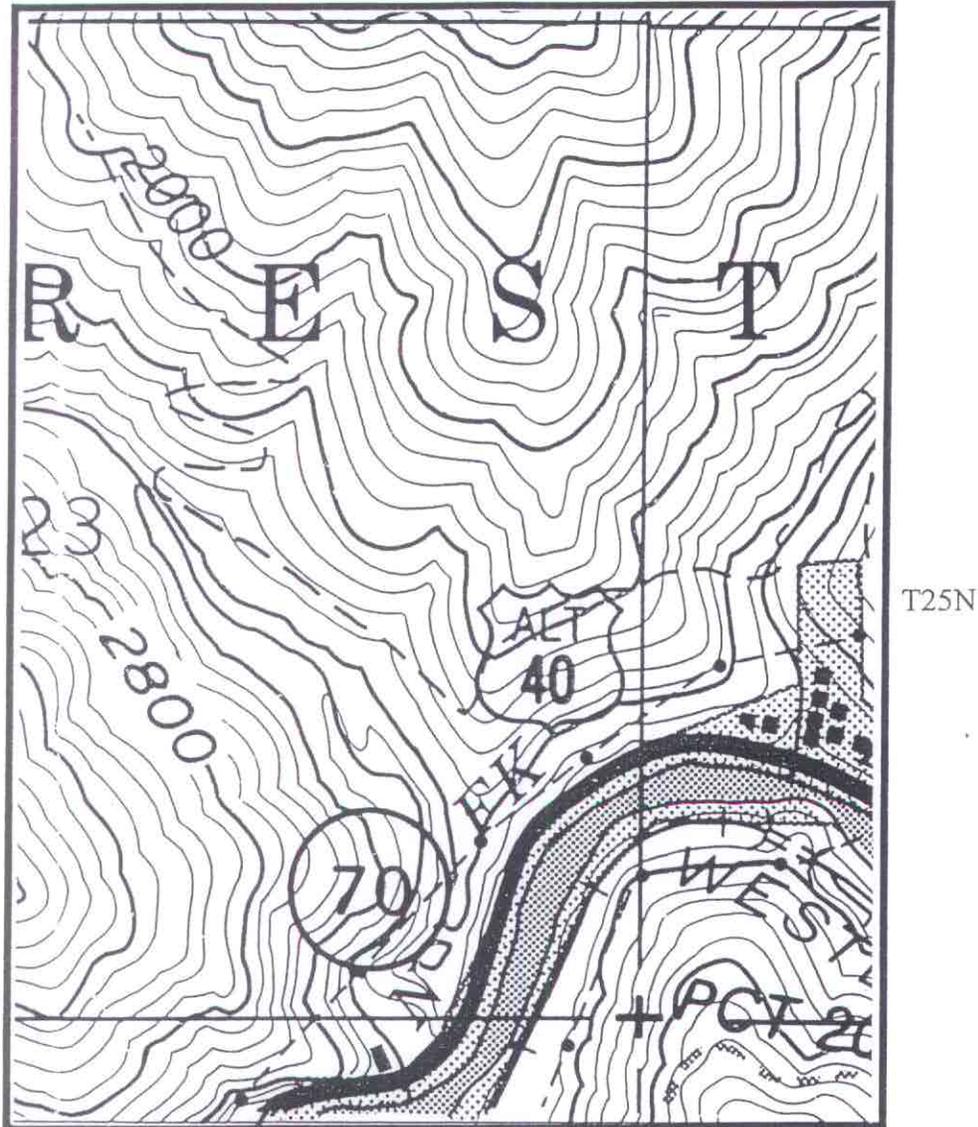
LOCATION MAP

California State Department of Transportation Disposal Sites

EXHIBIT A

(Site 4) *Chippis Creek*

R6E



Permit area located in the SE 1/4 Section 23, T25N., R6E., MDB&M

(Permitted area delineated in red on map).

MAP NOT TO SCALE

Prepared by: Dick Edwards, 11/27/95



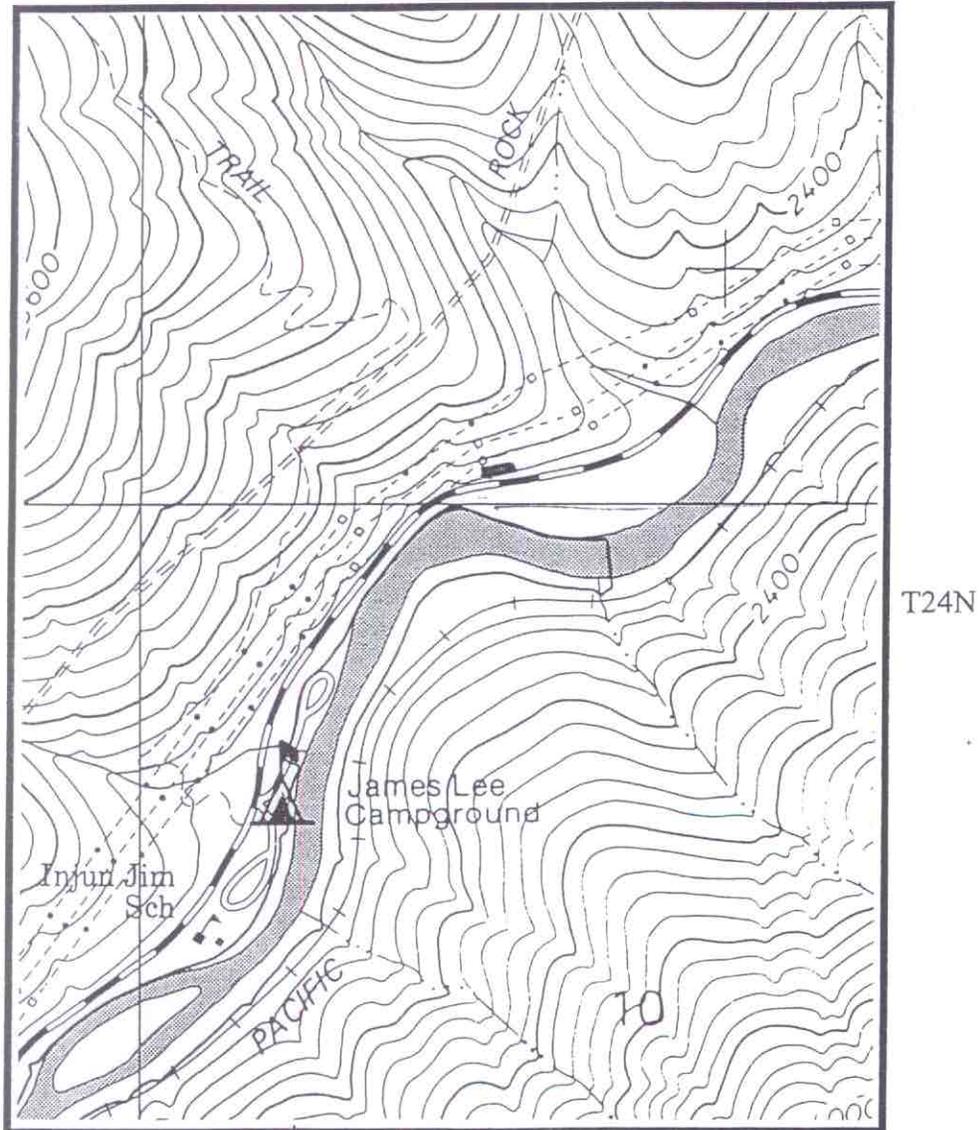
LOCATION MAP

California State Department of Transportation Disposal Sites

EXHIBIT A

(Site 5)

R6E



Permit area located in the SE 1/4 Section 3, T24N., R6E., MDB&M
(Permitted area delineated in red on map).

MAP NOT TO SCALE

Prepared by: Dick Edwards, 11/27/95

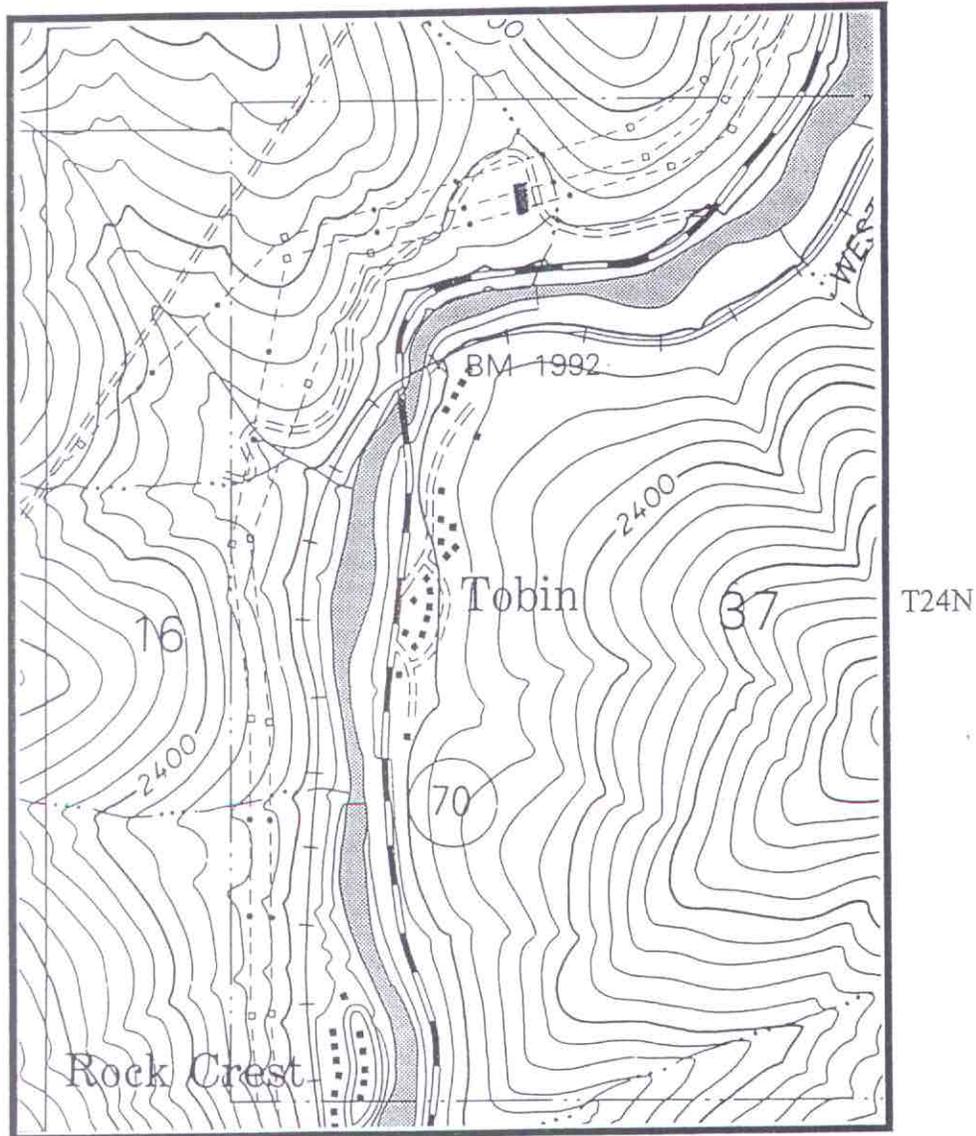
LOCATION MAP

California State Department of Transportation Disposal Sites

EXHIBIT A

(Site 6) Tobin

R6E



Permit area located in the NW 1/4 Section 16, T24N., R6E., MDB&M
(Permitted area delineated in red on map).

MAP NOT TO SCALE

Prepared by: Dick Edwards, 11/27/95



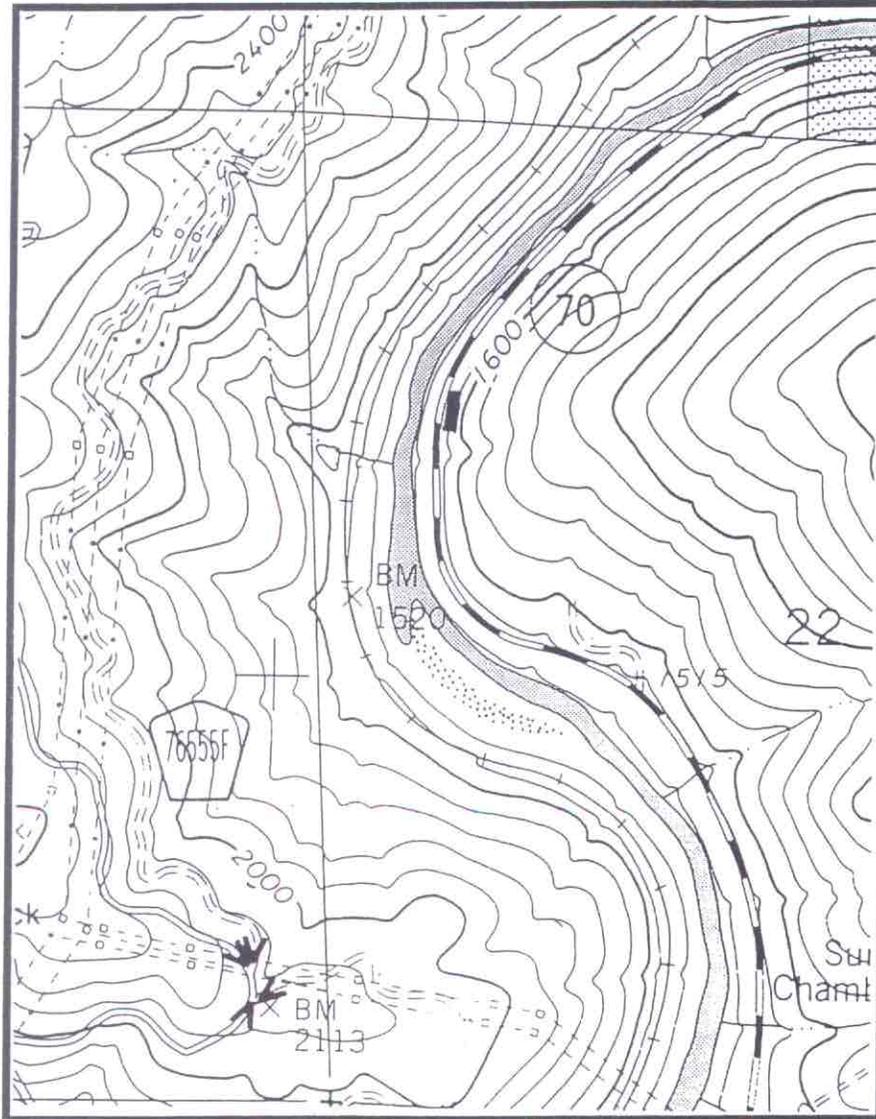
LOCATION MAP

California State Department of Transportation Disposal Sites

EXHIBIT A

(Site 7) *Cresta*

R5E



Permit area located in the NW 1/4 Section 22, T23N., R5E., MDB&M
(Permitted area delineated in red on map).

MAP NOT TO SCALE

Prepared by: Dick Edwards, 11/27/95



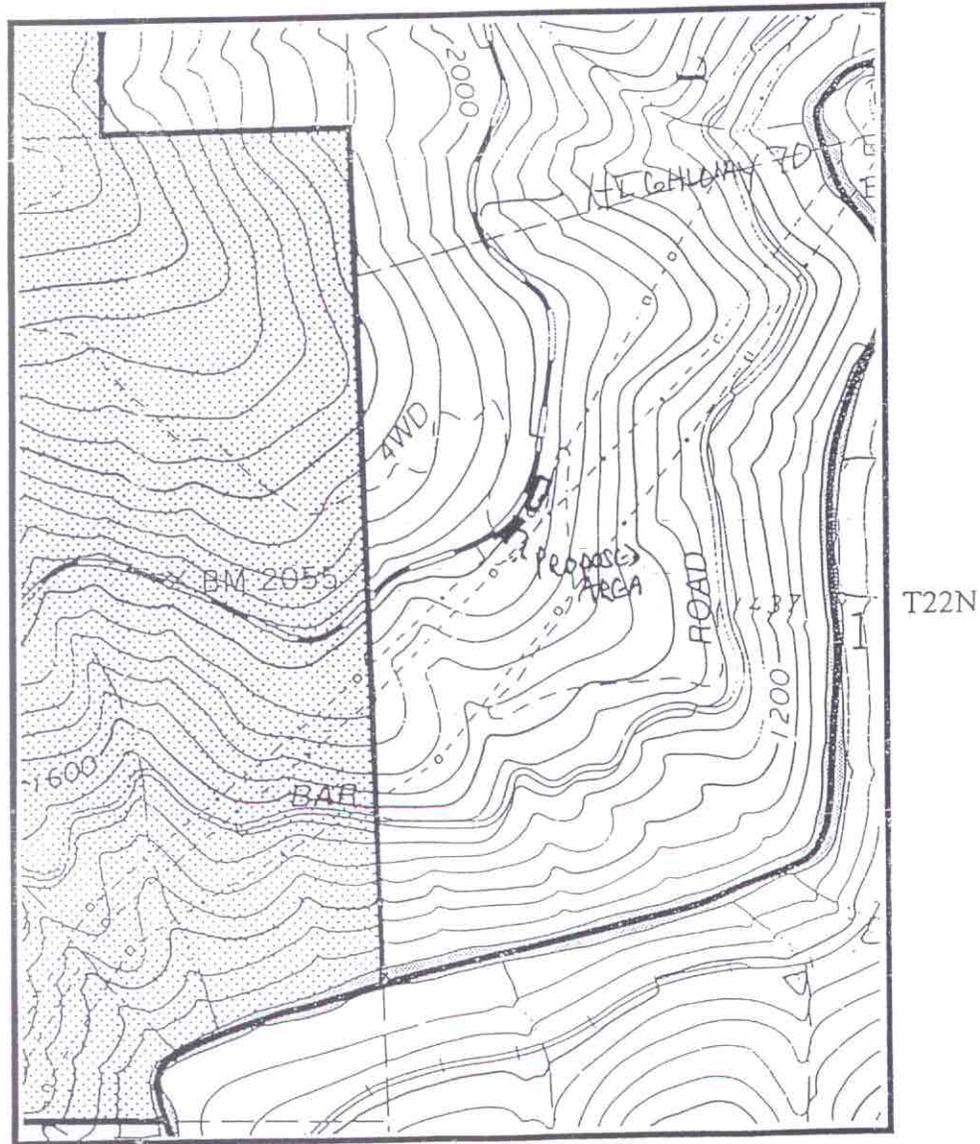
LOCATION MAP

California State Department of Transportation Disposal Sites

EXHIBIT A

(Site 8)

R5E



Permit area located in the NW 1/4 Section 18, T22N., R5E., MDB&M
(Permitted area delineated in red on map).

MAP NOT TO SCALE

Prepared by: Dick Edwards, 11/27/95

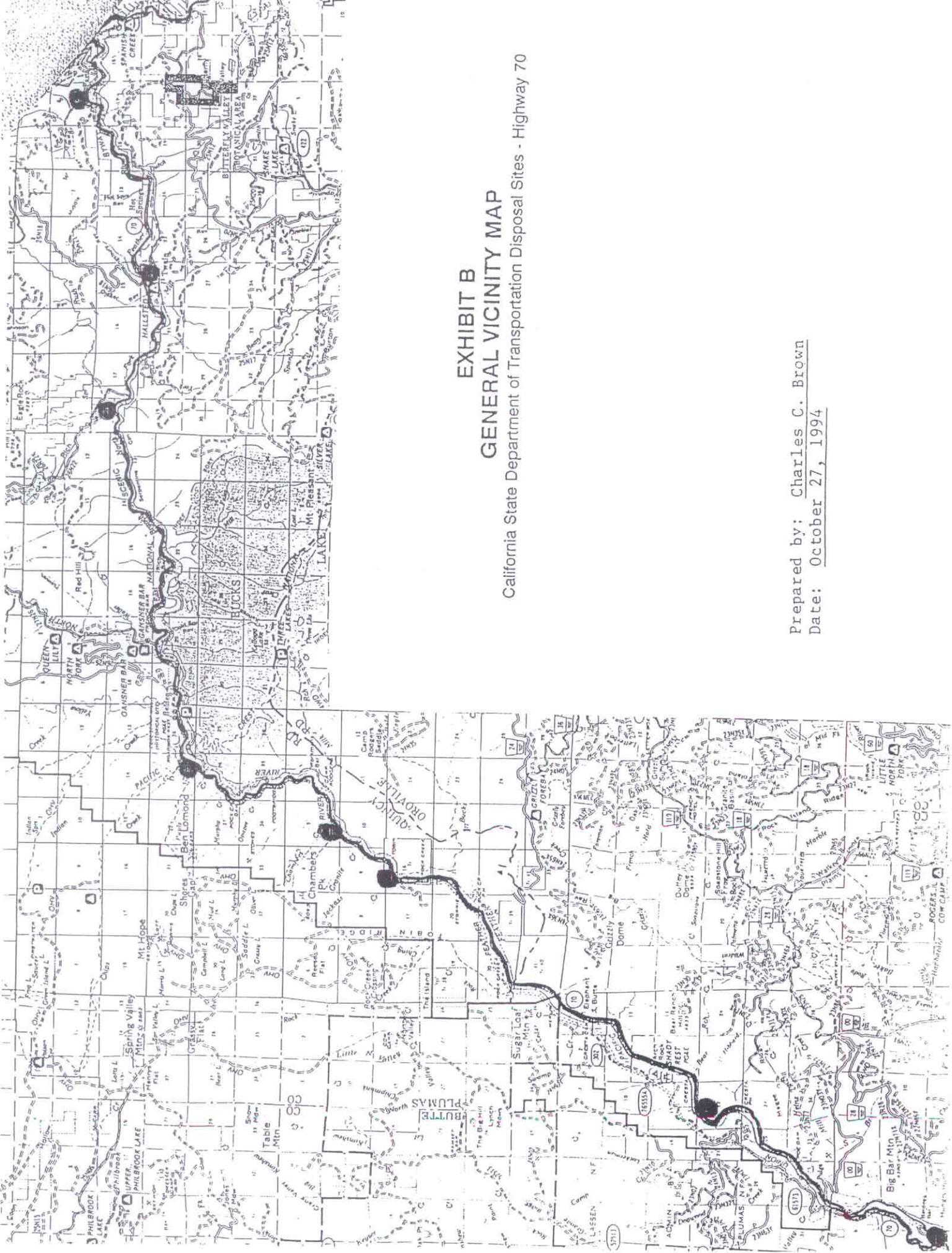


EXHIBIT B
GENERAL VICINITY MAP

California State Department of Transportation Disposal Sites - Highway 70

Prepared by: Charles C. Brown
Date: October 27, 1994