

# **INFORMATION HANDOUT**

## **WATER QUALITY**

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

NPDES PERMIT NO. CAS 000003

## **PERMITS**

**UNITED STATES ARMY CORPS OF ENGINEERS**  
**NATIONWIDE PERMIT SUMMARY**

## **AGREEMENTS**

**CALIFORNIA DEPARTMENT OF FISH AND GAME**  
**NOTIFICATION NO.1600-2010-0363-R1**

## **MATERIALS INFORMATION**

**REVISED FOUNDATION RECOMMENDATIONS**  
**FINAL HYDRAULIC REPORT**



**California Regional Water Quality Control Board  
Central Valley Region**

**Katherine Hart, Chair**



**Linda S. Adams**  
*Acting Secretary for  
Environmental Protection*

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

**Edmund G. Brown Jr.**  
*Governor*

13 January 2011

Mr. Chris Quiney  
California Department of Transportation  
1657 Riverside Drive  
Redding, CA 96001

**CLEAN WATER ACT §401 TECHNICALLY CONDITIONED WATER QUALITY  
CERTIFICATION FOR DISCHARGE OF DREDGED AND/OR FILL MATERIALS FOR THE  
BURNEY CREEK BRIDGE RECONSTRUCTION PROJECT (WDID#5A45CR00388),  
BURNEY, SHASTA 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. This certification is no longer valid if the project (as currently described) is modified, or coverage under Section 404 of the Clean Water Act has expired.

**ADDITIONAL TECHNICALLY CONDITIONED CERTIFICATION CONDITIONS:**

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

1. The California Department of Transportation (Caltrans) shall notify the Central Valley Regional Water Quality Control Board (Central Valley Water Board) in writing 7 days in advance of the start of any in-water activities.
2. Except for activities permitted by the U.S. Army 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. All areas disturbed by project activities shall be protected from washout or erosion.
4. Caltrans shall maintain a copy of this Certification and supporting documentation (Project Information) at the Project site during construction for review by site personnel and agencies. All personnel (employees, contractors, and subcontractors) performing work on the proposed project shall be adequately informed and trained regarding the conditions of this Certification.
5. An effective combination of erosion and sediment control Best Management Practices (BMPs) must be implemented and adequately working during all phases of construction.
6. All temporarily affected areas will be restored to pre-construction contours and conditions upon completion of construction activities.
7. Caltrans shall perform surface water sampling: 1) When performing any in-water work; 2) In the event that project activities result in any material reaching surface waters; or 3) When any activities result in the creation of a visible plume in surface waters. The following monitoring shall be conducted immediately upstream out of the influence of the project and 300 feet downstream of the active work area. Sampling results shall be submitted to this office within two weeks of initiation of sampling and every two weeks thereafter. The sampling frequency may be modified for certain projects with written permission from the Central Valley Water Board.

<b>Parameter</b>	<b>Unit</b>	<b>Type of Sample</b>	<b>Frequency of Sample</b>
Turbidity	NTU	Grab	Every 4 hours during in water work
Settleable Material	m/l	Grab	Same as above.
Visible construction related pollutants	Observations	Visible Inspections	Continuous throughout the construction period

8. Activities shall not cause turbidity increases in surface water to exceed:

- (a) where natural turbidity is less than 1 Nephelometric Turbidity Units (NTUs), controllable factors shall not cause downstream turbidity to exceed 2 NTU;
- (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. Averaging periods may only be assessed by prior permission of the Central Valley Water Board.

9. 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.
10. The discharge of petroleum products or other excavated materials to surface water is prohibited. Activities shall not cause visible oil, grease, or foam in the work area or downstream. Caltrans shall notify the Central Valley Water Board immediately of any spill of petroleum products or other organic or earthen materials.
11. Caltrans shall notify the Central Valley Water Board immediately if the above criteria for turbidity, settleable matter, oil/grease, or foam are exceeded.
12. Caltrans must comply with all of the conditions of California Department of Fish and Game Streambed Alteration Agreement 1600-2010-0363-R1.
13. Caltrans must comply with all requirements of U.S. Army Corps of Engineers Nationwide Permit Number 14, Linear Transportation Projects.
14. Caltrans shall comply with their Statewide Storm Water NPDES Permit Order No 99-06-DWQ (NPDES No. CAS 000003) issued by the State Water Resources Control Board.
15. Caltrans shall comply with all conditions of the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities issued by the State Water Resources Control Board, including the development and implementation of a Storm Water Pollution Prevention Plan for the project.
16. The Conditions in this water quality certification are based on the information in the attached "Project Information." If the information in the attached Project Information is modified or the project changes, this water quality certification is no longer valid until amended by the Central Valley Water Board.

17. In the event of any violation or threatened violation of the conditions of this Order, the violation or threatened violation shall be subject to any remedies, penalties, process, or sanctions as provided for under State law and section 401 (d) of the federal 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 ensure compliance with this Order.
- a. If Caltrans or a duly authorized representative of the project fails or refuses to furnish technical or monitoring reports, as required under this Order, or falsifies any information provided in the monitoring reports, the applicant is subject to civil, for each day of violation, or criminal liability.
  - b. In response to a suspected violation of any condition of this Order, the Central Valley Water Board may require Caltrans to furnish, under penalty of perjury, any technical or monitoring reports the Central Valley Water Board deems appropriate, provided that the burden, including cost of the reports, shall be in reasonable relationship to the need for the reports and the benefits to be obtained from the reports.
  - c. Upon the presentation of credentials and other documents as may be required by law, Caltrans shall allow the staff of the Central Valley Water Board or their authorized representative, to enter the project premises for inspection; including taking photographs and securing copies of project-related records, for the purpose of assuring compliance with this certification and determining the ecological success of the project.
18. Caltrans shall provide a Notice of Completion (NOC) no later than 30 days after the project completion. The NOC shall demonstrate that that the project has been carried out in accordance with the project's description (and any amendments approved). The NOC shall include a map of the project location and representative pre and post construction photographs. Each photograph shall include a descriptive title, date taken, photographic site, and photographic orientation.

**REGIONAL WATER QUALITY CONTROL BOARD CONTACT PERSON:**

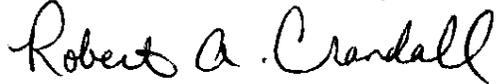
Dannas J. Berchtold, Engineering Associate, Redding Branch Office, 415 Knollcrest Drive, Suite 100, Redding, California 96002, [dberchtold@waterboards.ca.gov](mailto:dberchtold@waterboards.ca.gov), (530) 224-4783

**WATER QUALITY CERTIFICATION:**

I hereby issue an order certifying that any discharge from Caltrans, Burney Creek Bridge Reconstruction Project (WDID# 5A45CR00388) 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 Caltrans project description and the attached Project Information Sheet, and (b) compliance with all applicable requirements of the Water Quality Control Plan *for the Sacramento River and San Joaquin River*, Fourth Edition, revised September 2009.



(for) PAMELA C. CREEDON  
Executive Officer

DJB: lm

Enclosure: Project Information

cc: Mr. Matt Kelley, U.S. Army Corp of Engineers, Redding  
U.S. Fish and Wildlife Service, Sacramento  
Ms. Donna Cobb, Department of Fish and Game, Region 1, Redding  
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:** 25 October 2010

**Applicant:** Caltrans, Attn: Mr. Chris Quiney

**Project Name:** Burney Creek Bridge Reconstruction Project

**Application Number:** WDID No. 5A45CR00388

**Type of Project:** Reconstruction of Burney Creek Bridge

**Project Location:** Section 20, Township 35 North, Range 03 East, MDB&M.  
Latitude: 40°52'55.25" and Longitude: -121°40'4.83"

**County:** Shasta County

**Receiving Water(s) (hydrologic unit):** Burney Creek, which is tributary to Pit River. Pit River Hydrologic Unit-Lower Burney Creek Hydrologic Area No. 526.32

**Water Body Type:** Streambed

**Designated Beneficial Uses:** The Basin Plan for the Central Valley Water Board has designated beneficial uses for surface and ground waters within the region. Beneficial uses that could be impacted by the project include: Industrial Supply (IND), Hydropower Generation (POW); Groundwater Recharge, Water Contact Recreation (REC-1); Non-Contact Water Recreation (REC-2); Cold Freshwater Habitat (COLD); Cold Freshwater Spawning (SPWN); and Wildlife Habitat (WILD).

**Project Description (purpose/goal):** The Burney Creek Bridge Reconstruction Project consists of reconstructing Burney Creek Bridge on State Route 299 due to structural deficiencies in the existing bridge. The existing pier walls will be replaced with a single pier wall consisting of 5 concrete piles. The bridge deck will be replaced with a precast/stressed concrete slab deck and the existing bridge abutments will be retrofitted as necessary. Construction is scheduled to begin in the spring of 2011 and completed by December 2012. Access within banks of Burney Creek will be required for the period from April 1 through October 15 of both years. Temporary access roads and work pads located within the creek channel will be constructed with clean rock and gravel, with vegetation clearing necessary at each access point. The stream will be diverted to the opposite side of the channel to dewater work areas.

Underground gas and electric utility lines will be relocated prior to construction by PG&E. If possible an existing municipal water supply line will be protected in-place during construction. If the water line cannot be avoided, Caltrans will temporarily divert the stream, dewater the work area, and install a new line by open trench method.

Upon completion of work on the bridge foundations, temporary structures and materials will be removed from the streambed and clean rounded river rock will be spread uniformly throughout the stream channel. Stream banks disturbed during construction will be restored as closely as possible to pre-construction conditions. Disturbed stream banks and adjacent areas will be planted with willows, alders, and cottonwoods upon completion of construction.

**Preliminary Water Quality Concerns:** Construction activities may impact surface waters with increased turbidity and settleable matter.

**Proposed Mitigation to Address Concerns:** Caltrans will implement Best Management Practices (BMPs) to control sedimentation and erosion in compliance with their Statewide Storm Water NPDES Permit and the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, which includes the development and implementation of a project specific Storm Water Pollution Prevention Plan. Caltrans will conduct turbidity and settleable matter testing during in-water work, stopping work if Basin Plan criteria are exceeded or are observed. Vegetation removal will be limited to the extent necessary to complete the work. All areas immediately adjacent to the work area will be designated as Environmentally Sensitive Area and fencing will be installed prior to the start of construction.

**Fill/Excavation Area:** Project implementation will result in fill comprised of 76 cubic yards of concrete and 162 cubic yards of soil and rock, and will permanently impact 127 square feet of un-vegetated streambed and temporarily impact 2,990 square feet of un-vegetated streambed.

**Dredge Volume:** Not applicable

**U.S. Army Corps of Engineers Permit Number:** Nationwide Permit No. 14, Linear Transportation Projects (Non-Reporting)

**Department of Fish and Game Streambed Alteration Agreement:** Caltrans applied for a Streambed Alteration Agreement on 20 October 2010. Lake and Streambed Alteration Agreement Number: 1600-2010-0363-R1

**Possible Listed Species:** Not Applicable

**Status of CEQA Compliance:** The proposed project is exempt from California Environmental Quality Act (CEQA) pursuant PRC 21084; 14 CCR Section 15300 et seq.. Caltrans determined, pursuant to Chapter 3 of Title 23, United States Code, Section 326,a, that the project is Categorical Excluded under Section 6004: 23 CFR 771.117.

**Compensatory Mitigation:** Not Applicable

**Application Fee Provided:** Total fees of \$2,816.00 have been submitted as required by 23 CCR §3833b(3)(A) and by 23 CCR §2200(e).



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

**14. Linear Transportation Projects.** Activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

**Notification:** The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10 acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 27.) (Sections 10 and 404)

**Note:** Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4)

## 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 NWP 3 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 NWP. 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 Magnussen-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 NWPs 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](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 NWP, 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 coarse 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 NWPs, 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.

**CALIFORNIA ENVIRONMENTAL QUALITY ACT  
NOTICE OF EXEMPTION**

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**To:** Office of Planning and Research  
1400 Tenth Street, Room 121  
Sacramento, California 95814

**Date:** March 10, 2011

**From:** California Department of Fish and Game  
Northern Region  
601 Locust Street  
Redding, California 96001

**Project Title:** Issuance of Streambed Alteration Agreement No. 1600-2010-0363-R1, Burney Creek Bridge Reconstruction Project, Shasta County.

**Project Location (Specific):** Burney Creek Bridge (Bridge No. 06-0062) on State Route 299, at Post Mile 74.85; Northwest ¼ Section 20, T35 North, R3 East, MDB&M; 40.881860°N latitude, 121.669105°W longitude.

**Project Location (City and County):** Work will take place on Burney Creek within the community of Burney, Shasta County.

**Description of Project:** See Attached Agreement.

**Name of Public Agency Approving Project:** California Department of Fish and Game.

**Name of Agency Carrying Out Project:** California Department of Transportation.

**Exempt Status (Class and Guidelines Section):** **Categorical Exemption: Class 2, Section 15302** – Replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced. (c) Replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity.

**Reasons Why Project is Exempt:** The project proposes to replace the existing highway bridge over Burney Creek on the existing alignment. There will be no removal of healthy, mature, scenic trees as a result of this project. The project will have no significant effect on the environment.

**Lead Agency Contact Person:** Craig Martz

**Phone:** (530) 225-2281

**Signature:**   
Curt Babcock

**Date:** 3/10/11

**Title:** Habitat Conservation Program Manager

Signed by Lead Agency

**Date received for filing at OPR:**

Signed by Applicant

**CALIFORNIA DEPARTMENT OF FISH AND GAME**  
NORTHERN REGION  
601 LOCUST STREET  
REDDING, CA 96001



**LAKE or STREAMBED ALTERATION AGREEMENT**  
NOTIFICATION NO. 1600-2010-0363-R1  
Burney Creek  
Tributary to Lake Britton Reservoir, Pit River

CALIFORNIA DEPARTMENT OF TRANSPORTATION  
BURNLEY CREEK BRIDGE RECONSTRUCTION

This Lake or Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Game (DFG) and the California Department of Transportation (Permittee) as represented by Mr. Eric Orr.

#### **RECITALS**

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified DFG on October 25, 2010, that Permittee intends to complete the project described herein.

WHEREAS, pursuant to FGC section 1603, DFG has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

WHEREAS, Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources.

NOW THEREFORE, Permittee agrees to complete the project in accordance with the Agreement.

#### **PROJECT LOCATION**

The Burney Creek Bridge Reconstruction Project (hereafter, the Project) is located at Post Mile (PM) 74.8 on State Route (SR) 299, within the community of Burney in Shasta County, California. The Project is located on the Burney US Geological Survey (USGS) 7.5 minute quadrangle, NW ¼ Section 20, T 35 N, R 3 E, Mt. Diablo Base and Meridian, 40.881860° north, 121.669105° west.

#### **PROJECT DESCRIPTION**

The Project will replace the existing three-span bridge with a new, two-span pre-cast/pre-stressed concrete slab structure on the current highway alignment. The two

pier walls of the existing bridge will be replaced with a single pier wall consisting of five, 36-inch diameter cast-in-drilled-hole (CIDH) concrete piles. The existing pier walls will be cut off approximately three feet below the elevation of the streambed. Existing bridge abutments will be retrofitted as necessary to accommodate the new pier configuration and deck. The bridge will be re-constructed one half at a time so that two-way traffic can be maintained on the bridge during construction.

Construction is scheduled to begin in the spring of 2012 and be completed by December 31, 2013. Access within the banks of Burney Creek will be required during the period between April 1 and October 15 of both construction years. Temporary access roads will enter the channel near the northwest and southeast quadrants of the bridge. Access roads and work pads will be constructed of clean rock and gravel. Vegetation clearing will be required at each of the access points. Stream flow will be shifted from one side of the channel to the other to dewater the work area as work progresses.

Underground gas and electric utilities will be relocated by PG&E prior to construction. An 8-inch diameter municipal water supply line crosses Burney Creek in close proximity to the bridge foundation. If possible, this line will be avoided and protected in place during construction. If the water line cannot be avoided, it will be relocated approximately 15 feet upstream of the bridge. The water line would be installed by open trench method, encased in concrete, and covered with clean, river-run rock. The old water line would be abandoned in place to avoid additional disturbance, unless excavations needed for removal of the existing bridge foundation or construction of the new foundation require its removal.

Upon completion of work on the bridge foundations, temporary structures and materials will be removed from the streambed, with the exception of clean, river-run gravels which will be evenly spread across the channel. Streambanks disturbed during construction will be restored as close as possible to pre-construction conditions. Following construction, these areas will be replanted with native, riparian vegetation. All work shall be in accordance with submitted plans and diagrams and any subsequent revisions approved by the DFG in writing.

## **PROJECT IMPACTS**

Existing fish or wildlife resources the project could substantially adversely affect include: American dippers (*Cinclus mexicanus*) and other riparian-dependent bird species; resident rainbow trout (*Oncorhynchus mykiss*), resident brook trout (*Salvelinus fontinalis*), riffle sculpin (*Cottus gulosus*), Sacramento suckers (*Catostomus occidentalis*), and other non-game fishes, as well as amphibians, reptiles, aquatic invertebrates, mammals, birds, and other aquatic and riparian species.

The adverse effects the project could have on the fish or wildlife resources identified above include: disruption of nesting behavior and decreased reproductive success due to construction disturbance; loss of occupied passerine habitat and nests, including

eggs and/or nestlings, as a result of vegetation removal; direct mortality of fish, amphibians, and other aquatic species during construction de-watering activities; temporary and permanent impacts to aquatic species due to suspended sediment and the smothering and/or shading of egg masses and benthic invertebrate communities due to sediment deposition.

The Project will result in temporary impacts to approximately 1.25 acres, including 2,152 square feet of streambank and channel (0.05 acre) due to the placement of approximately 195 cubic yards of clean rock and gravel for construction of access roads and work pads at the northwest and southeast quadrants of the bridge. Replacement of the existing two pier walls with a single pier wall will reduce the area occupied by the bridge's foundation within the channel of Burney Creek.

## **MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES**

### **1. Administrative Measures**

Permittee shall meet each administrative requirement described below.

- 1.1 **Documentation at Project Site.** Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to DFG personnel, or personnel from another state, federal, or local agency upon request.
- 1.2 **Providing Agreement to Persons at Project Site.** Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.
- 1.3 **Notification of Conflicting Provisions.** Permittee shall notify DFG if Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, DFG shall contact Permittee to resolve any conflict.
- 1.4 **Project Site Entry.** Permittee agrees that DFG personnel may enter the project site at any time, after notifying the Resident Engineer, to verify compliance with the Agreement.
- 1.5 Permittee's notification (Notification of Lake or Streambed Alteration together with all maps, plans, photographs, drawings, and all other supporting documents submitted with notification to describe the activity) is hereby incorporated by reference into this Agreement. Permittee shall conduct project activities within the work areas and using the mitigative features described in the notification and

supporting documents, unless such project activities, work areas or mitigative features are modified by the provisions of this Agreement, in which case the activities shall be conducted as described in this Agreement.

## **2. Avoidance and Minimization Measures**

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below.

- 2.1 All work within the channel or on the stream banks shall be confined to the period commencing April 1 and ending October 15, provided the stream is at low flow. If weather conditions permit and the stream flows are low, the Permittee may perform work within the stream channel or on the banks after October 15, provided a written request is made to DFG at least five (5) days before the proposed work period variance. Written approval from DFG for the proposed work period variance must be received by the Permittee prior to the start or the continuation of work after October 15.
- 2.2 If work is performed within the stream channel or on the banks after October 15, the Permittee shall do all of the following:
  - a. Stage erosion and sediment control materials at the work site.
  - b. Monitor the seventy-two (72) hour forecast from the National Weather Service.
  - c. When the 72-hour forecast indicates a probability of precipitation of 60% or greater, or at the onset of any precipitation, ground disturbing activities shall cease and erosion control measures shall be implemented to stabilize exposed soils and prevent the mobilization of sediment into the stream channel or adjacent wetland or riparian areas.
- 2.3 Notwithstanding Condition 2.1 above, removal of the above-ground portions of existing trees and shrubs shall occur after August 31 and before March 15 to avoid impacts to nesting birds. If vegetation must be removed during the nesting season (March 15 to August 31) nest surveys shall be conducted prior to vegetation clearing.
- 2.4 The Permittee shall instruct all persons who will be completing any ground disturbing activity at a work site to comply with the conditions set forth in this Agreement and shall inspect each work site before, during, and after completion of any ground-disturbing activity at the work site.

## **HABITAT AND SPECIES PROTECTION**

- 2.5 Prior to initiating channel- vegetation- or ground-disturbing Project activities, Permittee shall clearly delineate the limits of the work area. Permittee shall restrict all Project activities to the designated work area and shall maintain all fencing, stakes and flags until the completion of Project activities.
- 2.6 Disturbance or removal of riparian and streamside vegetation shall not exceed the minimum necessary to complete operations. Where feasible, hand tools (chain saws, etc.) shall be used to trim woody riparian vegetation to the extent necessary to gain access to work sites. Whenever possible, root systems shall be left intact to facilitate more rapid recovery following temporary construction impacts.
- 2.7 Except where provided for within this agreement, the removal of riparian vegetation from the streambed or streambanks is prohibited without prior written approval from DFG. Existing riparian vegetation adjacent to the work areas shall be protected as Environmentally Sensitive Areas (ESAs) and shall be off limits to construction equipment and personnel.
- 2.8 ESA fencing shall be installed prior to the beginning of channel- ground- or vegetation-disturbing activities. The placement of ESA fencing shall be inspected and approved by DFG prior to the initiation of work. Permittee shall provide written notification for inspection a minimum of 5 working days prior to beginning work. If DFG is unable to conduct a site inspection during this period, the inspection may be conducted by the Environmental Construction Liaison and the results forwarded to DFG for approval.
- 2.9 ESA fencing shall consist of temporary orange construction fence or other highly visible material that clearly delineates the limits of the work area. Environmentally Sensitive Areas shall be clearly shown on the Project plans and drawings. The Permittee shall ensure that the contractor, subcontractors, and all personnel working on the Project are instructed on the purpose of the ESA fencing and understand the limits of the work area.
- 2.10 Permittee shall implement the Burney Creek Replacement Project Revegetation and Monitoring Plan dated July 2010.

## **CONSTRUCTION DEWATERING AND INSTREAM STRUCTURES**

- 2.11 All work within the channel or on the banks shall be performed when the stream is at low flow. If water is present during construction, all work shall be performed in isolation from surface or subsurface flow.
- 2.12 Where water is present, a temporary clear water diversion shall be constructed to isolate the work area from flow. Temporary diversions may be constructed using

- gravel berms, clean washed spawning gravels, sand bags, K-rail, plastic sheeting, or a combination of these materials upstream from the work area. Flows will then be diverted into a temporary culvert, pipe, or conduit and released downstream from the work area.
- 2.13 The clear water diversion shall be adequately sized to accommodate the full range of flows that may occur during the diversion period without overtopping into the work area.
  - 2.14 Dewatering shall be done in a manner that prevents the discharge of material that could be deleterious to fish, plants or other aquatic life and maintains adequate flows to downstream reaches during all times natural flow would have supported aquatic life.
  - 2.15 Any turbid water pumped from the work area shall be used for construction purposes (compaction, dust abatement, etc.) or properly disposed of in an upland area where it will not drain to surface waters or wetlands.
  - 2.16 Water that has been in contact with uncured concrete shall be contained in Baker tanks or other impervious containers and shall not be discharged to ground or surface waters.
  - 2.17 Permittee shall remove and relocate fish and other aquatic organisms from the stream channel as flows are shifted into the clear water diversion in order to minimize mortality due to stranding. One or more of the following methods shall be used to capture and relocate aquatic species: dip net, seine, throw net, or electrofishing. Fish relocation activities shall be overseen by a qualified fisheries biologist.
  - 2.18 Temporary culverts, structures and materials not designed to withstand high flows shall be removed from the floodplain prior to October 15.
  - 2.19 Clean, washed gravel used for diversion berms, temporary access roads, work pads, and stream crossings shall consist of clean, pre-washed, uncrushed natural river rock. Gravel must be washed at least once and have a cleanliness value of 85 or higher (California Test No. 227). Particle size shall be graded with 95-100% passing a 1-inch screen, 75-85% passing a 3/4-inch screen, 25-50% passing a 1/2-inch screen, 10-20% passing a 1/4-inch screen and 0-5% passing a No. 8 screen. Gravel may be stockpiled near the work area, but mixing with any earthen material is prohibited.
  - 2.20 Clean, washed gravel used for diversion berms, temporary access roads, work pads, and stream crossings may be left in the channel following construction provided it is spread to a depth less than 6 inches and does not impede the movement of fish or other aquatic organism, or redirect stream flows. All other

construction materials shall be removed from the stream channel upon completion of work.

### EROSION AND SEDIMENT CONTROL

- 2.21 The project shall at all time feature adequate erosion and sediment control devices to prevent the degradation of water quality.
- 2.22 Soils exposed by project operations shall be treated to prevent sediment runoff and transport. Erosion control measures shall include the proper installation and maintenance of approved Best Management Practices (BMPs) and may include applications of seed, certified weed-free straw, compost, fiber, commercial fertilizer, stabilizing emulsion and mulch, or combinations thereof.
- 2.23 Erosion control measures shall be monitored and maintained during and after each storm event. Modifications, repairs, and improvements to erosion control measures shall be made following each storm event to prevent sediment from entering surface waters or wetlands.
- 2.24 Soils adjacent to the stream channel that are exposed by project operations shall be adequately stabilized when rainfall is reasonably expected during construction, and immediately upon completion of construction, to prevent the mobilization of such sediment into the stream channel or adjacent riparian areas. National Weather Service forecasts shall be monitored by the Permittee to determine the chance of precipitation.
- 2.25 All equipment used during construction of this Project shall be cleaned (i.e. free of dirt and debris that may harbor noxious weed seeds and plant parts) prior to its arrival on site and before leaving the Project area.
- 2.26 Following construction, all disturbed upland areas shall be stabilized and reseeded with an erosion control mix consisting of regionally appropriate, native grass and forb species.

### PETROLEUM, CHEMICAL AND OTHER POLLUTANTS

- 2.27 All construction-related materials and equipment shall be stored in designated staging areas located outside of the floodplain unless approved in writing by DFG.
- 2.28 Refueling and vehicle maintenance shall be performed at least 100 feet from streams or other water bodies unless approved in writing by DFG.
- 2.29 No equipment or machinery shall be operated within any flowing stream.

- 2.30 Any equipment or vehicles driven and/or operated within or adjacent to the stream channel shall be checked and maintained daily to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic life, wildlife, or riparian habitat.
- 2.31 Stationary equipment such as motors, pumps, generators, and welders that contain deleterious materials, located adjacent to the stream channel shall be positioned over drip pans.
- 2.32 All activities performed in or near a stream shall have absorbent materials designated for spill containment and clean up activities on-site for use in an accidental spill. The Permittee shall immediately notify the California Emergency Management Agency at 1-800-852-7550 and immediately initiate the clean up activities. DFG shall be notified by the Permittee and consulted regarding clean-up procedures.
- 2.33 No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, asphalt, paint or other coating material, oil or petroleum products or other organic or earthen material from any construction, or associated activity of whatever nature shall be allowed to enter into, or placed where it may be washed by rainfall or runoff into, waters of the State. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any stream or lake.

## **CONTACT INFORMATION**

Any communication that Permittee or DFG submits to the other shall be in writing and any communication or documentation shall be delivered to the address below by U.S. mail, fax, or email, or to such other address as Permittee or DFG specifies by written notice to the other.

### To Permittee:

Mr. Eric Orr, Project Manager  
Department of Transportation  
P.O. Box 496073  
Redding, California 96049-6073  
Fax: (530) 225-3146  
[eric.orr@dot.ca.gov](mailto:eric.orr@dot.ca.gov)

### To DFG:

Department of Fish and Game  
Northern Region  
601 Locust Street, California 96001  
Attn: Lake and Streambed Alteration Program – Craig Martz

Notification #1600-2010-0363-R1  
Fax: (530) 225-0324  
[cmartz@dfg.ca.gov](mailto:cmartz@dfg.ca.gov)

## **LIABILITY**

Permittee shall be solely liable for any violations of the Agreement, whether committed by Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute DFG's endorsement of, or require Permittee to proceed with the project. The decision to proceed with the project is Permittee's alone.

## **SUSPENSION AND REVOCATION**

DFG may suspend or revoke in its entirety the Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before DFG suspends or revokes the Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee an opportunity to correct any deficiency before DFG suspends or revokes the Agreement, and include instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused DFG to issue the notice.

## **ENFORCEMENT**

Nothing in the Agreement precludes DFG from pursuing an enforcement action against Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects DFG's enforcement authority or that of its enforcement personnel.

## **OTHER LEGAL OBLIGATIONS**

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from obtaining any other permits or authorizations that might be required under other federal, state, or local laws or regulations before beginning the project or an activity related to it.

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the FGC including, but not limited to, FGC sections 2050 et seq. (threatened and endangered species), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution), 5652 (refuse disposal into water), 5901 (fish passage), 5937 (sufficient water for fish), and 5948 (obstruction of stream).

Nothing in the Agreement authorizes Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

### **AMENDMENT**

DFG may amend the Agreement at any time during its term if DFG determines the amendment is necessary to protect an existing fish or wildlife resource.

Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by DFG and Permittee. To request an amendment, Permittee shall submit to DFG a completed DFG "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in DFG's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

### **TRANSFER AND ASSIGNMENT**

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by Permittee in writing, as specified below, and thereafter DFG approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, Permittee shall submit to DFG a completed DFG "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in DFG's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

### **EXTENSIONS**

In accordance with FGC section 1605(b), Permittee may request one extension of the Agreement, provided the request is made prior to the expiration of the Agreement's term. To request an extension, Permittee shall submit to DFG a completed DFG "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in DFG's current fee schedule (see Cal.

Code Regs., tit. 14, § 699.5). DFG shall process the extension request in accordance with FGC 1605(b) through (e).

If Permittee fails to submit a request to extend the Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (Fish & G. Code, § 1605, subd. (f)). .

### **EFFECTIVE DATE**

The Agreement becomes effective on the date of DFG's signature, which shall be: 1) after Permittee's signature; 2) after DFG complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable FGC section 711.4 filing fee listed at [http://www.dfg.ca.gov/habcon/ceqa/ceqa\\_changes.html](http://www.dfg.ca.gov/habcon/ceqa/ceqa_changes.html).

### **TERM**

This Agreement shall expire on December 31, 2013, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

### **AUTHORITY**

If the person signing the Agreement (signatory) is doing so as a representative of Permittee, the signatory hereby acknowledges that he or she is doing so on Permittee's behalf and represents and warrants that he or she has the authority to legally bind Permittee to the provisions herein.

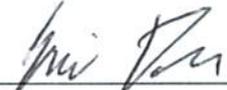
**AUTHORIZATION**

This Agreement authorizes only the project described herein. If Permittee begins or completes a project different from the project the Agreement authorizes, Permittee may be subject to civil or criminal prosecution for failing to notify DFG in accordance with FGC section 1602.

**CONCURRENCE**

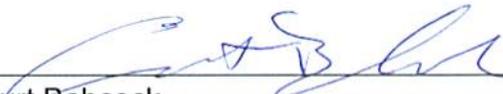
The undersigned accepts and agrees to comply with all provisions contained herein.

**FOR DEPARTMENT OF TRANSPORTATION**

  
\_\_\_\_\_  
Eric Orr  
Project Manager

3/9/11  
\_\_\_\_\_  
Date

**FOR DEPARTMENT OF FISH AND GAME**

  
\_\_\_\_\_  
Curt Babcock  
Habitat Conservation Program Manager

3/10/11  
\_\_\_\_\_  
Date

# Memorandum

*Flex your power!  
Be energy efficient!*

**To:** MR. JOEY AQUINO  
Design Engineer  
Bridge Design North  
Division of Engineering Services

**Date:** August 25, 2010  
**File:** 02-SHA-299-PM 74.85  
02-2C2221  
Burney Creek Bridge  
(Scour Retrofit)  
Bridge No. 06-0062

**From:** DEPARTMENT OF TRANSPORTATION  
DIVISION OF ENGINEERING SERVICES  
GEOTECHNICAL SERVICES – MS 5

**Subject:** Revised Foundation Recommendations

At the request of the Office of Bridge Design North – Division of Engineering Services, a change has been made to the Foundation Recommendations for Burney Creek Bridge (Scour Retrofit), dated July 15, 2010. In the Foundation Recommendations section of the report, under “Deep Foundations”, in “Table 4. Pile Data Table for CIDH Piles” the “Pile Type” has been updated for clarification purposes.

In the “Construction Considerations” section of the original report, note “10” regarding low overhead clearance, has been removed and the following notes (11 and 12) have been renumbered accordingly.

Additionally, the “Project Information” section of the report required updating to include the “Revised Foundation Recommendations”.

Therefore, these “Revised Foundation Recommendations”, supersede the previous “Foundation Recommendations” dated July 15, 2010.

## Scope of Work

The existing Burney Creek Bridge, Br. No. 06-0062 was constructed in 1949 and widened in 1990. This bridge is a continuous reinforced concrete slab, on pier walls and cantilever abutments, all on spread footings. This bridge is scour critical and will require foundation modifications.

## **Project Description**

The Office of Geotechnical Design - North (OGD-N) received a request for Final Foundation Recommendations (FR) dated August 28, 2008 for pier foundation modifications of the existing Burney Creek Bridge, Br. No. 06-0062. This project is located in the town of Burney on State Highway Route 299 in Shasta County.

These foundation recommendations are based on NGVD29.

## **Site Geology and Subsurface Conditions**

Based on the published 1:250,000 scale Geologic Map of California, Olaf P. Jenkins Edition, Westwood Sheet, Compilation by P.A. Lydon, T.E. Gay, Jr. and C.W. Jennings 1960, this site is mapped as consisting of Quaternary lake deposits overlying Pleistocene volcanic rocks, primarily of basalt. The lake deposits are described as sand, silt, ash and diatomaceous earth; locally includes overlying alluvium with playa-like deposits in scattered basins of interior drainage. The volcanics are described as flat-lying, vesicular, black, olivine basalt flows and locally thin and massive flows of olivine and pyroxene basalt.

The foundation investigation performed in 1987 for the Burney Creek Bridge indicates the subsurface material at this site includes very loose to very dense, silty gravel, silty sandy gravel, clayey gravel and clayey sandy gravel, all with cobbles and some boulders overlying stiff clay and vesicular basalt bedrock. Caving conditions are expected in these alluvial soils above the bedrock.

Foundation investigations were performed during November 2007 and July 2008. One hole was drilled in November and the subsequent five holes were drilled in July. The subsurface material at this site includes clay, silt, sand, gravel, cobbles and boulders overlying basalt bedrock. The approximate top of bedrock elevation ranged from 3,090.0 to 3,092.3 feet. These borings were drilled to a maximum depth of 110.7 feet (elevation 3,019 feet) below the bridge deck, which is 71.7 feet into the basalt bedrock. The basalt bedrock is massive, gray to reddish brown in color, fresh to moderately weathered, moderately hard to very hard, slightly fractured to very intensely fractured and very slightly vesicular to highly vesicular. Fracture angles vary from horizontal to vertical with some clay infilling to ¼ inch thick.

## **Ground Water**

Ground water levels were not indicated on the "As-built" Log of Test Borings dated March 1989. However, the Foundation Plan dated September 1987 indicates the water surface in the creek was at elevation 3,119.3 feet on September 2, 1987. The Hydrologic/Hydraulic Data Summary on the Foundation Plan dated September 10, 2008 indicates the 50 Year design flood would provide a water surface elevation of 3,126.4 feet at the bridge. During the drilling in November 2007, the ground water level in Boring R-07-001 was measured at elevation 3,119.5 feet. During the drilling in July 2008, the ground water level in Boring R-08-002 was measured at elevation of 3,120.8 feet. Water was present in the creek on July 24, 2008. At that time, the water levels in

the creek were fairly low but ground water levels will fluctuate due to seasonal precipitation and may be higher during the winter months and the spring of the year.

For construction purposes, it is likely ground water will be encountered in the alluvium above the bedrock. If the water in the alluvium can be sealed, then the water in the bedrock may possibly be controlled using construction methods. However, ground water in the bedrock may or may not be controlled during construction and if it cannot be controlled, then “wet” drilled shaft methods will apply.

The Final Hydraulic Report (FHR) prepared by the Structure Hydrology and Hydraulics Branch dated August 27, 2008 indicates “The 1955 highwater mark at the southwest wingwall was roughly 1.2 feet below the bottom of the slab (at the abutment), which corresponds to an elevation of approximately 3,127 feet.” For design purposes the ground water elevation of 3,120.8 feet should be used.

### **Scour Evaluation**

The existing structure abutments and pier walls are supported on spread footings and the piers exhibit signs of scour induced damage. Downstream of the bridge, a checkdam and channel encroachments, have been contributing to aggradation. The channel had to be re-graded in 1987 by Caltrans Maintenance to preserve clearance under the bridge.

The Final Hydraulic Report states, “For design purposes, it was conservatively assumed that the “natural” long-term trend at the bridge site is degradation. Considering all available information, it was assumed that roughly 3.0 feet of potential, long-term channelbed degradation (depth) was a reasonable estimate. Based on an estimated current thalweg elevation at the upstream face of the existing bridge structure, the corresponding elevation is 3,114.0 feet.” Based on this information a total scour elevation of 3,114.0 feet will be used for design.

Additionally, the Final Hydraulic Report states, “The potential local pier scour (depth) was estimated as 6.0 feet. The corresponding elevation is estimated to be 3,108.0 feet, which is 6.0 feet below the estimated elevation for potential long-term channelbed degradation.”

For further information, refer to the Final Hydraulics Report for the Burney Creek Bridge (Br. No. 06-0062) dated August 27, 2008, completed by the Structure Hydrology and Hydraulics Branch.

### **Corrosion Evaluation**

Corrosion samples were collected during the preliminary field investigation of November 2007 and during the final foundation investigation in July 2008, all tests results indicate this site is not corrosive to foundation elements. Due to the location and elevation, it is expected that deicing salts would be used on the roadway and bridge deck, however Caltrans maintenance indicated that deicing salts were not used within the Burney town limits. Appropriate corrosion protection measures should be considered. Table 2 presents the summary of test results.

**Table 2. Corrosion Test Summary**

Boring No.	Sample Depth (ft)	pH	Minimum Resistivity (ohm-cm)	Sulfate Content (ppm)	Chloride Content (ppm)
R-07-001	21.0-28.5	7.07	16240	N/A	N/A
R-08-002	5.0-10.0	6.61	5949	N/A	N/A
R-08-002	30.0-35.0	6.34	6384	N/A	N/A
R-08-003	15.0-18.2	6.46	10395	N/A	N/A
R-08-003	30.0-35.0	6.56	7229	N/A	N/A
R-08-004	30.0-32.5	6.42	7418	N/A	N/A
R-08-004	35.0-39.2	6.26	5394	N/A	N/A

*Note:*

*The Corrosion Technology Branch considers a site to be corrosive if one or more of the following conditions exist for the representative soil and/or water samples taken at the site: chloride concentration is 550 ppm or greater, sulfate concentration is 2000 ppm or greater, or the pH is 5.5 or less. The minimum resistivity serves only as an indicator parameter for the possible presence of soluble salts and is not included to define a corrosive site. It is the practice of the Corrosion Technology Branch that if the minimum resistivity of the sample is greater than 1000 ohm-cm, the sample is considered to be non-corrosive and testing to determine the sulfate and chloride content is not performed.*

**Seismic Study**

Based on the *Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, Version 2.0* (July 2005), Bryant, W.A. (Compiler) [http://www.consrv.ca.gov/CGS/information/publications/QuaternaryFaults\\_ver2.htm](http://www.consrv.ca.gov/CGS/information/publications/QuaternaryFaults_ver2.htm) the controlling fault is the Rocky Ledge fault zone (Normal) with Mmax of 6.5. The fault is located about 4.7 miles east northeast of the site. The estimated Peak Bedrock Acceleration (PBA) as modeled by Geomatrix 97 is 0.4g. The potential for surface rupture at the site due to fault movement is considered nil since there are no known faults projecting towards or passing directly through the project site.

The liquefaction potential is considered to be low.

Based on the LOTB boring logs, a final Caltrans Seismic Design Criteria (CSDC) Acceleration Response Spectrum (ARS) corresponding to soil profile Type C with a PBA of 0.4g is recommended for design. Please note that due to the proximity of this structure to the fault, we have performed a second modification to the CSDC ARS curve (see Figure 1 in Appendix A). The modification is such that there is no increase in spectral accelerations (SA) for periods less than 0.5 second, and a 20% increase in SA for periods greater than 1 second. Between the periods of 0.5 and 1 second, a linear interpolation was used to estimate the SA.

### As-Built Foundation Data

This study consisted of reviewing the As-Built information in the bridge files, including the General Plan and Log of Test Borings for the widening of the Burney Creek Bridge (Br. No. 06-0062) in 1990. The Foundation Plan dated March 20, 1989 provides for an allowable footing pressure of four tons per square foot at all support locations.

### Foundation Recommendations

Based on the field investigation and review of the bridge files for the Burney Creek Bridge, Br. No. 06-0062, and as indicated on the General Plan dated December 28, 2009, the following foundation modifications are recommended.

This project was designed using the Working Stress Design (WSD) Method for Abutments 1 and 3 and the Load Factor Design (LFD) Method for Pier 2.

#### Spread footings

The proposed abutment footings shall be retrofitted and strengthened by widening the existing spread footings from the back-side within the approach fills. These footings are designed to be founded in the alluvial deposits.

It is recommended that an internal friction angle of 36° be used for the soil beneath the footings to calculate the sliding resistance.

**Table 3. Spread Footing Data Table**

Support Location	Minimum Footing Width (feet)	Bottom of Footing Elevation (feet)	Recommended Bearing Limits	
			WSD <sup>(1)</sup>	LFD <sup>(2)</sup>
			Gross Allowable Bearing Capacity ( $q_{all}$ ) ksf	Nominal Bearing Resistance ( $q_n$ ) ksf
Abut 1	9.5	3113.5	5.0	N/A
Abut 3	9.5	3113.5	5.0	N/A

*Notes:*

- Working Stress Design (WSD): The Maximum Contact Pressure ( $q_{max}$ ) is not to exceed the Recommended Gross Allowable Soil Bearing Capacity, ( $q_{all}$ ).*
- Load Factor Design (LFD): The Maximum Contact Pressure ( $q_{max}$ ), divided by the Strength Reduction Factor ( $\phi$ ) is not to exceed the Nominal Bearing Resistance ( $q_n$ ).*

Deep Foundations

The new pier wall foundation may be supported on Cast-In-Drilled-Hole (CIDH) piles with permanent steel casing at Pier 2.

**Table 4. Pile Data Table for CIDH Piles**

Location	Pile Type	Design Loading (kips)	Nominal Resistance		Steel Casing Specified Tip Elevation (ft)	Design Tip Elevations (ft)	Specified Tip Elevations (ft)
			Compression (kips)	Tension (kips)			
Pier 2	36" CIDH piles with NPS 36"x 0.5" permanent steel casing, 30" CIDH rock sockets	N/A	1500	0	3,087.0	3,067.0 (1)	3,067.0

Note:

*Design Tip Elevation is controlled by the following demands: (1) Compression. (2) Tension.*

**General Notes to Designer**

1. The structural engineer shall show on the plans in the pile data table, the minimum pile tip elevation required to meet the lateral load demands.
2. If the specified pile tip elevation that is required to meet lateral load demand exceeds the specified pile tip elevations provided in this report, the Office of Geotechnical Design North (OGD-N) should be contacted for further recommendations.
3. Type "D" excavation is to be shown on the plans at the abutment locations.

**Construction Considerations**

1. If during the excavation for spread footings, unsuitable material is exposed for support of the proposed structure foundations, the unsuitable material shall be removed and replaced with structural backfill compacted to a relative compaction of not less than 95%, or the bottom of footing elevation shall be lowered to undisturbed competent material.
2. Ground water is anticipated to be encountered during abutment footing and CIDH shaft excavations.
3. Type D excavation should be used at the abutments, however, due to flowing water, high ground water and highly transmissive soils, dewatering may be difficult.

4. Spread footings shall be placed neat against competent material. All loose material shall be removed prior to the placement of concrete.
5. When excavations are completed to the bottom of footing elevation and prior to the placement of concrete, all footing excavations are to be inspected and approved by this Office or a representative of the Office of Structure Construction.
6. To facilitate construction of the 30-inch diameter CIDH Rock Socket through bedrock, installation of a 36-inch diameter CIDH with permanent steel casing is needed to control caving of the fluvial deposits and surface water above the bedrock.
7. The 36-inch diameter permanent steel casing is to be installed to elevation 3,087.0 feet. This is approximately four feet into the basalt bedrock. The Contractor should be aware that driving this casing into the bedrock may damage the casing and other installation methods may be necessary.
8. CIDH piles will be socketed into bedrock. The rock is expected to be very hard and appropriate hard rock drilling equipment is required.
9. Prior to the placement of any concrete, the bottom of the drilled holes will need to be clean and free of any loose or undesirable material.
10. It is highly recommended that the Contractor inspect/observe the core samples at the Translab facility before bidding. This inspection/observation would give the prospective bidders a better understanding of the bedrock.
11. Private commercial buildings exist very near the abutments. The integrity of these buildings should be preserved during construction.

## 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. *Log of Test Borings for Burney Creek Bridge, Bridge Number 06-0062.*

*Data and information included in the Information Handout provided to the bidders and contractors are:*

- A. *Foundation Recommendations for Burney Creek Bridge (Scour Retrofit), Bridge Number 06-0062, dated July 15, 2010.*
- B. *Revised Foundation Recommendations for Burney Creek Bridge (Scour Retrofit), Bridge Number 06-0062, dated August 25, 2010.*

Any questions regarding the above recommendations should be directed to John L. Thorne at (916)-227-1034 or Xing Zheng at (916) 227-1036. Seismic questions should be directed to Reza Mahallati at (916) 227-1033.

Report by:

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exp. 3/31/2011

Attachment: Appendix A, Figure 1 – Acceleration Response Spectrum Recommended for Design.

- C: EricOrr – DPM (E-copy)
- MarkWillian – OGS (E-copy)
- StructureConstruction R.E. Pending (E-copy)
- DES OE OPS&E (E-copy)
- ByronBerger – DME-D02 (E-copy)
- SteveNg – OSH
- GeoDog Archive

# Appendix A

## Recommended ARS Curve

Burney Creek Bridge  
Br. No. 06-0062  
02-2C2221

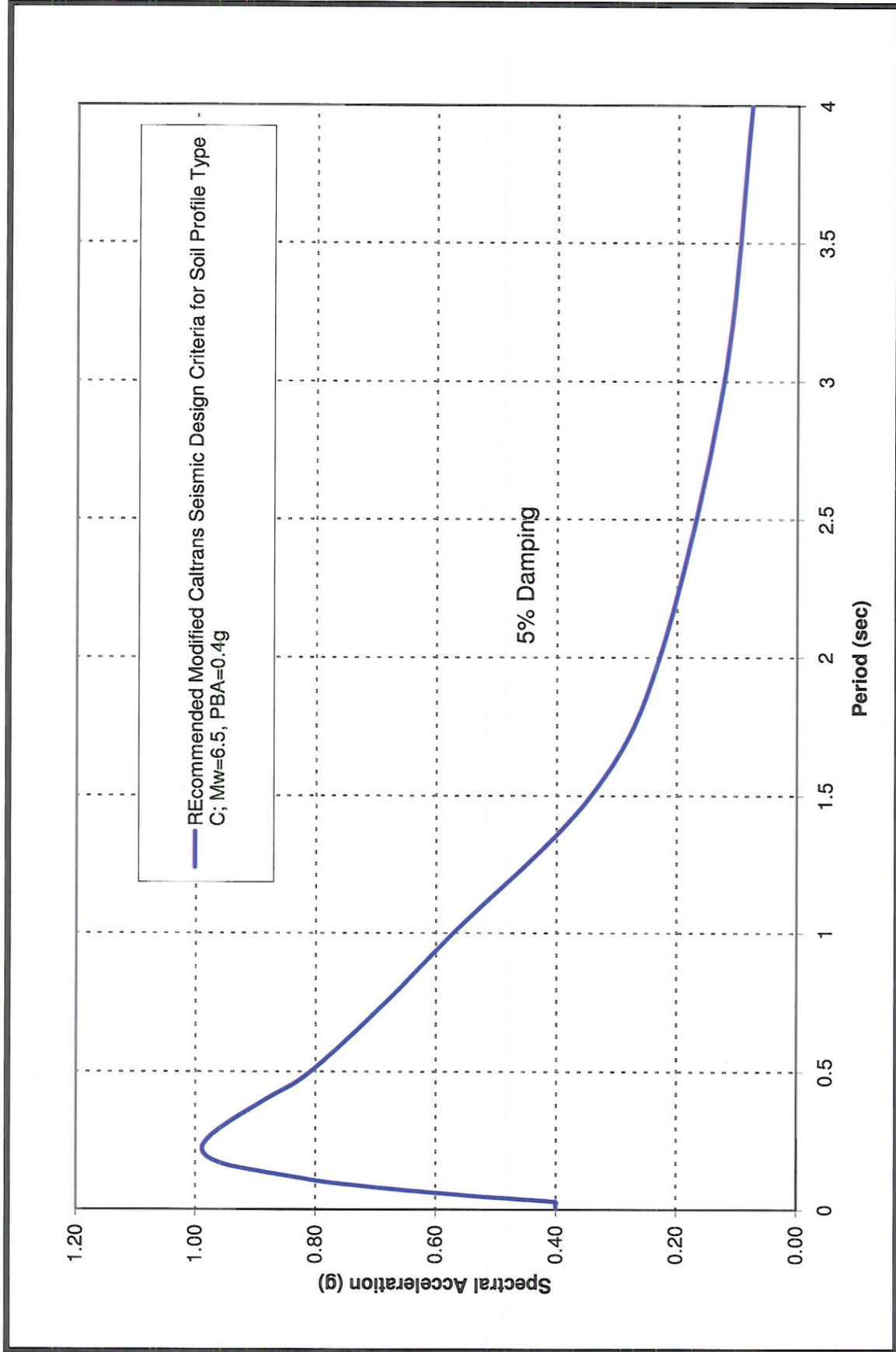


Figure 1. Acceleration Response Spectrum Recommended for Design

State of California - Department of Transportation  
Division of Engineering Services  
Structure Design Services & Earthquake Engineering

# FINAL HYDRAULIC REPORT

Burney Creek Bridge

Br. No. 06-0062

02 - SHA - 299 - PM 74.85

*Located in the Town of Burney, CA*

*PROJECT DESCRIPTION:*

Proposed Scour Retrofit of Existing Bridge (EA 02-2C2201)

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Prepared by:



Jose J. Vargas, P.E.  
Transportation Engineer (Civil)  
Structure Hydraulics & Hydrology Branch  
August 27, 2008



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**Vertical Datum Reference:**

*The Vertical Datum Reference for elevations shown in the report is the National Geodetic Vertical Datum of 1929 (NGVD 29), unless otherwise indicated.*

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**GENERAL INFORMATION**

It is proposed to retrofit the existing bridge structure, Burney Creek (Br. No. 06-0062), due to scour concerns. The bridge site is located in the town of Burney, California, on State Route 299. The existing structure currently has a National Bridge Inspection Standards (NBIS) Item 113 Code rating of "3", which indicates, "*Bridge is scour critical; bridge foundations determined to be unstable for assessed or calculated scour conditions.*"

The existing bridge was built in 1949 and widened in 1990. It is a continuous, reinforced concrete (RC) slab on RC pier walls and RC cantilever abutments, all founded on spread footings. The widening is a continuous RC slab founded on the original wingwalls, which are on spread footings and extended pier walls. The existing bridge has an approximate length of 108 feet and width of 92.8 feet.

Two proposed alternatives for the scour retrofit project are currently being considered. ' Alternative 1 would replace the existing foundations at Piers 2 and 3 and maintain the current 3-span configuration. Alternative 2 would utilize a 2-span configuration and replace the existing superstructure (deck) with a new structure depth of approximately 1 foot - 9 inches and use a single new Pier 2 (pile row) at the mid-span of the bridge. Both alternatives propose to maintain the existing abutments and use similar multiple-column bents (bents supported on a row of pile foundations). Based on preliminary General Plan (GP) sheets dated 4/21/08, the proposed foundations for both alternatives assume using round, 30-inch diameter, Cast-In-Drilled-Hole (CIDH) piles with permanent steel casing.

Based on historical cross-sections for the bridge site, the thalweg is not expected to migrate laterally to either abutment. Lateral thalweg migration to either of the current pier locations is possible. The proposed retrofit project is intended to only address the potential long-term channelbed degradation and local pier scour at the proposed pier locations for either alternative.

**DESCRIPTION OF WATERSHED**

According to the 1999 FEMA FIS, the total basin drainage area for Burney Creek (near Burney) is approximately 89.0 square miles. The confluence of Burney Creek with the Pit River is located approximately 4.0 miles north of Burney. The floodplain in the Burney area is relatively wide and flat.

Based on USGS topographic maps (7.5-Minute Series), the only two "named" tributaries of Burney Creek are Green Burney Creek and Dry Burney Creek. Portions of the Burney Creek watershed are located within the Lassen National Forest. The elevations within the watershed vary from approximately 8,683 feet (elevation at Crater Peak) in the upper reaches to approximately 3,118 feet at the bridge site.

Most of the typical flow reaching the bridge site is due to seasonal precipitation and snowpack runoff. The native vegetation within the watershed varies along the creek. The higher elevations of the watershed include mountainous terrain of forest areas. Near the bridge site, typical natural vegetation in the main channel and overbanks includes grasses, shrubs, brush, and trees.

## **PEAK DISCHARGES**

Based on USGS topographic maps, Burney Creek divides into two separate branches approximately 1,900 feet upstream of the bridge site (measured along the channel). The western/left branch continues north through the Burney Creek (Br. No. 06-0062) bridge site. The eastern/right branch continues northeast through West Branch Burney Creek Bridge (Br. No. 06-0063).

Based on the FEMA FIS, the 50-year and 100-year frequency (peak) discharges for the Burney Creek (Br. No. 06-0062) bridge site were estimated as 4,000 cfs and 4,100 cfs, respectively. Two site-specific factors may affect the actual peak discharges in the channel along Burney Creek (the western/left branch). First, the uncontrolled (natural) flow division upstream of the 06-0062 bridge site makes it difficult to accurately estimate the amount of flows entering either branch. Secondly, available maps indicate there are some flow diversions along Burney Creek which divert unknown quantities of flow away from the main channel. One flow diversion occurs at a checkdam structure located approximately 350 feet downstream of the Burney Creek bridge site. The peak flows in the FEMA FIS were considered to be the best-available estimates and were considered for this study.

## **WATER SURFACE ELEVATIONS**

A field survey of the bridge site was completed by Preliminary Investigations (PI) - North, Survey Branch in May 2008. Data from a previous District 2 field survey completed in late 2007 was used to supplement the field survey data obtained in 2008. Using the geometric data provided by the field surveys and information shown on the preliminary General Plan (GP) sheet dated 4/21/08, a HEC-RAS model (Version 3.1.3) was created for the bridge site. The Manning's roughness coefficients ("n") were estimated as 0.035 for the main channel and 0.050 for the overbank areas.

The HEC-RAS model was used to estimate water surface elevations (WSEL's). The calculated water surface elevations at the bridge site for the 50-year and 100-year frequency discharges were approximately 3,127.7 feet and 3,127.8 feet, respectively. The results were similar for both proposed alternatives. The HEC-RAS model assumed that the full estimated flows remained in the channel (no flow diversions) and also modeled the downstream checkdam in the waterway.

For comparison purposes, water surface elevations for the 50-year and 100-year frequency discharges were calculated in the FEMA FIS. At the bridge site, the FEMA FIS Flood Profiles indicate a water surface elevation of approximately 3,126.4 feet for both the 50-year and 100-year frequency discharges. It is not known whether the FEMA FIS hydraulic model assumed any flow diversions or if the checkdam was modeled (or even existed at that time).

Comparing results from the HEC-RAS model and the FEMA FIS, the estimated water surface elevations at the bridge site were similar. The assumptions used for the HEC-RAS model of full flows and the checkdam would both be expected to increase the calculated WSEL's at the bridge site. Since different assumptions may have been used in the FEMA FIS, a direct comparison of stages may not be accurate. Overall, the HEC-RAS results suggest the reported stages in the FEMA study are reasonable for the estimated discharges. The FEMA estimates for stages were used for the study.

Based on available bridge reports, highwater mark records for this site were located for the years of 1955 and 1962. The 1955 highwater mark at the southwest wingwall was roughly 1.2 feet below the bottom of the slab (at the abutment), which corresponds to an elevation of approximately 3,127 feet.

## PEAK VELOCITY

Using a one-dimensional hydraulic model program, BrEase (Version 3.3), a cross-section dated 8/27/07, and the 100-year peak discharge and WSEL values from the FEMA FIS, the local peak (water) velocity was estimated as 9.0 feet per second. For comparison purposes, the HEC-RAS model calculated a local peak velocity of approximately 7.0 feet per second. The BrEase program estimate of 9.0 feet per second was considered to be slightly more conservative and was used for the scour analysis.

## WATERWAY CAPACITY & MINIMUM SOFFIT ELEVATION

The FEMA FIS noted two flood events that occurred in 1970 and 1974, with flows roughly estimated as 4,910 cfs and 2,890 cfs, respectively. However, the study did not state the associated stages or indicate the reference location of the estimated flows.

Both alternatives propose using a RC drop bent cap at the pier locations. Alternative 1 proposes to maintain the existing slab superstructure. Alternative 2 proposes to replace the existing slab with a precast/prestressed (PC/PS) approximately 1'-9" in structure depth. The original 1949 "As-Built" plans indicate a varying structure depth between 1'-9" and 2'-1". Considering that Alternative 1 proposes to maintain the existing slab superstructure, it will not affect the existing soffit or available waterway capacity. Alternative 2 would provide a more uniform slab thickness of 1'-9", which would slightly raise the soffit at the original section of bridge and provide a slight increase in total waterway capacity underneath the bridge.

Bridge inspection reports since 1974 have noted some channelbed aggradation at the bridge site. Some channel excavation/re-grading was completed in 1987 "to preserve clearance under the bridge". Changes to the local channelbed may be naturally-occurring and/or affected by some man-made activities. Based on site-specific factors, some localized areas of aggradation and degradation may continue in the future as indicated in the historical record for the existing bridge.  
(Refer to "LONG-TERM CHANNELBED TRENDS" for further information.)

The recommended minimum soffit elevation for the scour retrofit project assumes the existing roadway profile grade along State Route 299 is maintained for both alternatives. For Alternative 1, the recommended minimum soffit elevation is to match the existing minimum soffit elevation. Alternative 2 proposes to replace the existing superstructure with a new PC/PS concrete slab of 1'-9" in structure depth. Assuming a minimum structure depth of 1'-9" is required for design purposes, the recommended minimum soffit elevation for Alternative 2 is estimated as 3,128.3 feet.

## DRIFT POTENTIAL

Bridge inspection records indicate some history of minor drift accumulation at the existing pier locations. Some reports beginning in 1981 include some observations of minor drift accumulation at the existing bridge piers, mostly noted at Pier 3. A 1997 inspection report indicated that the upstream side of Pier 2 had accumulated "debris", including a tree approximately 20 feet in length, and estimated drift at Pier 3 of roughly 5 feet high and 3 feet wide. Some photos of the bridge site taken since 2001 show similar accumulated drift at the upstream nose of Pier 3.

Photos of the bridge site indicate grasses, shrubs, brush, and trees are located along the edges and overbank areas of this segment of Burney Creek. Available bridge records suggest that the existing span lengths of approximately 33 feet (Spans 1 & 3) and 42 feet (Span 2) are sufficient to allow most typical-sized drift (for the site) to pass through the bridge waterway without having a significant tendency to accumulate at the upstream piers.

It is recommended to either match or increase the existing open-span lengths to minimize the drift accumulation potential. Alternative 1 would match the current span lengths; Alternative 2 would increase the span lengths to roughly 54 feet due to using a 2-span (single pier) configuration. Although Alternative 1 is acceptable for matching the existing open-span lengths, Alternative 2 is preferred since it provides longer open-spans and further reduces drift accumulation potential. For the purpose of this study, a small amount of debris (1.0 foot of additional width on each side of the column) was considered for the scour analysis.

## **LOCAL PIER SCOUR**

In late 2007, the Caltrans Geotechnical Branch completed soil borings at the bridge site for a foundation investigation and took samples for a soil gradation analysis. The field sample selected for the gradation analysis was assumed to be representative of the typical channelbed material found at the bridge site and at the proposed foundation locations. The analysis results indicated approximate  $D_{50}$  and  $D_{95}$  values of 21mm and 46mm, respectively. The estimated  $D_{50}$  and  $D_{95}$  values suggest some channelbed armoring occurs at the bridge site, which reduces the amount of calculated local pier scour. Channelbed armoring was considered for the scour analysis.

For scour analysis purposes, “widely-spaced” columns have a minimum, column-to-column spacing of 5-pile diameters. As proposed for both current alternatives, using “widely-spaced” multiple column foundations would minimize any potential hydraulic skew effects at the new piers and significantly reduce the calculated local pier scour. For the scour analysis, widely-spaced columns and an estimated 8.0 degrees of existing hydraulic skew was assumed. Other assumptions used or considered for the scour analysis include: 1) lateral thalweg migration to any (interior) pier location, 2) round, 30-inch diameter, multiple-column bents with 5 piles per bent, 3) a channel cross-section dated 8/27/07 for the upstream face of the bridge, 4) the FEMA FIS 100-year frequency discharge, and 5) 1.0 foot of debris width (on each side).

The BrEase (Version 3.3) program is based on the Fourth Edition of the HEC-18 Manual (*Evaluating Scour at Bridges*) and was used to estimate the local pier scour for both alternatives. Using the BrEase program, the potential local pier scour (depth) was estimated as 6.0 feet. The corresponding elevation is estimated to be 3,108.0 feet, which is 6.0 feet below the estimated elevation for potential long-term channelbed degradation. Given that lateral thalweg migration is assumed possible to any proposed pier location and the proposed foundation details are similar for both alternatives, the estimated potential local pier scour (depth/elevation) applies to both alternatives and at any proposed pier location.

## **LONG-TERM CHANNELBED TRENDS**

Several bridge reports have indicated some localized channelbed aggradation at the existing bridge since 1974. A 1982 bridge report noted some gravel deposits beneath spans 1 and 2. A 1984 bridge report noted some encroachments into the channel area by property owners in the southwest corner, “*aided by natural vegetation and the RSP guarding the sewer line*”. A 1988 Caltrans Geotechnical Branch Foundation Investigation memorandum noted that Maintenance had indicated some aggradation of Burney Creek at the bridge site, which “*required excavation of the channel to preserve clearance under the bridge*” in 1987. A cross-section dated 1987 shows the revised waterway after the re-grading of the channelbed.

Approximately 350 feet downstream of the bridge, a grouted rock/concrete checkdam spans the creek. The checkdam includes a concrete weir section with a separate flow diversion opening, which redirects some flows into a small diversion channel heading northeast. Since checkdams are grade control structures intended to stabilize the channelbed upstream, some aggradation at the bridge site may have been partially due to effects of the checkdam. The encroachments in 1984 may have also contributed to localized aggradation prior to the re-grading in 1987.

Although some aggradation has been reported at the bridge site, historical cross-sections indicate some minor degradation in the main waterway since being built. In addition, the HEC-RAS model (longitudinal) channel profile shows three nearby "low spot" locations (roughly 100, 200, and 250 feet away from the bridge) with estimated thalweg elevations of roughly 3,115 feet. If either the "low spots" or a potential headcut (due to a hypothetical checkdam failure) were to migrate and eventually reach the bridge site, the local channelbed at the proposed pier locations would be lowered.

For the purpose of this study, it was assumed that man-made activities (e.g. a downstream checkdam, encroachments into the channel, etc.) may have contributed to some of the past aggradation. For design purposes, it was conservatively assumed that the "natural" long-term trend at the bridge site is degradation. Considering all available information, it was assumed that roughly 3.0 feet of potential, long-term channelbed degradation (depth) was a reasonable estimate. Based on an estimated current thalweg elevation at the upstream face of the existing bridge structure, the corresponding elevation is 3,114.0 feet. The estimated long-term channelbed degradation was assumed to be valid for a 75-year period, which was considered to be a typical service period for new structures.

Given that lateral thalweg migration was considered possible to Piers 2 and 3, the estimated potential long-term degradation (depth) applies to both alternatives and at any proposed pier location. Assuming no significant changes to the existing channel occur in the future (either natural or man-made), lateral thalweg migration to either abutment is not anticipated at this time.

### **BANK PROTECTION RECOMMENDATIONS**

No additional bank protection for either retrofit alternative was considered necessary at this time.

### **OTHER CONSIDERATIONS**

- 1) From a hydraulic perspective only, the recommended alternative is Alternative 2. Although Alternative 1 is adequate, Alternative 2 would only require a single pier in the waterway, increase open span lengths, and make the slab (structure) a uniform depth. These factors would be expected to minimize potential drift accumulation potential at the single pier and slightly raise the soffit (at the original section of bridge).
- 2) Utilities / Utility Encroachment - There are existing utilities that may require relocation due to the proposed project. A concrete utility encasement on the upstream side of the bridge spans the channel from one abutment to the other.
- 3) Long-term channelbed stability at this bridge site is a complex and dynamic process and may involve many natural and/or "man-made" factors. Even after the scour retrofit project is completed, some localized areas of aggradation/degradation or periodic cycles of aggradation and degradation may still occur at the bridge site due to many site-specific factors. If localized aggradation occurs in the future which significantly reduces the total available waterway capacity underneath the structure, some channelbed grading may be necessary to restore the waterway capacity, as was done in 1987.

**SUMMARY INFORMATION FOR THE BRIDGE DESIGNER**

*NOTE: The Vertical Datum Reference for elevations shown in the report is the National Geodetic Vertical Datum of 1929 (NGVD 29), unless otherwise indicated.*

Estimated Thalweg Elevation (at upstream face of bridge, 2007 cross-section)	3,117.0 feet
Potential Long-Term Channelbed Degradation (Depth) <sup>1</sup>	3.0 feet <sup>1</sup>
Potential Long-Term Channelbed Degradation (Elevation) <sup>1</sup>	3,114.0 feet <sup>1</sup>
Potential Local Pier Scour (Depth) <sup>1</sup>	6.0 feet <sup>1</sup>
Potential Local Pier Scour (Elevation) <sup>1</sup>	3,108.0 feet <sup>1</sup>
Recommended Minimum Soffit Elevation <sup>2</sup>	Alternative 1 = match existing <sup>2</sup> Alternative 2 = 3,128.3 feet <sup>2</sup>
Local Peak (Water) Velocity (Based on the 100-Year Discharge)	9.0 feet per second

<sup>1</sup> Lateral channel thalweg migration to all (interior) pier locations was assumed for this study. The potential long-term channelbed degradation and local pier scour was the same at any pier location (for either alternative).

<sup>2</sup> Assumes the existing roadway profile grade along State Route 299 is maintained for both alternatives. Alternative 2 minimum soffit elevation assumes a minimum structure depth of 1'-9" is required for design purposes.

<b>Hydrologic / Hydraulic Summary</b>			
Total Drainage Basin Area: 89.0 square miles			
	Design Flood	Base Flood	Overtopping Flood
Frequency, years	50	100	N/A <sup>4</sup>
Discharge, cfs	4,000	4,100	N/A <sup>4</sup>
Water Surface Elevation at Bridge, feet	3,126.4 <sup>3</sup>	3,126.4 <sup>3</sup>	N/A <sup>4</sup>
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.			

<sup>3</sup> Water surface elevations are based on the 1999 FEMA Flood Insurance Study (FIS), which indicated that the 50-year and 100-year WSEL's coincide along this section of channel.

<sup>4</sup> No values were provided due to a large uncertainty in estimating the "Overtopping Flood" frequency and discharges.

## REFERENCES

- 1) California Department of Transportation (CALTRANS) - Bridge Inspection Reports (BIR's), Supplemental Bridge Reports (SBR's), Bridge File, As-Built Plans, Photos, Digital Highway Inventory Photography Program (DHIPP) - aerial photos, Preliminary General Plan (GP) Sheets dated 4/21/08
- 2) Federal Emergency Management Agency (FEMA) - Flood Insurance Study (FIS) Shasta County, CA - Unincorporated Areas - Community Number 060358  
*(Last Revised: June 16, 1999)*
- 3) United States Geological Survey (USGS), 7.5-Minute Series (Topographic) Quadrangle maps for California  
*Vertical Datum: National Geodetic Vertical Datum of 1929 (NGVD 29)*  
  
*Listing of California maps reviewed:*  
*Burney, Burney Mountain East, Burney Mountain West, Cassel, Hatchet Mountain Pass, Jacks Backbone, Miller Mountain, Thousand Lakes Valley*
- 4) Federal Emergency Management Agency (FEMA) flood maps
- 5) Other available documentation/records available at this time:  
-Google Maps <http://maps.google.com/>