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**I. Title Page**

**A. Title of the Project: Preliminary Design and Engineering of  
Lower Western Stone Restoration Site, Merced River  
Ratzlaff/Robinson Channel Restoration Project**

**B. Contact**

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**C. Collaborators**

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**D. General Project Description/Executive Summary**

The Lower Western Stone Site is approximately a 3/4 mile river restoration project located immediately downstream of the State Highway 59 Bridge on the Merced River (River Mile 40.5), 6 miles southwest of the town of Snelling. The project would improve river and floodplain dynamics, reestablish salmonid nursery habitat, reduce mortality of juvenile salmon due to predation and enhance the riparian corridor. This funding request is directed to the development of preliminary design and engineering plans for the Lower Western Stone reach; additional funding for project construction may be requested at a later time. This project is linked to the Robinson Ranch and the Ratzlaff Ranch Restoration Sites. When combined, the Ratzlaff/Robinson Channel

Restoration project can restore over 3 miles of important aquatic and riparian habitats. Specific project biological/ecological objectives are:

- Eliminate or reduce juvenile salmon predator habitat by filling or isolating the unnatural ponded areas in stream;
- Increase the quantity and quality of spawning habitat for chinook salmon by adding spawning gravel, reconfiguring spawning beds and the river course;
- Increase the quantity and quality of rearing habitat for chinook salmon by increasing available in-channel diversity;
- Improve river and floodplain dynamics by reconfiguring the channel to better conform with the present flow regime;
- Enhance riparian and seasonally inundated vegetation by increasing and revegetating floodplain at the project site which will be captured by the river during high flows.

Implementation of this restoration project is a joint effort of the California Department of Fish and Game (DFG) and the California Department of Water Resources (DWR). Partial funding has been identified from the Central Valley Improvement Act - Anadromous Fish Restoration Program (CVPIA-AFRP) and the 4-pumps agreement.

## **II. Proposed Scope of Work**

Winter/Spring 2000 Task 1- Preliminary Design and engineering of Lower Western Stone reach restoration site

## **III. Location and/or Geographic Boundaries of the Project**

The project is located in Merced County on the Merced River approximately 6 miles southwest of the town of Snelling. The State Highway 59 Bridge across the Merced River bisects the project. The surrounding area is rural, agricultural with several active gravel mining companies working in the area. Property immediately north of the project site is being mined by Western Stone Incorporated. Property immediately south and west of the project consists of orchards, vineyards and grazing lands. Property east of the project is farming and grazing lands interspaced with abandoned mined areas and remnant riparian cover. A map will be submitted subsequently.

## **IV. Ecological Objectives and Related Benefits**

- A. The Lower Western Stone construction reach is immediately upstream from the Ratzlaff reach. Several large ponds, remnants of past mining activities, are now part of the active channel. The reach is constricted causing erosion and instability during moderate to high flows. Recently, a berm on the river's north side has been breached allowing the river to capture another abandoned mining pit.

The major objectives of the project are to:

- Eliminate or reduce juvenile salmon predator habitat by filling or isolating the unnatural ponded areas in stream;
- Increase the quantity and quality of spawning habitat for chinook salmon by adding spawning gravel, reconfiguring spawning beds and the river course;

- Increase the quantity and quality of rearing habitat for chinook salmon by increasing available in-channel diversity;
- Improve river and floodplain dynamics by reconfiguring the channel to better conform with the present flow regime and increase sediment transport;
- Enhance riparian and seasonally inundated vegetation by increasing and revegetating floodplain at the project site which will be captured by the river during high flows.

B. Hypotheses or Questions to be evaluated as a result of completion of all stages of this project are:

- Does the removal of 45 acres of predator habitat from the river channel by this project produce an average increase of salmon smolts annually at Mossdale?
- Is potential spawning area of 12,000 yd<sup>2</sup> restored by this project?
- Do proposed stream channel manipulations improve channel complexity, reduce substrate armoring, and increase available gravel recruitment?

C. The Ratzlaff/Robinson Channel Restoration Project is divided into 2 main projects; 1) the Ratzlaff Site, downstream of the Highway 59 Bridge and 2) the Robinson Site, upstream of the Highway 59 Bridge. The Ratzlaff Ranch Site has been further divided into 3 construction reaches; 1) the Ratzlaff reach 2) the Lower Western Stone reach and 3) the Western Stone reach.

The Ratzlaff Ranch reach is in the final stages of environmental documentation and is scheduled for construction in the summers of 1999-2000. Funding for this work has been provided through 4-Pumps, CVPIA-AFRP, and a request for CALFED funding is also being submitted concurrent with this solicitation.

The Robinson Ranch reach is planned for construction in 2000 and close to \$7 million in funding has been identified through CALFED, the 4-pumps agreement, and DFG Proposition 70.

The Lower Western Stone reach is proposed for construction in 2001, followed by Western Stone in 2002. Partial funding for preliminary engineering design and construction plans for Lower Western Stone has been identified as a Federal Fiscal Year 99 priority for \$125,000 in funding by the CVPIA-AFRP. The 4-pumps agreement managers have identified about \$760,000 for project management, construction and other items as needed.

Preliminary survey and concept plans for the Western Stone reach have been completed; preliminary and final engineering design, construction plans and funding are needed to construct the project in 2001.

#### V. Monitoring and Data Collection Methodology

This funding request is targeted at development of engineering designs and construction plans for a physical restoration construction project. Funding agencies and outside experts, like Ms. Jennifer Vick, Stillwater Sciences, will be given the opportunity to provide technical review of the design plans.

#### VI. Technical Feasibility and Timing

A. The "No Project" Alternative was evaluated and determined that without action, additional degradation of the channel would occur, resulting in additional loss of salmon spawning and rearing habitat and perhaps increasing available habitat for predatory species. Filling of the

ponded areas which provide habitat for warm water fish predators was considered, but was deemed to be infeasible because of the extensive amount of fill material needed. Other alternatives may be identified for consideration in the engineering design process.

B. CEQA and NEPA documents are not required for the development of engineering designs and construction plans. However, the collaborating parties are considering production of a programmatic NEPA/CEQA document for the combined project area including both the Ratzlaff Ranch and Robinson Ranch Restoration Sites.

C. Access permission from the landowners and Scientific Collecting Permits for DWR biological staff are the only permits necessary for this phase of the project. DWR staff has obtained the latter. Field staff for DFG and DWR have met with the landowners to discuss the project and have received a positive response for access at this time.

D. No outstanding issues are presently identified.

**VII. Cost and Cost-sharing**

DWR will be the agency receiving funds and managing the contract for this project.

Table 2. Total Budget

Task	Direct Labor Hours	Direct Salary and Benefits	Service Contracts	Material and Acquisition Costs	Misc and other Direct Costs	Overhead and Indirect Costs	Total Cost
Task 1	1,990	80,231	0	0	0	44,769*	\$125,000

\* Calculated rate of 55.8% assuming Federal funding source. Cost calculations may be subject to refinement.

Table 3. Sample Quarterly Budget

Task	Quarterly Budget Jan-Mar 00	Quarterly Budget Apr-Jun 00
Task 1	\$100,000	\$25,000

B. Partial funding for preliminary engineering design and construction plans for Lower Western Stone has been identified as a Federal Fiscal Year 99 priority for \$125,000 in funding by the CVPIA-AFRP. The 4-pumps agreement managers have identified about \$760,000 for project management, construction and other items as needed.

C. This proposal is for incremental funding of one task of a larger project.

**VIII. Local Impacts, Support and Involvement**

A. Merced County is aware of the proposals for the Ratzlaff/Robinson Channel Restoration Project and has been notified in writing of the Ratzlaff reach project in the CEQA process. The

County is involved in developing a stakeholder group for the Merced River to facilitate additional planning and projects of this nature. Although the county has not been specifically notified of our intent to develop engineering designs for the Lower Western Stone reach, they are expected to be supportive.

B. The developing Merced River stakeholder group has met once and was provided an overview of on-going and proposed projects at that time. Over 50 people were in attendance and a range of interests were present, including landowners, local officials and representatives of environmental and angling groups. No opposition was voiced at that time. The group is new enough that we have not clearly identified specific supporters.

C. Adjacent and affected landowners have been contacted and made aware of the project. They have been supportive. We have not identified any opposing parties at this time.

D. The next meeting of the Merced River stakeholder group will focus on a discussion of the restoration projects planned and completed in the lower reaches of the Merced River so that any concerns can be identified and addressed.

E. No third party impacts have been identified.

#### IX. Applicant's Ability

The DFG and DWR staff have worked closely with the various other state, federal and private personnel, to construct and repair chinook salmon spawning, rearing and predator pond isolation project in the San Joaquin River basin. The DFG and DWR have the clerical, fiscal and contractual personnel necessary to support the biological and technical experts administering this project.

DFG's Region 4 anadromous fishery staff administered \$1.5 million dollars in the 1995-96 fiscal year. In 1995-96 they helped develop 21 habitat restoration projects and completed the environmental documentation for 5 of these projects. They have been named contract managers for several restoration, revegetation, fish screening and fish research projects. Region 4 staff has work closely with the various other state, federal and private personnel, to construct chinook salmon spawning, rearing and predator pond isolation project in the San Joaquin River basin.

DWR engineering staff and "4-Pumps" personnel have constructed several restoration projects in the San Joaquin River Basin. They have worked closely with DFG personnel on many projects and have constructed the following projects.

Merced River Riffle Reconstruction Project 1991: A riffle reconstruction project.

M. J. Ruddy Project 1992: A mile river restoration project. Site revegetation was also completed.

Tuolumne River Riffle Reconstruction Project 1993: A riffle reconstruction project. Site revegetation was also completed.

Stanislaus River Riffle Reconstruction Project 1995: A riffle reconstruction project. Site revegetation was also completed.

Magneson Pond Predator Isolation Project 1996: A pond isolation project. Site revegetation was also completed.

The DFG/DWR staff assigned to implement this project are:

Ms. Rhonda Reed, DFG Environmental Specialist IV  
Mr. Bill Loudermilk, DFG Senior Fisheries Biologist (M/F)  
Mr. Clarence J. Mayott, DFG Associate Fisheries Biologist (M/F).  
Mr. Kevin Faulkenberry, DWR Associate Engineer.  
Mr. Fred Jurick, DFG Associate Fisheries Biologist (M/F).  
Ms. Stephanie Spaar, DWR Environmental Specialist IV

This core staff will obtain administrative support both DFG and DWR's clerical, fiscal and contractual personnel. DFG and DWR's environmental and wildlife personnel will provide technical and scientific review when necessary.

#### **X. Compatibility with Non-Ecosystem Objectives**

The proposed Project has no apparent conflicts with other CALFED objectives and may improve water quality by restoring proper function to this portion of the river. Support for this project comes from the San Joaquin River Management Program participants, environmental groups, sport and commercial salmon fishers, and the numerous agencies involved in restoring riparian, wetland and aquatic habitats throughout the state.