



**DEPARTMENT OF THE ARMY**  
**OFFICE OF THE CHIEF OF ENGINEERS**  
**WASHINGTON, D.C. 20314-1000**

REPLY TO  
ATTENTION OF:

22 DEC 2004

CEMP-SPD (1105-2-10a)

SUBJECT: Hamilton City, Glenn County, California

THE SECRETARY OF THE ARMY

1. I submit, for transmission to Congress, my report on the study of flood damage reduction and ecosystem restoration at Hamilton City, Glenn County, California. It is accompanied by the report of the district and division engineers. These reports are in partial response to the Flood Control Act of 1962, which authorized and directed the Secretary of the Army to cause surveys to be made under the direction of the Chief of Engineers, in drainage areas of the United States, which included the Sacramento River Basin, California. Preconstruction engineering and design activities for this project will be initiated under this authority.
2. The Hamilton City community has long been at risk of flooding from the Sacramento River. Portions of Hamilton City and the surrounding area were flooded in 1974, and extensive flood fighting was necessary in 1983, 1986, 1995, 1997, and 1998 to avoid failure of the existing private levee. Residents of the town were evacuated six times in the past 20 years: 1983, 1986, twice in 1995, 1997, and 1998. The existing levee does not meet U.S. Army Corps of Engineers or any other levee construction standards and could fail at river levels well below the top of the levee. In addition to the existing flood risk, native habitat and natural functions of the Sacramento River have been altered by construction of the private levee and conversion of the floodplain to agricultural and rural development. The Chico Landing to Red Bluff Project placed rock at 29 sites along the Sacramento River, one of which is within the Hamilton City project area. This rock placement would not be modified by the Hamilton City recommended project.
3. The reporting officers recommend authorization of a plan for the construction of a levee, which would be set back from the Sacramento River, and for the restoration of lands waterside of the setback levee. The recommended multi-purpose plan focuses on reconnecting the Sacramento River with a portion of its historic floodplain by removing the existing levee. This would restore hydrologic functions of the floodplain while providing flood damage reduction to the community and area landside of the setback levee. The project area encompasses about 1,480 acres with a 6.8-mile setback levee that would begin about 2 miles north of the community. Implementation of this plan would reduce potential flood damages and restore ecosystem functions and values in the area by restoring fish and wildlife habitats. The setback levee would provide 3 distinct levels of flood protection



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associated with three different average levee heights, as follows. A 4.4-mile segment of levee averaging 7.5 feet in height would provide protection from the 75-year flood event. For this levee segment, the initial 6.0 feet of levee is a replacement for the removal of the existing levee, and is considered part of the ecosystem restoration increment of the project. The additional 1.5 feet of levee is for the flood damage reduction increment of the project. The levee height gradually decreases to 6 feet in height for about 4,000 feet, providing a 35-year level of protection in that reach. A further decrease in levee height to three feet for the final 1.6-mile levee segment would provide protection from the 11-year flood event. The recommended plan includes removal of existing orchards in the project area, and planting of native vegetation to restore native habitat types that have become degraded along much of the Sacramento River. Implementation of the plan would result in the restoration of approximately 1,480 acres consisting of 1,000 acres of riparian species, 260 acres of scrub, 150 acres of oak savannah, and 70 acres of grassland, based on hydrologic, topographic and soil conditions.

4. Based on October 2003 price levels, the estimated total first cost for construction of the recommended plan is \$44,876,000. In accordance with the cost sharing provisions of the Water Resources Development Act (WRDA) of 1986, as amended by Section 210 of WRDA 1996, the Federal share of total project cost would be approximately \$29,229,000, including \$170,000 for cultural resource preservation, and the non-Federal share would be approximately \$15,647,000. The first cost for the flood damage reduction features of the project is about \$4,260,000, with a Federal share of \$2,769,000 and a non-Federal share of \$1,491,000. The first cost for the ecosystem restoration features of the project is about \$40,446,000, with a Federal share of \$26,290,000 and a non-Federal share of \$14,156,000. The Reclamation Board of the State of California is the non-Federal sponsor for the recommended plan. The Reclamation Board would also be responsible for the operation, maintenance, repair, rehabilitation, and replacement (OMRR&R) of the project after construction. The operation and maintenance cost currently is estimated at \$55,000 per year. Average annual costs, including initial construction and OMRR&R, are \$2,942,000 based on an interest rate of  $5\frac{5}{8}$  percent and a 50-year period of analysis.

5. To ensure that a cost-effective multi-purpose plan was recommended, incremental cost and trade-off analyses were used to evaluate the alternative environmental restoration and flood damage reduction outputs. The cost of the recommended ecosystem restoration features is justified by the average annual increase of 888 habitat units. Based on October 2003 price levels and a discount rate of 5.625 percent, the flood damage reduction features provide for \$577,000 in average annual benefits. At an average annual cost of \$319,000 the flood damage reduction features of the project provide a benefit-to-cost ratio of 1.8. The restored habitats are considered extremely valuable due to the current scarcity of certain species and their dependence on these habitats. The habitats of particular concern are the riparian and general floodplain habitats along the Sacramento River for which this

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project would restore 1,000 acres of riparian habitat and reconnect 1,480 acres of floodplain habitat.

6. I concur with the findings, conclusions and recommendation of the reporting officers. Accordingly, I recommend that the multi-purpose plan described herein for flood damage reduction and environmental restoration be authorized for implementation as a Federal project, with such modifications as in the discretion of the Chief of Engineers may be advisable. This recommendation is subject to cost sharing and financing and other applicable requirements of Federal and State laws and policies, including WRDA 1986, as amended. Federal implementation of the authorized project would be subject to the non-Federal sponsor agreeing to comply with applicable Federal laws and policies, including but not limited to:

a. Provide 35 percent of the total project costs allocated to ecosystem restoration and at least 35 percent, but no more than 50 percent of the total project costs allocated to structural flood damage reduction, as further specified below:

(1) Enter into an agreement, which provides, prior to execution of a project cooperation agreement for the project, 25 percent of design costs;

(2) Provide, during the first year of construction, any additional funds needed to cover the non-federal share of design costs;

(3) Provide all lands, easements, and rights-of-way, including suitable borrow and dredged or excavated material disposal areas, and perform or assure the performance of all relocations determined by the Government to be necessary for the construction, operation, and maintenance of the project;

(4) Provide or pay to the Government the cost of providing all retaining dikes, waste weirs, bulkheads, and embankments, including all monitoring features and stilling basins, that may be required at any dredged or excavated material disposal areas required for the construction, operation, and maintenance of the project; and

(5) Provide, during construction, a cash contribution equal to 5 percent of total project costs allocated to structural flood damage reduction, and any additional costs as necessary to make its total contribution equal to 35 percent of the total project costs allocated to ecosystem restoration and at least 35 percent of total project costs allocated to structural flood damage reduction.

b. Give the Government a right to enter, at reasonable times and in a reasonable manner, upon land which the local sponsor owns or controls, for access to the project for

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preventing unwise future development in the floodplain and in adopting such regulations as may be necessary to ensure compatibility between future development and protection levels provided by the project.

p. Do not use Federal funds to meet the non-Federal sponsor's share of total project costs unless the Federal granting agency verifies in writing that the expenditure of such funds is authorized.

q. Agree that any part of the project identified as approved for proposed advanced work for credit under Section 104 of Public Law 99-662 must be compatible with the recommended flood control project, and that any credit granted shall not relieve the non-Federal sponsor of its requirement to pay, in cash, 5 percent of total project costs allocated to structural flood control.

7. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It does not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program or the perspective of higher review levels within the executive branch. Consequently, the recommendation may be modified before it is transmitted to the Congress as a proposal for authorization and funding. However, prior to transmittal of the report to the Congress, the sponsor, the State of California, interested Federal agencies, and other parties will be advised of any modifications thereto and will be afforded an opportunity to comment further.



CARL A. STROCK  
Lieutenant General, US Army  
Chief of Engineers