



**DEPARTMENT OF THE ARMY**  
**CHIEF OF ENGINEERS**  
**2600 ARMY PENTAGON**  
**WASHINGTON, DC 20310-2600**

DAEN

DEC 18 2015

SUBJECT: South San Francisco Bay Shoreline, Santa Clara County, California

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress the report on Flood Risk Management, Ecosystem Restoration, and Recreation along South San Francisco Bay in Santa Clara County, California. It is accompanied by the report of the San Francisco District Engineer and South Pacific Division Engineer. These reports are in partial response to a resolution adopted by the Committee on Transportation and Infrastructure of the U.S. House of Representatives on 24 July 2002. The resolution requested the Secretary of the Army "review the Final Letter Report for the San Francisco Bay Shoreline Study, California, dated July 1992, and all related interims and other pertinent reports to determine whether modifications to the recommendations contained therein are advisable at the present time in the interest of tidal and fluvial flood damage reduction, environmental restoration and protection and related purposes along the South San Francisco Bay shoreline for the counties of San Mateo, Santa Clara and Alameda, California." The reports are also authorized by Section 4027 of the Water Resources Development Act (WRDA) of 2007, which directs the Secretary of the Army to conduct a study of the feasibility of carrying out a project for flood damage reduction along the South San Francisco Bay shoreline, environmental restoration of the South San Francisco Bay salt ponds, and other purposes the Secretary determines to be appropriate. Preconstruction engineering and design activities for this project will be continued under these authorities.

2. The reporting officers recommend authorization of a plan to reduce tidal flood risk by constructing a new levee along the South San Francisco Bay Shoreline and to restore approximately 2,900 acres of former salt production ponds to tidal marsh habitat in the Alviso Pond Complex. The recommended plan would construct an approximately 4-mile long, 15.2-foot (NAVD 88) high levee along the southern boundaries of Pond A12, A13, A16, and A18 and a tide gate across Artesian slough. Tidal marsh restoration of Ponds A9-A15 and A18 would be implemented through phased breaching of existing pond dikes and the construction of "ecotone" transitional habitat along the future flood risk management levees in Ponds A12, A13, and A18. The recommended plan would rely primarily on natural processes to convert the existing ponds to tidal marsh, but includes post-construction monitoring and adaptive management for a period of up to ten years to ensure project performance. The flood risk management and ecosystem restoration benefits of the recommended plan are interconnected. The construction of the levee and tide gate to manage flood risk is a prerequisite to giving full scope to the natural processes necessary to tidal marsh restoration, and likewise such restoration will mitigate the significant effects of levee construction on existing habitat. Recreational

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opportunities would be significant with the restoration of the tidal marsh areas. Recreational features in the recommended plan include two pedestrian bridges, viewing platforms, and benches. The new levees would also be available for recreational access. The recommended plan is a locally preferred plan (LPP); therefore the non-federal sponsors are responsible for 100 percent of the costs above the National Economic Development/National Ecosystem Restoration (NED/NER) Plan.

3. The Santa Clara Valley Water District and California Coastal Conservancy are the non-federal cost-sharing partners for all features. Based on October 2015 price levels, the estimated total first cost of the plan is \$173,900,000, including \$91,870,000 for Flood Risk Management (FRM), \$75,716,000 for Ecosystem Restoration (ER), and \$6,314,000 for recreation. The federal share of the total project cost is about \$69,521,000 (65 percent of the NED/NER Plan cost for FRM, 58 percent of the NED/NER Plan cost for ER, and 50 percent of the cost for recreation) and the non-federal cost share is about \$104,379,000 (35 percent of the NED/NER Plan cost for FRM, 42 percent of the NED/NER Plan cost for ER, and 50 percent of the cost for recreation, plus 100 percent of the costs of the LPP above the cost of the NED/NER Plan). The non-federal sponsor will not seek reimbursement for lands, easements, relocations, rights-of-way, and disposal sites (LERRDs) costs in excess of 35 percent of the total first cost for the ER component of the NED/NER Plan.

4. In accordance with the cost sharing provisions of Section 103 of WRDA 1986, as amended (33 U.S.C. 2213), the federal share of the first costs of the FRM features is 65 percent of the first cost of FRM features for the NED/NER Plan. The non-federal share is equal to 35 percent of the first cost of FRM features for the NED/NER Plan, plus 100 percent of the incremental costs of the LPP FRM features above the costs for the NED/NER Plan FRM features. The total Federal share is estimated at about \$49,502,000 (54 percent) and the non-federal share is estimated at about \$42,368,000 (46 percent). The cost of LERRDs for the FRM component of the project is estimated at \$2,116,000. The non-federal sponsors are responsible for the Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R) of the project after construction, a cost currently estimated at about \$538,000 per year.

5. In accordance with the cost sharing provisions of Section 103 of WRDA 1986, as amended (33 U.S.C. 2213), the federal share of the first costs of the ER component of the project would be 65 percent of the first cost for the ER component of the NED/NER Plan, and the non-federal share would be 35 percent. The first cost of LERRDs for the ER component of the NED/NER Plan is equal to 42 percent of the total first cost. The non-federal sponsor will not seek reimbursement for LERRDs costs in excess of 35 percent of the total first cost for the ER component of the NED/NER Plan. Therefore the federal share of the first cost for ER is equal to 58 percent of the first cost of the ER component of the NED/NER Plan. The non-federal share is equal to 42 percent of the first cost for the ER component of the NED/NER Plan, plus 100 percent of the incremental costs of the ER component of the LPP above the first cost of the ER component of the NED/NER plan. The total federal share is estimated at about

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\$16,862,000 (22 percent), and the non-federal share is estimated at about \$58,854,000 (78 percent). The cost of LERRDs is estimated at \$11,964,000. The total ER cost includes \$984,000 for monitoring and \$6,276,000 for adaptive management.

6. In accordance with the cost sharing provisions of Section 103 of WRDA 1986, as amended (33 U.S.C. 2213), the first costs of the recreation features, estimated to be \$6,314,000, would be cost shared at 50 percent, with an estimated federal share of \$3,157,000 and an estimated non-federal share of \$3,157,000.

7. Based on a 3.125-percent discount rate and a 50-year period of analysis, the total equivalent annual NED costs of the project are estimated to be \$8,297,000, including OMR&R, at October 2015 price levels.

a. The total equivalent average annual flood risk management costs are estimated to be \$4,363,000, including OMR&R. The selected plan is estimated to have an assurance of over 99 percent in protecting portions of Santa Clara County, California from coastal flooding that has a one percent chance of occurrence in any year (1 percent annual chance of exceedance). The selected plan would reduce equivalent annual flood damages from coastal flooding by nearly 100 percent. The equivalent average annual benefits are estimated to range from nearly \$19 million under the low sea level change (SLC) scenario to nearly \$42 million under the high SLC scenario. Corresponding annual net benefits range from approximately \$14.2 million to \$37.4 million, with benefit-cost ratios ranging from 4.2 to 9.6.

b. The total equivalent average annual aquatic ecosystem restoration costs are estimated to be \$3,679,000. The cost of the recommended aquatic ecosystem restoration features is justified by restoring approximately 2,900 acres of aquatic habitat and generating 48,308 average annual habitat units. The restored aquatic habitat would increase the habitat for the endemic Salt Marsh Harvest mouse and Ridgway's rail listed as endangered under the Endangered Species Act and would improve aquatic habitat for other species along Southern San Francisco Bay.

c. The total equivalent average annual recreation costs are estimated to be \$255,000. The selected plan would increase annual visitation to the Don Edwards National Wildlife Refuge by approximately 20 percent and create key connections in the San Francisco Bay Trail. The equivalent average annual benefits are estimated to be \$291,000 with net average annual benefits of \$36,000. The benefit-cost ratio is approximately 1.14 to 1.

8. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce flood damages, restore the ecosystem, and provide additional recreation opportunities along South San Francisco Bay in Santa Clara County, California be authorized in accordance with the reporting officers' recommended plan at an estimated cost of \$173,900,000 with such modifications as in the

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discretion of the Chief of Engineers may be advisable. My recommendation is subject to the non-federal sponsor agreeing to comply with applicable federal laws and policies, including Section 103 of WRDA 1986, as amended (33 U.S.C. 2213). The non-federal sponsors would provide the non-federal cost share and all LERRDs. Further, the non-federal sponsors would be responsible for all OMRR&R. This recommendation is subject to the non-federal sponsors agreeing to comply with applicable federal laws and policies, including, but not limited to, the following:

a. Provide a minimum of 35 percent, but not to exceed 50 percent, of the total FRM costs of the NED/NER Plan, plus additional costs associated with the FRM features of the LPP, as further specified below:

1. Provide 35 percent of FRM design costs of the NED/NER Plan, plus 100 percent of the additional design costs associated with the FRM features of the LPP, in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

2. Provide, during construction, a contribution of funds equal to five percent of the total FRM costs of the NED/NER Plan;

3. Provide all lands, easements, and rights-of-way, perform or ensure the performance of any relocation determined by the government to be necessary for construction, operation, and maintenance of the FRM features of the LPP, and provide relocation assistance, all in compliance with applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. 4601-4655), and the regulations contained in 49 C.F.R. Part 24;

4. Provide, during construction, any additional funds necessary to make its total contribution equal to 35 percent of the total FRM costs of the NED/NER Plan;

5. Provide, during construction, 100 percent of the total costs of the FRM features of the LPP that exceed the total FRM costs of the NED/NER Plan;

b. Provide a minimum of 35 percent of the total ER costs of the NED/NER Plan, plus additional costs associated with the ER component of the LPP, as further specified below:

1. Provide 35 percent of the ER design costs of the NED/NER Plan, plus 100 percent of the additional design costs associated with the ER component of the LPP, in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

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2. Provide all lands, easements, and rights-of-way, perform or ensure the performance of any relocation determined by the government to be necessary for construction, operation, and maintenance of the ER component of the LPP, and provide relocation assistance, all in compliance with applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. 4601-4655), and the regulations contained in 49 C.F.R. Part 24;

3. Provide, during construction, any additional funds necessary to make its total contribution equal to 35 percent of the total ER costs of the NED/NER Plan;

4. Provide, during construction, 100 percent of the total costs of the ER component of the LPP that exceed the total ER costs of the NED/NER Plan;

e. Provide 50 percent of the total costs of the recreation features of the NED/NER Plan as further specified below:

1. Provide 50 percent of design costs in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

2. Provide, during construction, any additional funds necessary to make its total contribution equal to 50 percent of the total costs of the recreation features of the NED/NER Plan;

3. Provide, during construction, 100 percent of excess recreation costs in the event that the federal share of total recreation costs exceeds 10 percent of the federal share of total FRM costs plus the federal share of total ER costs;

d. Prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) such as any new developments on project lands, easements, and rights-of-way or the addition of facilities which might reduce the level of protection the FRM features of the project afford, reduce the outputs produced by the ER component of the project, hinder operation and maintenance of the project, or interfere with the project's proper function;

e. Inform affected interests, at least annually, of the extent of protection afforded by the FRM features of the project; participate in and comply with applicable federal floodplain management and flood insurance programs; comply with Section 402 of the WRDA of 1986, as amended (33 U.S.C. 701b-12); and publicize floodplain information in the area concerned and provide this information to zoning and other regulatory agencies for their use in adopting regulations, or taking other actions, to prevent unwise future development and to ensure compatibility with protection levels provided by the FRM features of the project;

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f. Shall not use the ER component of the project or lands, easements, and rights-of-way required for such component as a wetlands bank or mitigation credit for any other project;

g. Keep the recreation features, and access roads, parking areas, and other associated public use facilities, open and available to all on equal terms;

h. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portions of the project, including any mitigation features, at no cost to the government, in a manner compatible with the project's authorized purposes and in accordance with applicable federal and state laws and regulations and any specific directions prescribed by the government;

i. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, rehabilitation, and replacement of the project and any betterments, except for damages due to the fault or negligence of the United States or its contractors;

j. Perform, or ensure performance of, any investigations for hazardous substances that are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended (42 U.S.C. 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the government determines to be required for construction, operation, and maintenance of the project. However, for lands that the government determines to be subject to the navigation servitude, only the government shall perform such investigations unless the government provides the non-federal sponsor with prior specific written direction, in which case the non-federal sponsor shall perform such investigations in accordance with such written direction;

k. Assume, as between the government and the non-federal sponsor, complete financial responsibility for all necessary remediation and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under lands, easements, or rights-of-way that the government determines to be required for construction, operation, and maintenance of the project; and

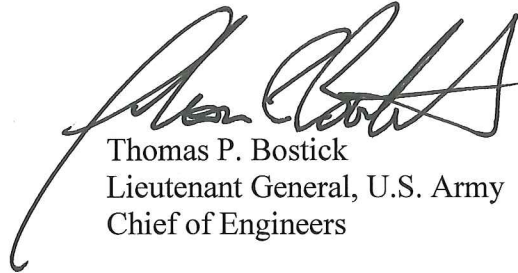
l. Agree, as between the government and the non-federal sponsor, that the non federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability, and to the maximum extent practicable, operate, maintain, repair, rehabilitate, and replace the project in a manner that will not cause liability to arise under CERCLA.

9. 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 in the formulation of a national civil works construction

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program nor 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 implementation funding. However, prior to transmittal to the Congress, the non-federal sponsor, the state, interested federal agencies, and other parties will be advised of any modifications and will be afforded an opportunity to comment further.



Thomas P. Bostick  
Lieutenant General, U.S. Army  
Chief of Engineers