



REPLY TO
ATTENTION OF

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

JUL 08 2013

DAEN-ZA

MEMORANDUM FOR: THE SECRETARY OF THE ARMY

SUBJECT: Morganza to the Gulf of Mexico, Louisiana

1. I submit for transmission to Congress my report updating the authorized Morganza to the Gulf of Mexico, Louisiana project. This report supplements the reports of the Chief of Engineers dated 23 August 2002 and 22 July 2003 and is accompanied by the reports of the New Orleans District Commander, Mississippi Valley Division Commander and the Mississippi River Commission. This report presents the updated design and associated costs to the project as a result of applying more robust design and hydrologic and hydraulic modeling standards developed subsequent to Hurricane Katrina. These updated changes have caused the project to exceed the maximum authorized project cost limit under Section 902 of the Water Resources Development Act of (WRDA) 1986. While the project was not reformulated as part of this update, an analysis using the post-Katrina design criteria was initially performed that confirmed the authorized project alignment as the alignment that best meets the Federal objective.
2. The Morganza to the Gulf of Mexico, Louisiana hurricane and storm damage risk reduction project was authorized by Section 1001(24)(A) of the Water Resources Development Act (WRDA) of 2007 at a total cost of \$886,700,000 consistent with the reports of the Chief of Engineers dated 23 August 2002 and 22 July 2003. In addition Section 1001(24)(B) of WRDA 2007 provides that operation, maintenance, repair, rehabilitation and replacement (OMRR&R) of the Houma Navigation Canal lock complex and the Gulf Intracoastal Waterway floodgate features of the project that provides for inland waterways transportation shall be a Federal responsibility in accordance with Section 102 of WRDA 1986 (33 U.S.C. 2212).
3. The authorized Morganza to the Gulf of Mexico, Louisiana project was designed to provide hurricane and storm damage risk reduction while maintaining navigational passage and tidal exchange. The project is located approximately 60 miles southwest of New Orleans, Louisiana and includes Terrebonne Parish and a portion of Lafourche Parish. The project recommended in the reports of the Chief of Engineers dated 23 August 2002 and 22 July 2003 was to reduce hurricane and storm damages by providing the one percent annual exceedance (1% annual exceedance probability (AEP)) probability level of risk reduction.

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4. The reporting officers considered the WRDA 2007 authorized project by applying two different water surface design elevation assumptions. The first assumption retained the pre-Katrina water surface design elevations used in developing the authorized project. The second assumption applied the post-Katrina water surface design elevations to the previously authorized project. Using post-Katrina water surface design elevation calculation methodologies, the pre-Katrina water surface design elevation is equal to approximately a 3% AEP. The post-Katrina water surface design elevation is equal to a 1% AEP as used for the second assumption. Of the two, the assumption associated with the post-Katrina 1% AEP water elevation project provided the greater net benefits, lower residual risk, and greatest adaptability to sea level rise. This 1% AEP project identified by the reporting officers provides the same target level of risk reduction as the authorized project and follows the same alignment with some refinements to address the new storm surge modeling which showed deeper and wider storm surge inundation. The updated project also involves no change in project purpose. However, the application of the more rigorous storm modeling and more robust post-Katrina design standards has resulted in expansion of the project features authorized by WRDA 2007. Changes to the major project features are as follows:

- **Levee Length:** The total levee length has increased from 72 miles to approximately 98 miles. The reason for the increase is to reduce risk of flanking, based on the assumption of higher rates of relative sea level rise, and higher surge and waves in the future.
- **Levee/Structure Elevations:** Levee and structure elevations were increased by 6 feet to 18 feet. Most of the increase in elevation is attributable to higher predicted surge and waves and post Katrina design criteria.
- **Levee Widths:** Levee widths have increased from approximately 40 feet to 200 feet wide to approximately 282 feet to 725 feet wide. The increased widths are attributable to increases in levee heights and the post Katrina geotechnical stability factors of safety.
- **Houma Navigation Canal (HNC) lock complex and Gulf Intracoastal Waterway (GIWW) floodgate feature:** These features which cross federal navigation channels are generally the same except the HNC structure sill depth would be increased by 5 feet as part of the requested sponsor funded work item and the HNC floodgate width increased from 200 feet to 250 feet. The HNC floodgate needed to be widened given that the pre-Katrina design was no longer technically feasible with the increased project height. The GIWW floodgate near Houma was redesigned to eliminate one of the two sector gates.
- **Floodgates:** The number of floodgates on other canals and bayous increased from 9 to 19 as several bayous were not previously identified as being used for navigation and with the extension of the levee length several additional navigable bayous were crossed.
- **Environmental Control Structures:** The number of environmental control structures increased from 12 to 23 sets of concrete box culverts with sluice gates. The increase in the number of structures is attributable to more refined set of design criteria, which considered precipitation event conditions water level and velocity and box culvert design criteria.

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- Environmental Mitigation: Impacted acres requiring mitigation increased from approximately 3,740 acres to 4,100 acres. The increase is directly related to the increase in the foot print of the levee.
- Structures Afforded Protection: The number of structures afforded hurricane and storm damage risk reduction increased from approximately 26,000 structures to 53,000 structures. The increase in the number of structures afforded risk reduction is a result of post-Katrina change in 1% AEP water surface elevation.
- Hydraulic Mitigation: Costs have been included for measures to address a potential indirect impact of the construction to raise water levels outside the levees. Potential impact areas include portions of the communities of Gibson, Bayou Dularge, Dulac, and all of Cocodrie and Isle de Jean Charles. In addition, measures and associated costs have been included to offset potential induced stages on the existing Larose to Golden Meadows project.

5. Based on October 2012 price levels, the estimated first cost of the updated project is \$10,265,000,000, with the Federal and non-Federal shares estimated at \$6,672,000, 000 and \$3,593,000,000, respectively. The Coastal Protection and Restoration Authority of Louisiana in coordination with the Terrebonne Levee and Conservation District has expressed intent to be the non-Federal cost sharing sponsor for the project. Upon completion of construction, the non-Federal sponsor would be responsible for the OMRR&R of the project, a cost currently estimated at \$7,400,000 per year. In accordance with Section 1001(24)(B) of WRDA 2007 the OMRR&R for the GIWW floodgates and the Houma Navigation Canal Lock, estimated at \$1,700,000 per year, is a Federal responsibility.

6. Based on a 3.75-percent discount rate, October 2012 price levels and a 50-year period of analysis, the total equivalent average annual costs of the updated project, including OMRR&R, are estimated to be \$716,000,000. The equivalent average annual benefits are estimated to be \$1,023,000,000. The net average annual benefits would be \$307,000,000. The benefit-to-cost ratio is 1.4 to 1.

7. While the estimated project costs in the district's report are the best available and compliant with current post-Katrina design criteria, the U.S. Army Corps of Engineers Risk Management Center and the New Orleans District jointly evaluated the proposed Morganza to the Gulf project to assess whether the post-Katrina design criteria, specifically in the areas of global stability and overtopping and structural superiority, could be site adapted to reduce project cost without significantly increasing risk. Based on the results of this effort, site adaptations of the criteria were identified for consideration during the next phase of implementation, preconstruction, engineering and design.

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8. The draft report / programmatic environmental impact statement underwent an independent external peer review by the Louisiana Water Resource Council (LWRC). The LWRC assessed the adequacy and acceptability of the economic, engineering, and environmental methods, models and analysis used, during two reviews. A second review was added to focus on the economics supporting the report findings. There were a total of 18 comments of which 13 were medium significance and five were low significance. In summary, the panel felt that the engineering, economics, plan formulation, and environmental analysis were adequate and needed to be properly documented in the final report. The final report / programmatic environmental impact statement also underwent state and agency review. The state and agency comments received during review of the final report/ programmatic environmental impact statement included comments from federal agencies and agencies from the state of Louisiana. Comments provided by the National Ocean and Atmospheric Administration's National Marine Fisheries Service included the need for additional detailed analysis of the potential direct, indirect, and cumulative impacts to Essential Fisheries Habitat related to the closure structures. They were informed this will be further analyzed during the design phase and that the Corps intends to use a certified habitat change model and appropriate fisheries impact models as part of these future analyses. The Department of Interior also expressed similar concerns that will also be addressed as the design is further analyzed. The United States Environmental Protection Agency expressed concerns regarding the need to provide continued coordination with affected communities in the project area to identify any disproportional effects to low income or minority populations in accordance with Executive Order 12898. In addition they were concerned with the impacts associated with potential sea level rise. We acknowledged that under some future relative sea level rise scenarios, increased frequency of closure of the system's gates and water control structures could result in significant adverse indirect impacts to wetlands, hydrology, fisheries, water quality, threatened/endangered species, and navigation. The level of those impacts cannot be fully quantified at this time and these will be analyzed further as well as that adaptive management measures may mitigate for that potentiality. The state of Louisiana had several agencies that provided comments which were generally in support of the project and recognized that earlier comments had been addressed in the final document but were still concerned over the cost of the risk reduction designs. The response noted that the Corps will continue to identify cost-reduction measures that do not sacrifice the overall level of risk reduction to the citizens of Louisiana. Concerns expressed by the Louisiana Department of Wildlife and Fisheries (LDWF) with the Pointe aux Chenes Wildlife Management Area and the Mandalay National Wildlife Refuge that will be unavoidably impacted by the construction. The impacts have been and will continue to be coordinated with the appropriate offices of USFWS and LDWF to ensure that appropriate and practicable efforts are made to minimize adverse environmental impacts to the areas. In summary, responses were provided re-iterating the considerations during the planning process and the extensive coordination that occurred regarding environmental effects and mitigation with the natural resource agencies and that a detailed analysis of the potential indirect and cumulative impacts to wildlife and fisheries related to the construction of this project and specifically to the closure of the structures will occur during the design phase. The Corps will

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produce tiered National Environmental Policy Act documents as needed to document the analysis of the plans and the impacts to the human and natural environments and the informed decision being made as the project proceeds forward. The Corps will make a diligent effort to identify and assess ways to further avoid and minimize any significant adverse environmental and socioeconomic impacts.

9. I concur that the reporting officers have updated the plan identified within the previous reports of the Chief of Engineers and find that the updated plan is economically justified, environmentally acceptable and engineeringly sound. Post-Katrina engineering design criteria and standards for gulf coast communities were applied to reduce the potential of loss of life and property from coastal storms. These engineering practices were developed using the findings of the *Interagency Performance Evaluation Task Force* including key lessons learned from Hurricane Katrina and their implications for future hurricane preparedness and planning for south Louisiana. Project modifications were also found necessary to address developments after the project was authorized, including community resettlement patterns after Katrina, to incorporate improved water control elements and navigation features, and to update other outmoded aspects of the authorized project to more effectively provide the utility of function originally intended by Congress. Accordingly, I submit for transmission to Congress my report updating the authorized Morganza to the Gulf of Mexico, Louisiana project with the required modifications and changes necessary for engineering and construction reasons to produce the degree and extent of coastal storm damage reduction improvements intended by Congress. Finally, the non-Federal sponsor must agree with the following requirements prior to project implementation.

a. Provide 35 percent of total project costs as further specified below:

1. Provide the required non-Federal share 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 the first year of construction, any additional funds necessary to pay the full non-Federal share of design costs;

3. Provide all lands, easements, and rights-of-way, including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material; perform or ensure the performance of all relocations; and construct all improvements required on lands, easements, and rights-of-way to enable the disposal of dredged or excavated material all as determined by the Government to be required or to be necessary for the construction, operation, and maintenance of the project;

4. Provide, during construction, any additional funds necessary to make its total contribution equal to 35 percent of total project costs;

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- b. Shall not use funds from other Federal programs, including any non-Federal contribution required as a matching share therefore, to meet any of the non-Federal obligations for the project unless the Federal agency providing the Federal portion of such funds verifies in writing that expenditure of such funds for such purpose is authorized;
- c. Not less than once each year, inform affected interests of the extent of protection afforded by the project;
- d. Agree to participate in and comply with applicable Federal floodplain management and flood insurance programs;
- e. Comply with Section 402 of the Water Resources Development Act of 1986, as amended (33U.S.C. 701b-12), which requires a non-Federal interest to prepare a floodplain management plan within one year after the date of signing a project cooperation agreement, and to implement such plan not later than one year after completion of construction of the project;
- f. 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 project;
- g. 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 project affords, hinder operation and maintenance of the project, or interfere with the project's proper function;
- h. Comply with all applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended (42 U.S.C. 4601-4655), and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way required for construction, operation, and maintenance of the project, including those necessary for relocations, the borrowing of materials, or the disposal of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;
- i. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace (OMRR&R) the project or functional portions of the project, including any mitigation features, at no cost to the Federal 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 Federal Government (except the HNC lock complex and the GIWW floodgate features of the project for which the

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responsibility for OMRR&R is assigned to the Government under Section 1001(24) of WRDA 2007);

j. Give the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal sponsor owns or controls for access to the project for the purpose of completing, inspecting, operating, maintaining, repairing, rehabilitating, or replacing the project;

k. 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;

l. Keep and maintain books, records, documents, or other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of 3 years after completion of the accounting for which such books, records, documents, or other evidence are required, to the extent and in such detail as will properly reflect total project costs, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 Code of Federal Regulations (CFR) Section 33.20;

m. Comply with all applicable Federal and State laws and regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army"; and all applicable Federal labor standards requirements including, but not limited to, 40 U.S.C. 3141- 3148 and 40 U.S.C. 3701 – 3708 (revising, codifying and enacting without substantial change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a et seq.), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 et seq.), and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c et seq.);

n. 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), Public Law 96-510, as amended (42 U.S.C. 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for construction, operation, and maintenance of the project. However, for lands that the Federal Government determines to be subject to the navigation servitude, only the Federal Government shall perform such investigations unless the Federal 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;

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o. Assume, as between the Federal Government and the non-Federal sponsor, complete financial responsibility for all necessary cleanup 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 Federal Government determines to be required for construction, operation, and maintenance of the project;

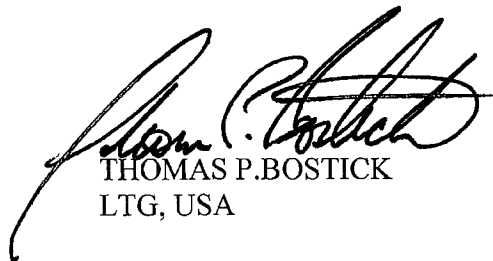
p. Agree, as between the Federal Government and the non-Federal sponsor, that the non-Federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability, and to the maximum extent practicable, operate, maintain, repair, rehabilitate, and replace the project in a manner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

q. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5b), and Section 103(j) of the Water Resources Development Act of 1986, Public Law 99-662, as amended (33 U.S.C. 2213(j)), which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until each non-Federal interest has entered into a written agreement to furnish its required cooperation for the project or separable element;

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

s. Pay all costs due to any project betterments or any additional work requested by the sponsor, subject to the sponsor's identification and request that the Government accomplish such betterments or additional work, and acknowledgement that if the Government in its sole discretion elects to accomplish the requested betterments or additional work, or any portion thereof, the Government shall so notify the Non-Federal Sponsor in writing that sets forth any applicable terms and conditions;

10. This report reflects the information available at this time. 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, this supplemental report may be modified before it is transmitted to the Congress. However, prior to transmittal to Congress, the sponsor, the State, interested Federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.



THOMAS P. BOSTICK
LTG, USA



DEPARTMENT OF THE ARMY
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SUBJECT: Walton County, Florida, Hurricane and Storm Damage Reduction, General Investigations Study

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on hurricane and storm damage reduction along the Gulf of Mexico shoreline of Walton County, Florida. It is accompanied by the report of the district and division engineers. This report is in response to resolutions authorized both within the United States Senate and the U.S. House of Representatives. In the Senate, the Committee on Environment and Public Works adopted a committee resolution (unnumbered) on July 25, 2002, and in the House, the Committee on Transportation and Infrastructure adopted a resolution, Docket 2690, dated July 24, 2002. The resolutions requested the Secretary of the Army to review the feasibility of providing beach nourishment, shore protection and environmental restoration and protection in the vicinity of Walton County, Florida.
2. The reporting officers recommend authorization of a locally preferred plan (LPP) to reduce hurricane and storm damages by constructing a beach fill along the shoreline of Walton County, Florida. The recommended plan for hurricane and storm damage reduction includes construction of a 50-foot wide berm at elevation 5.5 NAVD that includes 25 feet of berm and an additional 25 feet of advanced nourishment along 18.8 miles of the Walton County shoreline. The project will also include added dune width in the construction area of either 10 or 30 feet. The design dune elevation will be constructed to match the existing 15 foot contour NAVD with a shoreward slope of 3H: 1V. The project will begin at the western boundary of the Walton County shoreline and extend eastward to the eastern boundary. The recommended plan includes the initial fill and four renourishments, for a total of five nourishments, in 50 years at an average of 10-year intervals. Initial construction of the recommended plan will require the placement of 3,868,000 cubic yards (cy) of material and a total of 7,157,000 cy for the four renourishments which average 1,789,000 cy of material each. Other associated features of the project are dune vegetation and replacement of dune walkover structures as required. Material for the berm and dune construction and renourishment will be dredged from a borrow site identified offshore of the shoreline area within state waters. Since the recommended plan would not have any significant adverse effects, no mitigation measures (beyond management practices and avoidance) or compensation measures would be required. The recommended plan is the Locally Preferred Plan for hurricane and storm damage reduction which includes areas requested by the non-Federal sponsor in addition to those included in the National Economic Development Plan (NED). Compared to the NED Plan, the LPP includes additional shoreline length of 3.6 miles to provide consistent shoreline protection in areas that were not economically justified. The LPP, similar to the NED Plan, will include a 50-foot berm with added dune widths of either 10 or 30

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feet throughout the project length. The Assistant Secretary of the Army (Civil Works) approved a policy exception allowing the Corps of Engineers to recommend the LPP by letter dated February 7, 2012. The extension will be funded entirely by the non-Federal sponsor.

3. The Walton County Board of Commissioners is the non-Federal cost sharing sponsor for all features. Based on October 2012 price levels, the estimated total nourishment cost of the NED Plan is \$143,340,000. Based on October 2012 price levels, the estimated total nourishment cost of the LPP is \$164,437,000, which includes the project first cost of initial construction of \$61,397,000 and a total of four periodic renourishments at a total cost of \$103,040,000. Periodic renourishments are planned at 10-year intervals. Cost sharing is applied in accordance with the provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended by Section 215 of WRDA 1999, as follows:

a. The Federal share of the total first cost would be \$17,191,000 and the non-Federal share would be about \$44,206,000, which equates to 28 percent Federal and 72 percent non-Federal. The non-Federal costs include the value of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRD) estimated to be \$737,000.

b. The Federal share of future periodic renourishment is estimated to be \$23,699,000 and the non-Federal share is estimated to be \$79,341,000 which equates to 23 percent Federal and 77 percent non-Federal.

c. Walton County would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction, a cost currently estimated at about \$168,000 per year.

4. Based on a 3.75 percent discount rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be \$4,786,000, including monitoring and OMRR&R. All project costs are allocated to the authorized purpose of hurricane and storm damage reduction. The selected plan would reduce average annual coastal storm damages by about 92 percent and would leave average annual damages estimated at \$637,000. The equivalent average annual benefits, which include recreation benefits, are estimated to be \$7,570,000 with net average annual benefits of \$2,784,000. The benefit to cost ratio is approximately 1.6 to 1.

5. Risk and uncertainty has been explicitly factored into the economic analysis of this project. Chapter 6 of ER 1105-2-100, entitled "Risk-Based Analysis for Evaluation of Hydrology/Hydraulics and Economics in Shore Protection Studies" specifies the analysis requirements for shore protection projects, the fundamental requirement being that all shore protection analyses adopt a life cycle approach. A statistical risk based model, Beach-*fx*, was used in this study to formulate and evaluate the project in a life-cycle approach. Beach-*fx* is a comprehensive analytical framework for evaluating the physical performance and economic benefits and costs of storm damage reduction projects, particularly beach nourishment along

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sandy shores. The model has been implemented as an event-based Monte Carlo life-cycle simulation tool that is run on desktop computers. Beach-*fx* integrates the engineering and economic analyses and incorporates uncertainty in both physical parameters and environmental forcing, which enables quantification of risk with respect to project evolution and economic costs and benefits of project implementation. This approved modeling approach provides for a more realistic treatment of shore protection project evolution through the relaxation of a variety of simplifying assumptions that are made in existing, commonly applied approaches. The application of Beach-*fx* in this study is to estimate future without project damages and quantify the damages prevented by various storm damage reduction alternatives for Walton County over the 50 year project life. The project is intended to address erosion and prevent damages to structures and contents; it is not intended to, nor will it, reduce the risk to loss of life during major storm events. Loss of life can only be prevented by residents and visitors following the local evacuation plans that are already in place. These residual risks have been communicated to Walton County.

6. In accordance with the Corps Engineering Circular (EC 1165-2-211) on sea level change, the study performed a sensitivity analysis to look at the effects that different rates of accelerated sea level rise could have on the recommended plan. The plan was formulated using a historical or low rate of sea level rise, and the sensitivity analysis used additional accelerated rates, which includes what the EC defines as intermediate and high rates. The analysis found that the influence of current sea level rise on the project is relatively low as compared to other factors causing erosion (waves, currents, winds and storms). The magnitude of the short-term storm-induced erosion during hurricane events have a much greater affect along the beaches of Walton County than those indicated by the natural long term shoreline trends. The recommended plan was based on Beach-*fx* simulations that incorporated the observed rate of sea level rise. Adaptive management will be used including monitoring and adding additional volume of sand during renourishments to compensate for significant accelerated sea level rise beyond the current observed rate should it become necessary.

7. In accordance with the Corps Engineering Circular (EC 1165-2-209) on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and rigorous review process to ensure technical quality. This included an Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type I), and a Corps Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. The IEPR was completed by Battelle Memorial Institute. A total of 18 comments were documented. The IEPR comments identified significant concerns in areas of the economics and engineering assumptions and methodologies used to support the decision-making process and plan selection and the incorporation of risk and uncertainty into the project analyses. This resulted in expanded narratives throughout the report to support the decision-making process and justify the recommended plan. All comments from the above referenced reviews have been addressed and incorporated into the final documents. Overall the reviews resulted in improvements to the technical quality of the report.

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8. Washington level review indicates that the project recommended by the reporting officers is technically sound, environmentally and socially acceptable, and economically justified. The plan complies with all essential elements of the U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Land related resources implementation studies and complies with other administrative and legislative policies and guidelines. Also the views of interested parties, including Federal, State and local agencies have been considered. During the State and Agency review, comments were received from the Florida Department of Environmental Protection and Department of Interior. These comments expressed the need to protect endangered species during construction and asked for clarification on the economic modeling. The USACE has acknowledged the need to protect endangered species, in compliance with the USFWS biological opinion and clarified the modeling results. In addition, the Florida State Historic Preservation Office (SHPO) wrote concerning the need for additional information to complete their review. The USACE referred the SHPO to the results of a previous SHPO review, which completed the consultation process.

9. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce hurricane and storm damages for Walton County, Florida be authorized in accordance with the reporting officers' recommended plan at an estimated project first cost of \$61,397,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of Federal and State laws and policies, including Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended by Section 215 of WRDA 1999. The non-Federal sponsor would provide the non-Federal cost share and all LERRD. Further, the non-Federal sponsor would be responsible for all OMRR&R. This recommendation is subject to the non-Federal sponsor agreeing to comply with all applicable Federal laws and policies.

a. Provide a minimum of at least 35 percent of initial project costs assigned to coastal storm damage reduction, plus 50 percent of initial project costs assigned to protecting undeveloped public lands, plus 50 percent of initial project costs assigned to recreation, plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits and 50 percent of periodic nourishment costs assigned to coastal storm damage reduction plus 100 percent of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits and as further specified below:

(1) Enter into an agreement which provides, prior to execution of the project partnership agreement, the non-Federal share of design costs;

(2) Provide all lands, easements, and rights-of-way, and perform or ensure the performance of all relocations determined by the Federal Government to be necessary for the initial construction, periodic nourishment, operation, and maintenance of the project;

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(3) Provide, during construction, any additional amounts as are necessary to make its total contribution equal to 35 percent of initial project costs assigned to hurricane and storm damage reduction plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits and 50 percent of periodic nourishment costs assigned to hurricane and storm damage reduction plus 100 percent of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits;

(4) Provide 100 percent of the total project costs that reflect the difference between the National Economic Development (NED) Plan and the Locally Preferred Plan (LPP);

b. 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 Federal 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 Federal Government;

c. Give the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal sponsor, now or hereafter, owns or controls for access to the project for the purpose of inspecting, operating, maintaining, repairing, replacing, rehabilitating, or completing the project. No completion, operation, maintenance, repair, replacement, or rehabilitation by the Federal Government shall relieve the non-Federal sponsor of responsibility to meet the non-Federal sponsor's obligations, or to preclude the Federal Government from pursuing any other remedy at law or equity to ensure faithful performance;

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

e. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of three years after completion of the accounting for which such books, records, documents, and other evidence is required, to the extent and in such detail as will properly reflect total costs of construction of the project, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 Code of Federal Regulations (CFR) Section 33.20;

f. Perform, or cause to be performed, 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), Public Law 96-510, as amended, 42 U.S.C. 9601-9675, that may exist in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for the initial construction, periodic nourishment, operation, and maintenance of the project;

DAEN

SUBJECT: Walton County, Florida, Hurricane and Storm Damage Reduction, General Investigations Study

however, for lands that the Federal Government determines to be subject to the navigation servitude, only the Federal Government shall perform such investigations unless the Federal 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;

g. Assume, as between the Federal Government and the non-Federal sponsor, complete financial responsibility for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be necessary for the initial construction, periodic nourishment, operation, or maintenance of the project;

h. Agree that, as between the Federal Government and the non-Federal sponsor, 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, and repair the project in a manner that will not cause liability to arise under CERCLA;

i. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, PL 91-646, as amended by (42 U.S.C. 4601 – 4655), and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way, required for the initial construction, periodic nourishment, operation, and maintenance of the project, including those necessary for relocations, borrow materials, and dredged or excavated material disposal, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;

j. Comply with all applicable Federal and State laws and regulations, including, but not limited to, Section 601 of the Civil Rights Act of 1964, PL 88-352 (42 U.S.C. 2000d), Department of Defense Directive 5500.11 issued pursuant thereto, as well as Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army," and all applicable Federal labor standards and requirements, including but not limited to, 40 U.S.C. 3141 – 3148 and 40 U.S.C. 3701 – 3708 (revising, codifying, and enacting without substantial change the provisions of the Davis- Bacon Act (formerly 40 U.S.C. 276a et seq.), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 et seq.) and the Copeland Anti-Kickback Act (formerly 40 U.S. C. 276c et seq.);

k. Comply with Section 402 of the Water Resources Development Act of 1986, as amended (33 U.S.C. 701b-12), which requires the non-Federal interest to participate in and comply with applicable Federal floodplain management and flood insurance programs, prepare a floodplain management plan within one year after the date of signing a Project Cooperation Agreement, and implement the plan not later than one year after completion of construction of the project;

l. Provide the non-Federal share of that portion of the costs of mitigation and data recovery activities associated with historic preservation, that are in excess of one percent of the total

DAEN

SUBJECT: Walton County, Florida, Hurricane and Storm Damage Reduction, General Investigations Study

amount authorized to be appropriated for the project, in accordance with the cost sharing provisions of the agreement;

m. Agree to participate in and comply with applicable Federal floodplain management and flood insurance programs;

n. 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.

o. Prevent obstructions of or encroachment on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) which might reduce the level of protection it affords, hinder operation and maintenance or future periodic nourishment, or interfere with its proper function, such as any new developments on project lands or the addition of facilities which would degrade the benefits of the project;

p. Not less than once each year, inform affected interests of the extent of protection afforded by the project;

q. Publicize floodplain information in the area concerned and provide this information to zoning and other regulatory agencies for their use in preventing unwise future development in the floodplain, and in adopting such regulations as may be necessary to prevent unwise future development and to ensure compatibility with protection levels provided by the project;

r. For so long as the project remains authorized, the non-Federal sponsor shall ensure continued conditions of public ownership, access, and use of the shore upon which the amount of Federal participation is based;

s. Provide, keep and maintain the recreation features, and access roads, parking areas, and other associated public use facilities, open and available to all on equal terms;

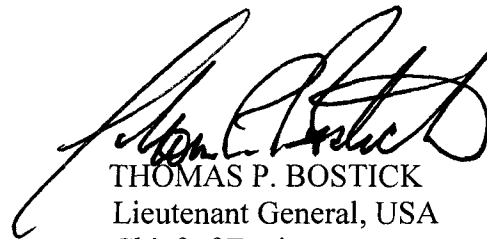
t. At least twice annually and after storm events, perform surveillance of the beach to determine losses of nourishment material from the project design section and provide the results of such surveillance to the Federal Government; and,

u. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5b), and Section 103 of the Water Resources Development Act of 1986, PL 99-662, as amended (33 U.S.C. 22130, which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-Federal sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element.;

DAEN

SUBJECT: Walton County, Florida, Hurricane and Storm Damage Reduction, General Investigations Study

10. The recommendations contained herein reflect the information available at this time and current Departmental policies governing formulation of individual projects. These recommendations do not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program nor the perspective of higher review levels within the executive branch. Consequently, the recommendations may be modified before they are transmitted to the Congress as proposals 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, USA
Chief of Engineers



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

APR 10 2014

Honorable John A. Boehner
Speaker of the House
of Representatives
U.S. Capitol Building, Room H-232
Washington, D.C. 20515-0001

Dear Mr. Speaker:

The Secretary of the Army recommends authorization of the Jordan Creek project in the City of Springfield, Greene County, Missouri, for the purpose of flood risk management. The enclosed report of the Chief of Engineers, dated August 26, 2013, describes the proposal and includes other pertinent documents. This report is an interim response to a resolution by the Committee on Public Works of the United States Senate, adopted May 11, 1962. The views of the Environmental Protection Agency and the Federal Highway Administration are set forth in the enclosed communications. The report includes an Environmental Assessment and a Finding of No Significant Impact, which was signed on September 4, 2013.

The recommended project consists of constructing five detention basins that would provide about 165 acre-feet of storage space, widening about 2,100 feet of channel, relocating a railroad bridge and constructing a diversion structure. The project would reduce expected average annual flood damages along Jordan Creek by about 65 percent, which includes nearly eliminating damages from a 0.2 percent annual chance exceedance flood event. The channel improvements would also allow emergency flood fighting vehicles to respond to emergencies, reduce traffic interruptions, and reduce disruptions to health and safety services. The recommended project is the National Economic Development Plan. No compensatory mitigation is required.

The estimated total project first cost is \$20,800,000 at October 2013 price levels. In accordance with the cost sharing provisions of Section 103(a) of the Water Resources Development Act (WRDA) 1986, as amended, the Federal share of the project first cost is estimated to be \$13,400,000 (64.6 percent) and the non-Federal share is estimated to be \$7,400,000 (35.4 percent). The non-Federal sponsor, the City of Springfield, Missouri, would provide all required lands, easements, rights-of-way, relocations, and excavated material disposal areas, a cost currently estimated to be \$6,300,000. The non-Federal sponsor would also be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction in accordance with Section 103(j) of the WRDA of 1986, a cost currently estimated at \$238,000 per year.



Based on a discount rate of 3.5 percent, which is the new rate starting in October 2013, and a 50-year period of analysis, the total equivalent average annual cost, including OMRR&R, is approximately \$1,150,000. The equivalent average annual benefit for reducing flood damages is about \$3,190,000, which provides net average annual benefits estimated at \$2,040,000 and a benefit-to-cost ratio of about 2.8 to 1. The average annual residual flood damages would be about \$1,760,000.

The Office of Management and Budget (OMB) advises that there is no objection to the submission of the report to Congress and concludes that the report recommendation is consistent with the policy and programs of the President. OMB also advises that should Congress authorize this project for construction, the project would need to compete with other proposed investments in future budgets. A copy of OMB's letter, dated April 4, 2014, is enclosed. I am providing a copy of this transmittal and the OMB letter to the Subcommittee on Water Resources and Environment of the House Committee on Transportation and Infrastructure, and the Subcommittee on Energy and Water Development of the House Committee on Appropriations. I am providing an identical letter to the President of the Senate.

Very truly yours,



Jo-Ellen Darcy
Assistant Secretary of the Army
(Civil Works)

Enclosures

7 Enclosures

1. Report of the Chief of Engineers, August 26, 2013
2. Environmental Protection Agency (EPA) letter, July 12, 2013
3. Federal Highway Administration (FHWA) letter, July 16, 2013
4. Corps of Engineers response to EPA, August 19, 2013
5. Corps of Engineers response to FHWA, August 21, 2013
6. OMB Clearance Letter, April 4, 2014
7. Final Feasibility Report and Environmental Assessment, May 2013 (Revised December 2013)



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

SEP 25 2013

REPLY TO
ATTENTION OF

Office of the Chief of Staff

Honorable Bill Shuster
Chairman, Committee on Transportation
and Infrastructure
House of Representatives
2165 Rayburn House Office Building
Washington, D.C. 20515

Dear Mr. Chairman:

As required by Section 2033 of P.L. 110-114, I am enclosing a copy of the final report of the Chief of Engineers on the Orestimba Creek Flood Risk Management Project, West Stanislaus County, California. Under separate letter, and in accordance with Executive Order 12322 dated September 17, 1981, the Assistant Secretary of the Army (Civil Works) will provide her report and the advice from the Office of Management and Budget on how the proposed project relates to the policy and programs of the President, the Economic, and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, and other applicable laws, regulations, and requirements relevant to the planning process.

I am sending an identical letter to the Honorable Barbara Boxer, Chairman of the Senate Committee on Environment and Public Works. Thank you for your interest in the Corps Civil Works Program.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Mark Toy".

R. Mark Toy, P.E.
Colonel, Corps of Engineers
Chief of Staff

Enclosure



DEPARTMENT OF THE ARMY
CHIEF OF ENGINEERS
2600 ARMY PENTAGON
WASHINGTON, D.C. 20310-2600

SEP 25 2013

DAEN

SUBJECT: Orestimba Creek, West Stanislaus County, California

THE SECRETARY OF THE ARMY

1. I submit, for transmission to Congress, my report on the study of flood risk management along Orestimba Creek in the San Joaquin Basin near the City of Newman, California. It is accompanied by the report of the Sacramento District Engineer and the South Pacific Division Engineer. This report is a partial response to a Resolution by the Committee on Public Works of the House of Representatives, adopted 8 May 1964. This resolution requested a review of prior reports pertaining to the Sacramento-San Joaquin Basin, to determine whether any modifications of their recommendations are advisable, with particular reference to further coordinated development of water resources in the Basin. Preconstruction, engineering and design activities for the Orestimba Creek Flood Risk Management project will continue under the authority provided by the resolution cited above.

2. The reporting officers recommend authorization of a plan for flood risk management by construction of a levee along the City of Newman's northwestern perimeter, referred to as the Chevron Levee. The Chevron Levee maximizes benefits to the urban area by reducing flood damages associated with Orestimba Creek overflows. The north side of the Chevron Levee would be constructed along one mile of an unnamed farm road near Lundy Road about one mile north of town. The western segment would be about 4 miles of levee constructed along the eastern bank of an existing irrigation canal from the farm road south to the Newman Wasteway. The Chevron Levee would range in height from 5.5 to 10 feet, depending on the ground elevation changes along the levee alignment. The plan includes closure structures at four road crossings and one railroad crossing. Several non-structural features would be implemented by the non-federal sponsor to further reduce the consequences of flooding, manage the residual risk, and complement the recommended plan. These include development and implementation of an advanced warning system based on stream gauges at the points where the creek has historically overflowed its banks and placing informational warning signs along roads to alert drivers to the possibility of flooding in the area. This flood warning system would be combined with an emergency evacuation plan. A reverse 911 system would alert surrounding residents of the flood threat. The recommended plan is a Locally Preferred Plan (LPP) that includes the same elements as the National Economic Development (NED) Plan but raises the height of the Chevron Levee to include 3 feet of freeboard above the median 1/200 Average Chance Exceedance water surface elevation. This freeboard was requested by the non-federal sponsor in order to meet State of California requirements for an urban area which is identified as the 1/200 year median Water Surface Elevation plus 3 feet of freeboard. The estimated cost of the LPP is \$45,333,000 which is \$9,025,000 greater than the estimated cost of the NED Plan currently estimated to be \$36,308,000.

DAEN

SUBJECT: Orestimba Creek, West Stanislaus County, California

3. The recommended LPP would reduce flood risk to the City of Newman. The proposed project would reduce Expected Annual Damages (EAD) within Newman by 94%, with a residual EAD of approximately \$200,000. This residual EAD is a result of existing storm drainage flooding. Annual Exceedance Probabilities for flooding within Newman from Orestimba Creek, would be reduced from approximately 15% (1/15 chance of flooding in any given year) to less than 0.1%. The proposed project would have no significant long-term effects on environmental resources. In all cases, the potential adverse environmental effects would be reduced to a less than significant level through project design, construction practices, preconstruction surveys and analysis, regulatory requirements, and best management practices. No compensatory mitigation would be required. No jurisdictional wetlands were identified in the project footprint. Potential impacts to vegetation communities and special status species have been greatly reduced through feasibility level design. Direct impacts to nesting birds and other sensitive species would be avoided by implementing preconstruction surveys and scheduling of construction activities. The U.S. Fish & Wildlife Service has provided a biological opinion in which the agency had no recommendations for design refinement or mitigation. Impacts to agricultural land would be minimized by reducing the project footprint to the greatest extent practical.

4. Based on October 2013 price-levels, the estimated total first cost of the plan is \$45,333,000. In accordance with the cost sharing provision of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2213), the City of Newman as the non-federal cost-sharing sponsor is responsible for the additional cost of the LPP. The federal share of the estimated first cost of initial construction would remain the same for the NED Plan and the LPP, currently estimated at \$23,681,750. The non-federal cost share increases from about \$12,626,000 with the NED Plan to about \$21,651,250 with the LPP. The cost of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas is estimated at \$10,159,000. The City of Newman, California, would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction. Operation and maintenance is currently estimated at about \$180,000 per year.

5. Based on a 3.75-percent discount rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be \$2,316,000, including OMRR&R. The selected plan is estimated to be 99.9 percent reliable in providing flood risk management for the City of Newman and vicinity, California, from a flood which has a one percent chance of occurrence in any year (100-year flood). The selected plan would reduce average annual flood damages by about 57 percent and would leave average annual residual damages estimated at \$2,364,000. Average annual economic benefits are estimated to be \$3,236,000; net average annual benefits are \$920,000. The benefit-to-cost ratio is 1.4 to 1.

6. The goals and objectives included in the Campaign Plan of the U.S. Army Corps of Engineers have been fully integrated into the Orestimba Creek feasibility study process. The recommended plan has been designed to avoid or minimize environmental impacts, to reduce risk of loss of life which has occurred in recent floods and to reasonably maximize economic benefits to the community. The recommended plan allows for continued floodplain flooding while focusing the flood risk reduction on the established urban area. The Feasibility Study team organized and participated in stakeholder meetings and public workshops throughout the process and worked

DAEN

SUBJECT: Orestimba Creek, West Stanislaus County, California

with local groups to achieve a balance of project goals and public concerns. The study report fully describes flood risks associated with Orestimba Creek and risks that will not be reduced. The residual risks have been communicated to the City of Newman and they understand and agree with the analysis.

7. In accordance with the Corps guidance on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and rigorous review process to ensure technical quality. This included an Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type I), and a Corps Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. An IEPR was completed by Battelle Memorial Institute in October 2012. A total of fifteen (15) comments were documented. The IEPR comments identified significant concerns in areas of the plan formulation, engineering assumptions, and environmental analyses that needed improvements to support the decision-making process and plan selection. This resulted in expanded narratives throughout the report to support the decision-making process and justify the recommended plan. All comments from the above referenced reviews have been addressed and incorporated into the final documents. Overall the reviews resulted in improvements to the technical quality of the report. A safety assurance review (Type II IEPR) will be conducted during the design phase of the project.

8. Washington level review indicated that the project recommended by the reporting officers is technically sound, environmentally and socially acceptable, and economically justified. The plan complies with all essential elements of the 1983 U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Land Related Resources Implementation Studies. The recommended plan complies with other administrative and legislative policies and guidelines. The views of interested parties, including federal, state and local agencies have been considered. No comments were received during state and agency review.

9. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce flood damage along Orestimba Creek near the City of Newman, California, be authorized in accordance with the reporting officers' recommended plan at an estimated cost of \$45,333,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Section 103 of WRDA 1986, as amended (33 U.S.C. 2213). The non-federal sponsor would provide the non-federal cost share and all Land, Easements, Rights-Of-Way, Relocation, and Disposal Areas (LERRD). Further, the non-federal sponsor would be responsible for all OMRR&R. This recommendation is subject to the non-federal sponsors agreeing to comply with all applicable federal laws and policies, including but not limited to:

a. Provide the non-federal share of total project costs, including a minimum of 35 percent but not to exceed 50 percent of total costs of the NED Plan, as further specified below:

1. Provide 35 percent of design costs in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

DAEN

SUBJECT: Orestimba Creek, West Stanislaus County, California

2. Provide, during construction, a contribution of funds equal to 5 percent of total costs of the NED Plan;

3. Provide all lands, easements, and rights-of-way, including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material; perform or ensure the performance of all relocations; and construct all improvements required on lands, easements, and rights-of-way to enable the disposal of dredged or excavated material all as determined by the government to be required or to be necessary for the construction, operation, and maintenance of the project;

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

b. Provide 100 percent of all incremental costs of the LPP.

c. Shall not use funds from other federal programs, including any non-federal contribution required as a matching share therefore, to meet any of the non-federal obligations for the project unless the federal agency providing the federal portion of such funds verifies in writing that expenditure of such funds for such purpose is authorized;

d. Not less than once each year, inform affected interests of the extent of protection afforded by the flood risk management features;

e. Agree to participate in and comply with applicable federal flood plain management and flood insurance programs;

f. Comply with Section 402 of WRDA 1986, as amended (33 U.S.C. 701b-12), which requires a non-federal interest to prepare a flood plain management plan within one year after the date of signing a project partnership agreement, and to implement such plan not later than one year after completion of construction of the project;

g. Publicize flood plain 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 flood risk management features;

h. 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 project affords, hinder operation and maintenance of the project, or interfere with the project's proper function;

i. Comply with all applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended (42 U.S.C. 4601-4655), and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way required for construction, operation, and maintenance of the project, including those necessary for relocations, the borrowing of materials, or the disposal of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;

DAEN

SUBJECT: Orestimba Creek, West Stanislaus County, California

j. For so long as the project remains authorized, OMRR&R of the project, or functional portions of the project, including any mitigation features, at no cost to the federal 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 federal government;

k. Give the federal government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-federal sponsor owns or controls for access to the project for the purpose of completing, inspecting, operating, maintaining, repairing, rehabilitating, or replacing the project;

l. Hold and save the United States free from all damages arising from the construction, OMRR&R of the project and any betterments, except for damages due to the fault or negligence of the United States or its contractors;

m. Keep and maintain books, records, documents, or other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of 3 years after completion of the accounting for which such books, records, documents, or other evidence are required, to the extent and in such detail as will properly reflect total project costs, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 Code of Federal Regulations (CFR) Section 33.20;

n. Comply with all applicable federal and state laws and regulations, including, but not limited to Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army"; and all applicable federal labor standards requirements including, but not limited to, 40 U.S.C. 3141 - 3148 and 40 U.S.C. 3701 - 3708 (revising, codifying and enacting without substantial change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a *et seq.*), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 *et seq.*), and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c *et seq.*);

o. 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), Public Law 96-510, as amended (42 U.S.C. 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the federal government determines to be required for construction, operation, and maintenance of the project. However, for lands that the federal government determines to be subject to the navigation servitude, only the federal government shall perform such investigations unless the federal 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;

p. Assume, as between the federal government and the non-federal sponsor, complete financial responsibility for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under lands, easements, or rights-of-way that

DAEN

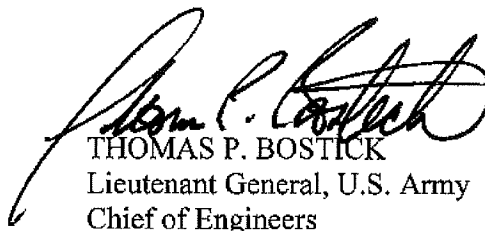
SUBJECT: Orestimba Creek, West Stanislaus County, California

the federal government determines to be required for construction, operation, and maintenance of the project;

q. Agree, as between the federal 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, OMRR&R of the project in a manner that will not cause liability to arise under CERCLA; and

r. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5b), and Section 103(j) of the WRDA 1986, Public Law 99-662, as amended (33 U.S.C. 2213(j)), which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until each non-federal interest has entered into a written agreement to furnish its required cooperation for the project or separable element.

10. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It neither reflects program and budgeting priorities inherent in the formulation of a national civil works construction program, nor the perspectives 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 Congress, the sponsor, the state, interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.



THOMAS P. BOSTICK
Lieutenant General, U.S. Army
Chief of Engineers



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

DAEN

SEP 30 2013

SUBJECT: Boston Harbor Navigation Improvement Project, Massachusetts

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on navigation improvements for Boston Harbor, Massachusetts. It is accompanied by the reports of the New England District Engineer and the North Atlantic Division Engineer. These reports were prepared in response to a study authority contained in a Senate Subcommittee on Public Works Resolution dated September 11, 1969, which directed the Secretary of the Army to conduct a study to determine whether any modifications of the recommendations contained in the report of the Chief of Engineers on Boston Harbor, Massachusetts, published as House Document Numbered 733, Seventy-ninth Congress, and other pertinent reports, are advisable at this time, with particular reference to modifying the project dimensions of the Main Ship Channel from deep water in Broad Sound to the upstream limit of the federal project in the Mystic River. Further, the Energy and Water Development Appropriations Act for Fiscal Year 2000 provided funds to initiate the study with language requesting an evaluation of the deepening of the Main Ship, Reserved and Entrance Channels to Boston Harbor. Preconstruction, engineering and design activities for the Boston Harbor Navigation Improvement Project will continue under the authorities cited above.
2. The reporting officers recommend authorization of a project that will contribute significantly to the economic efficiency of commercial navigation in the New England region. Boston Harbor is located on the North Atlantic U.S. coast about 240 miles northeast of New York City and is New England's largest port. The harbor consists of entrance channels extending about three miles from Massachusetts Bay to President Roads, the main ship channel connecting the Roads to the inner harbor, anchorage areas in the Roads and lower inner harbor, and three principal deep-draft industrial tributaries in the Reserved Channel, Mystic River and Chelsea River. Improvements were considered from deep water in Massachusetts Bay to the heads of deep draft navigation on the three tributaries. The recommended plan will result in transportation cost savings by allowing cargo to shift from overland transport to ship transport and allowing the larger Post-Panamax vessels to operate more efficiently and experience fewer tidal and transit delays. The Massachusetts Port Authority (Massport) is the non-federal cost-sharing partner.
3. The reporting officers identified a plan for navigation improvements to four separable segments of the existing project which will contribute significantly to the economic efficiency of commercial navigation in the region. The recommended plan is the National Economic Development (NED) Plan and is supported by the non-federal sponsor.

DAEN

SUBJECT: Boston Harbor Navigation Improvement Project, Massachusetts

a. Main Channels Improvement Plan: The first improvement would provide deeper access from Massachusetts Bay to Massport's Conley Terminal on the Reserved Channel in South Boston. A depth of -51 feet at mean lower low water (MLLW) would be provided in the present 40-foot deep lane of the Broad Sound North Entrance Channel from the Bay to the Outer Confluence (approximately 3.4 miles), with the channel widened in the bend opposite Finn's Ledge. A depth of -47 feet MLLW would be provided in the Main Ship Channel between the Outer Confluence and the Reserved Channel, the President Roads Anchorage, the lower Reserved Channel along the Conley Terminal, and the Reserved Channel Turning Area (approximately 4.5 miles). The Main Ship Channel above the Roads would be widened to 900 feet downstream of Castle Island and 800 feet upstream of Castle Island to the turning area (approximately 1.7 miles), with additional width provided in the channel bends. The Reserved Channel Turning Area would be widened to 1500 by 1600 feet, and further widened in its transition to the Reserved Channel (approximately 0.5 miles).

b. Main Ship Channel Deepening Extension to Massport Marine Terminal: The second improvement would extend the deepening of the Main Ship Channel upstream of the Reserved Channel Turning Area to the Massport Marine Terminal (approximately 0.5 miles), at a depth of -45 feet MLLW and width of 600 feet. Massport would provide a depth of at least -45 feet MLLW in the berth at the Marine Terminal.

c. Mystic River Channel at Medford Street Terminal: The third improvement would deepen an approximately nine acre area (1350 feet by 575 feet) of the existing -35-foot MLLW lane of the Mystic River Channel to -40 MLLW feet to improve access to Massport's Medford Street Terminal in Charlestown. Massport has already deepened the berth at this terminal to -40 feet MLLW and would maintain that depth in the future.

d. Chelsea River Channel: The fourth improvement would deepen the existing -38-foot MLLW Chelsea River Channel to -40 feet MLLW (approximately 1.9 miles). The channel would be widened by about 50 feet along the East Boston shore in the bend immediately upstream (approximately 0.3 miles) of the McArdle Bridge and in the bend downstream of the Chelsea Street Bridge (approximately 0.3 miles). This recommended improvement is contingent on agreement of the five principal terminals to deepen their berths to at least -40 feet MLLW.

4. The project would require the removal of approximately 11 million cubic yards of dredged material and one million cubic yards of rock. The U.S. Environmental Protection Agency (EPA) has concurred in the determination that the improvement project dredged materials are parent materials (material below the authorized depth and not previously disturbed) of largely glacial origin and acceptable for unconfined ocean water placement. The recommended plan requires placement of all dredged material and rock at the Massachusetts Bay Disposal Site. However, it is the policy of the U.S. Army Corps of Engineers to use dredged material, where practicable, for beneficial use. Potential beneficial uses for the rock and other dredged materials were considered by the reporting officers. Use of the rock for offshore reef creation and shore

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protection projects will be investigated in partnership with the state during project design. The feasibility of a concept from EPA to use the other dredged materials to cap the former Industrial Waste Site in Massachusetts Bay will also be investigated in partnership with that agency and others during project design to finalize plans. None of these potential beneficial uses are expected to add to the cost of the project and will be done within budgeted authorized amount.

5. Project costs are allocated to the commercial navigation purpose and are based on July 2011 price levels escalated to October 2012.

a. Project First Cost. The estimated project first cost of construction is \$304,695,000 which includes the cost of constructing General Navigation Features (GNF) and the value of lands, easements, rights-of-way (LER) and relocations estimated as follows: \$286,971,000 for channel modification and dredged material placement; \$169,000 for LER provided by the non-federal sponsor; \$6,525,000 for planning, engineering and design efforts; and \$11,030,000 for construction management.

b. Estimated federal and non-federal shares: The estimated federal and non-federal shares of the project first cost are \$212,084,000 and \$92,611,000, respectively, as apportioned in accordance with the cost sharing provisions of Section 101(a) of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2211(a)), as follows:

(1) The cost for deepening GNF under the Main Channels Improvement Plan to -47 feet (-51 feet in the entrance channel) to access the Conley Container Terminal will be shared as follows:

(a) The cost of \$207,825,000 for deepening the GNF to -45 feet MLLW (49 feet in the entrance channel) will be shared at the rate of 75 percent by the government and 25 percent by the non-federal sponsor. Accordingly, the federal and non-federal shares of this zone of deepening are estimated to be \$155,869,000 and \$51,956,000, respectively.

(b) The cost of \$65,241,000 for deepening the GNF from -45 feet to -47 feet MLLW (from -49 feet to -51 feet in the entrance channel) will be shared at the rate of 50 percent by the government and 50 percent by the non-federal sponsor. Accordingly, the federal and non-federal shares of this zone of deepening are estimated to be \$32,620,500 and \$32,620,500, respectively.

(2) The costs of for deepening GNF under the Main Ship Channel Deepening Extension to Massport Marine Terminal segment to 45 feet will be shared at the rate of 75 percent by the government and 25 percent by the non-federal sponsor for depths up to 45 feet. The total cost for GNF in this reach is \$17,308,000 with \$12,981,000 in federal costs and \$4,327,000 in non-federal costs. A Limited Re-evaluation Report (LRR) is anticipated for this project segment during project design to confirm anticipated benefits and depth optimization.

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(3) The costs for the deepening GNF under Mystic River Channel at Medford Street Terminal segment to 40 feet will be shared at the rate of 75 percent by the government and 25 percent by the non-federal sponsor. The total cost for GNF in this reach is \$2,419,000 with \$1,814,000 in federal costs and \$605,000 in non-federal costs. A LRR will be prepared for this project segment during project design to confirm anticipated benefits and depth optimization.

(4) The costs for the deepening GNF under Chelsea River Channel segment to 40 feet will be shared at the rate of 75 percent by the Government and 25 percent by the non-federal Sponsor. The total cost for GNF in this reach is \$11,734,000 with \$8,801,000 in federal costs and \$2,933,000 in non-federal costs.

(5) In addition to payment by the non-federal sponsor of its share of costs as estimated and described in sub-paragraphs b(1), b(2), b(3) and b(4) above, the estimated non-federal share of \$92,611,000 includes \$169,000 for the estimated value of LER that it must provide pursuant to Section 101(a)(3) of WRDA 1986, as amended (33 U.S.C.2211(a)(3)).

c. Additional 10 Percent Payment. In addition to payment by the non-federal sponsor of its share of the project first costs determined in sub-paragraphs b(1), b(2), b(3), and b(4) above, pursuant to Section 101(a)(2) of WRDA 1986, as amended (33 U.S.C. 2211(a)(2)), the non-federal sponsor must pay an additional 10 percent of the cost of the general navigation features of the project in cash over a period not to exceed 30 years, with interest. The additional 10 percent payment without interest is estimated to be \$30,453,000. The value of LER and relocations, estimated as \$169,000, provided by the non-federal sponsor under Section 101(a)(3) of WRDA 1986, as amended, will be credited toward payment of this amount.

d. Operations and Maintenance Costs. Due to lack of sediment sources the existing maintenance frequency at Boston Harbor ranges between 16 and 41 years depending on the project segment. The additional annual cost of operation and maintenance for this recommended plan is estimated at \$338,000. In accordance with Section 101(b) of WRDA 1986, as amended (33 U.S.C. 2211(b)), the non-federal sponsor will be responsible for an amount equal to 50 percent of the excess of the cost of the operation and maintenance of the project over the cost which would be incurred for operation and maintenance of the project if the project had a depth of 45 feet. The federal government would be responsible for \$322,000 of the incremental annual operations and maintenance costs and the non-federal sponsor would be responsible for the remaining \$16,000.

e. Associated Costs. Estimated associated costs of \$3,679,000 include \$3,405,000 for dredging of non-federal berthing areas adjacent to the federal channel (non-federal expense) and \$274,000 for aids to navigation (U.S. Coast Guard expense).

f. Authorized Project Cost and Section 902 Calculation. The project first cost for the purpose of calculating the maximum cost of the project pursuant to Section 902 of WRDA 1986, as amended, includes the cost of constructing the GNFs and the value of LER. Accordingly, as

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set forth in paragraph 5.a, above, based on July 2011 price levels escalated to October 2012, the total estimated project first cost for these purposes is \$304,695,000 with an estimated federal share of \$212,084,000 and an estimated non-federal share of \$92,611,000. Based on a discount rate of 3.75 percent, and a 50-year period of economic analysis, the project average annual benefits and costs are estimated at \$103,469,000 and \$14,305,000, respectively, with resulting net excess benefits of \$89,191,000 and a benefit-to-cost ratio of 7.2 to 1.

6. The goals and objectives included in the Campaign Plan of the Corps have been fully integrated into the Boston Harbor planning process. The recommended plan was developed in coordination and consultation with various federal, state and local agencies using a systematic and regional approach to formulating solutions and evaluating the benefits and impacts. The project supports the President's National Export Initiative (Executive Order 13534) by improving the private sector's ability to export products at the Boston Harbor.

7. Risk and uncertainty were evaluated for economic benefits, costs, and sea level rise. Economic sensitivities examined the effects of reducing or increasing the number of carrier services calling on Boston, confidence limits on container volume shifts and growth, use of different vessel loading factors, limits on vessel drafts, and changes in sizes of vessels in service. In accordance with the Corps Engineering Circular on sea level change the study analyzed four sea level rise rates. Historic, baseline, mid-level and maximum expected sea level rise were estimated at 0.4, 0.9, 1.6 and 2.3 feet, respectively, over the 50-year project life. The study concluded that no impact would result from sea level rise with respect to dredging and channel use, and that terminal facilities would continue to operate under all conditions.

8. In accordance with the Corps Engineering Circular on review of decision documents, all technical, engineering, and scientific work underwent an open, dynamic, and vigorous review process to ensure technical quality. This included District Quality Control, Agency Technical Review (ATR), Policy and Legal Compliance Review, Cost Engineering Directory of Expertise (DX) Review and Certification, Model Review and Approval, and Independent External Peer Review (IEPR). All concerns of the ATR have been addressed and incorporated into the final report. The IEPR was completed by Battelle Memorial Institute in June 2008. The panel had 14 comments, five of which they considered significant. The comments pertained to transportation cost savings documentation, port fees, vessel fleet analysis, impacts to water quality and air quality, blasting impacts, beneficial use of rock, and design analyses. In response to economic comments by both the IEPR and Corps Headquarters, more extensive analysis of the project's economic assumptions and benefits evaluation was conducted from 2009 to 2012. A revised economic analysis was conducted which resulted in a project depth of -47 feet MLLW that reasonably maximizes net benefits in the inner harbor segments of the Main Channels Improvement Plan. In response, the final Feasibility Report and Final Supplemental Environmental Impact Statement were expanded to include additional information and the revised recommendation.

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9. Washington level review indicates that the plan recommended by the reporting officers is technically sound, environmentally and socially acceptable, and economically justified. The plan complies with all essential elements of the U.S. Water Resources Council's 1983 Economic and Environmental Principles and Guidelines for Water and Land Related Resources Implementation Studies. Further the recommended plan complies with other administration and legislative policies and guidelines. The views of interested parties, including federal, state and local agencies, have been considered. State and agency comments received during review of the final report and environmental assessment were addressed. Concerns expressed by the National Ocean and Atmospheric Administration's National Marine Fisheries Service included dredging effects, potential blasting effects, the capping of the industrial waste site, Essential Fisheries Habitat impacts, Fish and Wildlife Coordination Act, and Endangered Species Act effects. The EPA expressed concerns regarding the beneficial use of both ordinary dredged material and rock, removal of rock from the project area by blasting, and air quality impacts. The Federal Aviation Administration expressed concerns that birds will be attracted to the exposed dredged material during the dredging process in the flight path for Boston Logan International Airport.

10. I concur with the findings, conclusions, and recommendation of the reporting officers. Accordingly, I recommend that navigation improvements for Boston Harbor be authorized in accordance with the reporting officers' recommended plan at an estimated cost of \$304,695,000, with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Section 101 of WRDA 1986, as amended (33 U.S.C. 2211). The non-federal sponsor would provide the non-federal cost share and all lands, easements, and rights-of-way, including those necessary for the borrowing of material and the disposal of dredged or excavated material, and would perform or assure the performance of all relocations, including utility relocations. This recommendation is subject to the non-federal sponsor agreeing, in a Design Phase Agreement prior to initiating project design, and in a Project Partnership Agreement prior to project implementation, to comply with all applicable federal laws and policies, including but not limited to the following requirements:

a. Provide, during the periods of design and construction, funds necessary to make its total contribution for commercial navigation equal to:

(1) 25 percent of the cost of design and construction of the GNFs attributable to dredging to a depth in excess of -20 feet MLLW but not in excess of -45 feet MLLW, plus

(2) 50 percent of the costs attributable to dredging to a depth over -45 feet MLLW;

b. Provide all LER, including those necessary for the borrowing of material and placement of dredged or excavated material, and perform or assure performance of all relocations, including utility relocations, all as determined by the government to be necessary for the construction or operation and maintenance of the GNFs;

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c. Pay with interest, over a period not to exceed 30 years following completion of the period of construction of the GNFs, an additional amount equal to 10 percent of the total cost of construction of GNFs less the amount of credit afforded by the government for the value of the LER and relocations, including utility relocations, provided by the non-federal sponsor for the GNFs. If the amount of credit afforded by the government for the value of LER, and relocations, including utility relocations, provided by the non-federal sponsor equals or exceeds 10 percent of the total cost of construction of the GNFs, the non-federal sponsor shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of LER and relocations, including utility relocations, in excess of 10 percent of the total costs of construction of the GNFs;

d. Provide, operate, and maintain, at no cost to the government, the local service facilities 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, including but not limited to the following;

(1) Providing depths in at least two berths at elevations at least three feet deeper than that provided by the federal channels accessing the Conley Terminal.

(2) For the Main Ship Channel Extension to the Massport Marine Terminal provide a berth depth equal to the depth provided by the adjacent reach of the federal Main Ship Channel.

(3) For the Medford Street Terminal on the Mystic River, provide a berth depth at least equal to that provided by the adjacent improved portion of the federal Mystic River Channel.

(4) For the Chelsea River Channel, provide berths at the Eastern Minerals, Sunoco-Logistics, Gulf, Irving and Global Terminals at least equal in depth to the federal Chelsea River Channel and Turning Basin.

e. In the case of project features greater than -45 feet MLLW in depth, provide 50 percent of the excess cost of operation and maintenance of the project over that cost which the government determines would be incurred for operation and maintenance if the project had a depth of 45 feet;

f. Give the government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-federal sponsor owns or controls for access to the project for the purpose of completing, inspecting, operating and maintaining the GNFs;

g. Hold and save the United States free from all damages arising from the construction or operation and maintenance of the project, any betterments, and the local service facilities, except for damages due to the fault or negligence of the United States or its contractors;

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h. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of three years after completion of the accounting for which such books, records, documents, and other evidence is required, to the extent and in such detail as will properly reflect total cost of the project, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to state and local governments at 32 CFR, Section 33.20;

i. 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), 42 USC 9601-9675, that may exist in, on, or under LER that the federal government determines to be necessary for the construction or operation and maintenance of the GNFs. However, for LER that the federal government determines to be subject to the navigation servitude, only the federal government shall perform such investigation unless the federal 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;

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

k. To the maximum extent practicable, perform its obligations in a manner that will not cause liability to arise under CERCLA;

l. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended, (42 U.S.C. 1962d-5b) and Section 101(e) of the WRDA 1986, Public Law 99-662, as amended, (33 U.S.C. 2211(e)) which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-federal sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element;

m. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, PL 91-646, as amended, (42 U.S.C. 4601-4655) and the Uniform Regulations contained in 49 CFR 24, in acquiring LER, necessary for construction, operation and maintenance of the project including those necessary for relocations, the borrowing of material, or the placement of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said act;

n. Comply with all applicable federal and state laws and regulations, including, but not

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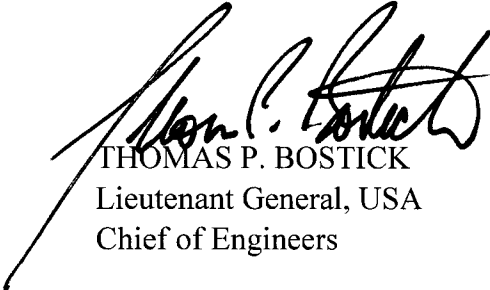
SUBJECT: Boston Harbor Navigation Improvement Project, Massachusetts

limited to, Section 601 of the Civil Rights Act of 1964, PL 88-352 (42 USC 2000d), and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army"; and all applicable federal labor standards requirements including, but not limited to, 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (revising, codifying and enacting without substantive changes the provision of the Davis-Bacon Act (formerly 40 U.S.C. 276a et seq.), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 et seq.), and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c);

o. Provide the non-federal share of that portion of the costs of mitigation and data recovery activities associated with historic preservation that are in excess of one percent of the total amount authorized to be appropriated for the project; and

p. Not use funds from other federal programs, including any non-federal contribution required as a matching share therefore, to meet any of the non-federal sponsor's obligations for the project costs unless the federal agency providing the federal portion of such funds verifies in writing that such funds are authorized to be used to carry out the project.

11. 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 implementation funding. However, prior to transmittal to Congress, the Commonwealth of Massachusetts, Massport (the non-federal sponsor), interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.



THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

REPLY TO
ATTENTION OF

DAEN

- 6 JAN 2014

SUBJECT: Willamette River Floodplain Restoration Project, Lower Coast Fork and Middle Fork, Oregon.

THE SECRETARY OF THE ARMY

1. I submit, for transmission to Congress, my report on the study of ecosystem restoration along the Willamette River, Lower Coast and Middle Forks near Eugene, Oregon. It is accompanied by the reports of the district and the division engineers. This report is an interim response to a resolution by the Committee on Public Works of the United States Senate, adopted November 15, 1961. This resolution authorized the Chief of Engineers to determine "whether any modification of the existing project is advisable at the present time, with particular reference to providing additional improvements for flood control, navigation, hydroelectric power development, and other purposes, coordinated with related land resources, on the Willamette River and Tributaries, Oregon." It is further an interim response to a resolution by the Committee on Public Works of the United States House of Representatives, adopted September 8, 1988. This resolution authorized the Chief of Engineers to determine "whether modifications to the existing projects are warranted and determine the need for further improvements within the Willamette River Basin (the Basin) in the interest of water resources improvements." Preconstruction engineering and design activities for the Willamette River Floodplain Restoration project will continue under the authority provided by the resolutions cited above.

2. The reporting officers recommend authorizing a plan to restore floodplain ecosystem functions by reconnecting floodplain habitats to the rivers and improving fish and wildlife habitats in the vicinity of Eugene, Oregon. The recommended plan for ecosystem restoration includes restoration at five project sites along the lower two miles of both the Coast Fork and Middle Fork of Willamette River. Restoration measures include excavation of connection channels, restoration of gravel-mined ponds, installation of large wood and engineered logjams, removal of invasive plant species, revegetation with native plant species, and installation of culverts for channel crossings. The recommended plan provides restoration on a total of 574 acres of floodplain and provides substantial benefits to fish and wildlife and the ecosystem. Minor adverse environmental effects will be avoided and minimized during construction by the use of conservation measures and best management practices. The long-term effects are beneficial. The recommended plan also includes post-construction monitoring and adaptive management for a period of ten years to ensure project performance. Monitoring will measure the following key elements: vegetation, connector channel hydrology and hydraulics, river and floodplain morphology, wildlife, physical habitat, and fish. Since the recommended plan would

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not have any significant adverse effects, no mitigation measures (beyond avoidance and management practices) or compensation measures are required.

3. The recommended plan is the Locally Preferred Plan (LPP) that is smaller scale and lower cost than the National Ecosystem Restoration (NER) plan. All features are located within the State of Oregon. The Nature Conservancy is the non-federal cost-sharing sponsor for all features. Based on October 2013 price levels, the estimated total first cost of the plan is \$42,155,000. In accordance with the cost sharing provisions the Water Resources Development Act (WRDA) of 1986, as amended, the federal share of the first costs of the ecosystem restoration features would be \$27,401,000 (65 percent) and the non-federal share would be \$14,754,000 (35 percent). The cost of lands, easements, rights-of-way, relocations and dredged or excavated material disposal areas is currently estimated at \$428,000. The total project cost includes \$429,000 for post-construction monitoring and \$535,000 for adaptive management. The Nature Conservancy would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction, a cost currently estimated at approximately \$150,000 per year. Based on a 3.5 percent discount rate, October 2013 price levels and a 50-year period of analysis, the total equivalent average annual cost of the project is estimated to be \$1,947,000, including OMRR&R.

4. Cost effectiveness and incremental cost analysis techniques were used to evaluate the alternative plans to ensure that a cost effective ecosystem restoration plan was recommended. The cost of the recommended restoration features is justified by restoring 182 average annual habitat units on 574 acres of floodplain and aquatic habitats. The restored aquatic habitat would increase habitat for Upper Willamette River Chinook salmon, bull trout, and Oregon chub listed as threatened under the Endangered Species Act, and would improve floodplain and aquatic habitats for a variety of fish and wildlife species in the Lower Coast and Middle Forks of the Willamette River for approximately 2 miles upstream on each river from their confluence. The restored habitat would increase scarce off-channel rearing and refuge habitat for fish species, and scarce forested riparian and emergent and shrub wetland habitats for sensitive amphibian species, and nesting, feeding, and rearing habitat for migratory waterfowl and neotropical migrant birds using the internationally significant Western Flyway.

5. The recommended plan was developed in coordination and consultation with various federal, state, and local agencies using a systematic and regional approach to formulating solutions and evaluating the benefits and impacts that would result. Risk and uncertainty were addressed during the study by completing a cost and schedule risk analysis and a sensitivity analyses that evaluated the potential impacts of a change in economic assumptions.

6. In accordance with the Corps' guidance on review of decision documents, all technical, engineering, and scientific work underwent an open, dynamic, and rigorous review process to ensure technical quality. This included an Agency Technical Review (ATR), an Independent External Peer Review (IEPR), and a Corps Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. An IEPR was completed by Battelle Memorial Institute in May 2013. A total of 15 comments related to plan

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SUBJECT: Willamette River Floodplain Restoration Project, Oregon

formulation, economic analysis, and hydrology and hydraulics were documented. All comments were addressed by report revisions, and subsequently closed.

7. Washington level review indicates that the plan recommended by the reporting officers is environmentally justified, technically sound, cost effective and socially acceptable. The plan complies with all essential elements of the U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Land Related Resources Implementation Studies. The recommended plan complies with other administration and legislative policies and guidelines. The views of interested parties, including federal, state and local agencies, were considered. Comments received during review of the integrated draft report and environmental assessment included comments by the US Fish and Wildlife Service (USFWS), the Oregon State Historical Preservation Office (SHPO), and the National Marine Fisheries Service (NMFS). The National Environmental Policy Act (NEPA) process resulted in a finding of no significant impacts from this project. The USFWS and NMFS agreed with the use of best management practices and continued coordination during design and implementation, and SHPO concurred with the Area of Potential Effect (APE) and proposed management plan for implementation. During state and agency review of the proposed Report of the Chief of Engineers, no comments were received and agencies were supportive of the recommended plan.

8. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to restore the ecosystem of the Willamette River Floodplain, Lower Coast and Middle Forks near Eugene, Oregon, be authorized in accordance with the reporting officers' recommended plan at an estimated first cost of \$42,155,000. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Public Law 99-662, the Water Resource Development Act of 1986, as amended, and in accordance with the required items of local cooperation that the non-federal sponsor shall, prior to project implementation, agree to perform:

a. Provide 35 percent of total project costs as cash or in-kind services, as further specified below:

(1) Provide the required non-federal share 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 the first year of construction, any additional funds necessary to pay the full non-federal share of design costs;

(3) Provide all lands, easements, and rights-of-way, including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material; perform or ensure the performance of all relocations; and construct all improvements required on lands, easements, and rights-of-way to enable the disposal of dredged or excavated material as determined by the government to be required or to be necessary for the construction, operation, and maintenance of the project.

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(4) Provide, during construction, any additional funds necessary to make its total contributions equal to 35 percent of total project costs.

b. Provide work-in-kind during final design and construction as well as providing the post-construction monitoring. The value of LERRDs needed for the project are credited against the non-federal sponsor's cost-sharing requirement. The sponsor anticipates contributing the balance of funds from grant funding that will not include funds from federal agencies.

c. Shall not use funds from other federal programs, including any non-federal contribution required as a matching share therefore, to meet any of the non-federal obligations for the project unless the federal agency providing the federal funds verifies in writing that such funds are authorized to be used to carry out the project;

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 outputs produced by the project, hinder operation and maintenance of the project, or interfere with the project's proper function;

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

f. Comply with all applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended (42 U.S.C. §§ 4601-4655), and the Uniform Regulations contained in 49 C.F.R. part 24, in acquiring lands, easements, and rights-of-way required for construction, operation, and maintenance of the project, including those necessary for relocations, the borrowing of materials, or the disposal of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;

g. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portions of the project, at no cost to the federal 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 federal government;

h. Give the federal government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-federal sponsor owns or controls for access to the project for the purpose of completing, inspecting, operating, maintaining, repairing, rehabilitating, or replacing the project;

i. Hold and save the United States free from all damages arising from 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;

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SUBJECT: Willamette River Floodplain Restoration Project, Oregon

j. Keep and maintain books, records, documents, or other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of 3 years after completion of the accounting for which such books, records, documents, or other evidence are required, to the extent and in such detail as will properly reflect total project costs, and in accordance with the standards for financial management.

k. Comply with all applicable federal and state laws and regulations, including but not limited to: Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. § 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army"; and all applicable federal labor standards requirements including, but not limited to, 40 U.S.C. §§ 3141-3148 and 40 U.S.C. §§ 3701-3708;

l. 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), Public Law 96-510, as amended (42 U.S.C. §§ 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the federal government determines to be required for construction, operation, and maintenance of the project. However, for lands that the federal government determines to be subject to the navigation servitude, only the federal government shall perform such investigations unless the federal 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;

m. Assume, as between the federal government and the non-federal sponsor, complete financial responsibility for all necessary cleanup 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 federal government determines to be required for construction, operation, and maintenance of the project;

n. Agree, as between the federal 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; and,

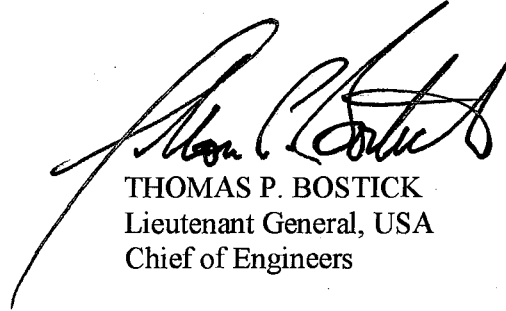
o. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended (42 U.S.C. § 1962d-5b), and Section 103(j) of the Water Resources Development Act of 1986, Public Law 99-662, as amended (33 U.S.C. § 2213(j)), which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until each non-federal interest has entered into a written agreement to furnish its required cooperation for the project or separable element.

9. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It neither reflects

DAEN

SUBJECT: Willamette River Floodplain Restoration Project, Oregon

program and budgeting priorities inherent in the formulation of a national Civil Works construction 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 Congress, the non-federal sponsor, the state, interested federal agencies and other parties will be advised of any significant modifications, and will be afforded an opportunity to comment further.



THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers



DEPARTMENT OF THE ARMY

CHIEF OF ENGINEERS
2600 ARMY PENTAGON
WASHINGTON, DC 20310-2600

DAEN

MAR 12 2014

SUBJECT: Sutter Basin, California

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on flood risk management for the Sutter Basin, California. It is accompanied by the report of the district and the division engineers. This report was undertaken in partial response to the authority contained in Section 209 of the Flood Control Act of 1962, Public Law 87-874, 76 Stat. 1180, 1196, for the study of flood risk management and related water resources problems in the Sacramento River Basin, including the study area in Sutter and Butte Counties, California. The non-federal sponsors for this project are the state of California Department of Water Resources and the Sutter Butte Flood Control Agency. Pre-construction engineering and design activities for the Sutter Basin, California Flood Risk Management Project will continue under the authority cited above.
2. The reporting officers recommend authorizing a plan to reduce flood risk by strengthening approximately 41 miles of the existing Feather River West Levee from the Thermalito Afterbay to Laurel Avenue. The recommended plan would reduce adverse flooding effects, including risks to public and life safety, in the northern portion of the basin as well as in Yuba City. The primary method of strengthening the existing levee is the construction of soil-bentonite cutoff walls of various depths. Non-structural measures would be implemented in conjunction with the recommended plan. These measures include preparation of an emergency evacuation plan, identification of flood fight pre-staging areas, updates to the floodplain management plan, and flood risk awareness communication.
3. The recommended plan would reduce flood risk within the Sutter Basin. The proposed project would reduce Expected Annual Damages (EAD) within the Sutter Basin by 64 percent, with a residual EAD of approximately \$50,000,000. This residual EAD is primarily a result of existing flooding from the lower end of the Feather River and the Sutter Bypass within the southern portion of the basin, which is largely agricultural land and rural homes. Residual flooding also exists for the entire basin in the form of Feather River levee overtopping from events less frequent than the 0.5 percent (1/200) Annual Chance Exceedance (ACE) event. Annual Exceedance Probabilities (AEP) for flooding within Sutter Basin's existing urban communities would be reduced from approximately 4 percent-8 percent (depending on location) to approximately 0.2 percent.

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SUBJECT: Sutter Basin, California

4. All consultations with the U.S. Fish and Wildlife Service and the U.S. National Marine Fisheries Service necessary for construction of the project have been completed, in order to mitigate for the detrimental effects of the flood risk management features of the recommended plan on fish and wildlife habitat. Environmental effects resulting from the construction of the recommended plan would cause some direct effects on riparian habitat and special status species habitats that cannot be avoided. The mitigation recommendations of the U.S. Fish and Wildlife Service (FWS) contained in the Final Fish and Wildlife Coordination Act Report are concurred in and are included in the recommended plan. The recommended plan includes a Fish and Wildlife Mitigation and Monitoring plan to compensate for adverse effects on fish and wildlife resources and to ensure the success of mitigation features. Other mitigation measures have been adopted to minimize the impact of construction on water quality, noise and vibration, and air quality. Endangered Species Act consultation with the FWS, in coordination with the non-federal sponsors, remains to be completed concerning the operations and maintenance of the project after construction, which is the responsibility of the non-federal sponsors under federal law. Cultural resource effects have been identified and coordinated with consideration of historical sites and structures in the Yuba City area and some prehistoric sites near the existing levee areas. The recommended plan would be in full compliance with the vegetation guidelines of Engineering Technical Letter 1110-2-571, Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams and Appurtenant Structures (Vegetation ETL) and maximum potential effects have been disclosed. During the preconstruction engineering and design (PED) phase, all options then available for compliance with the Vegetation ETL will be considered and consultation with resource agencies will be completed in coordination with the non-federal sponsors.

5. The first cost was estimated on the basis of October 2013 price levels and amounts to \$688,930,000. Estimated average annual costs of \$33,000,000 were based on a 3.50 percent discount rate, a period of analysis of 50 years, and construction ending in 2023. The cost of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRD) is estimated at \$141,005,000. The Sutter Butte Flood Control Agency would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction, a cost currently estimated at about \$454,000 per year, an increase of \$22,000 over existing costs from existing OMRR&R commitments of the existing levee.

6. The recommended plan encompasses two separable elements: the National Economic Development (NED) Plan, which will be cost shared with the non-federal sponsors, and a Locally Preferred Plan (LPP) increment, which will be funded 100 percent by the non-federal sponsors. The cost of the NED Plan is estimated to be \$391,840,000, with an estimated federal cost of \$255,270,000 and an estimated non-federal cost of \$136,570,000. The cost of the separable element constituting the LPP increment is estimated to be \$297,090,000. Since the non-federal sponsors would be responsible for the extra cost of the LPP increment, the non-federal cost share will increase from an estimated \$136,570,000 for the non-federal share of the

DAEN

SUBJECT: Sutter Basin, California

NED Plan to an estimated total non-federal cost of \$433,660,000 for the entire recommended plan. The LPP increment reduces the vulnerability of a larger population that is economically disadvantaged including an elderly population with limited mobility that are subject to sudden and unpredictable failures with minimal warning time. The plan increment provides more evacuation routes relative to the NED Plan and improves the reliability of critical infrastructure exposed to the same flood risk while reducing substantial economic flood damages.

7. Local interests have completed construction of the Star Bend setback levee to replace a section of the right bank of the Feather River levee to address critical underseepage and flow constriction issues. Prior to initiation of construction, local interests requested and by letter dated June 10, 2009, the ASA(CW) approved Section 104 credit consideration for the levee construction. Construction of the setback levee was completed in 2010 at an estimated cost of \$20,776,349. The locally constructed setback levee is compatible to the recommended plan as an acceptable substitute. The Section 104 approval will allow design and construction dollars invested by the local sponsor to be considered for use as credit towards meeting the non-federal cost-share requirements for the project recommended by this feasibility study, if authorized.

8. Based on a 3.50 percent discount rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be \$33,000,000, including OMRR&R and interest during construction. The selected plan is estimated to be 97 percent reliable in providing flood risk management from a flood which has a one percent chance of occurrence in any year (100-year flood) for the communities of Biggs, Gridley, Live Oak, Yuba City and rural Butte County while only 22 percent reliable in reducing those risks for rural Sutter County south of Yuba City. The recommended plan would reduce average annual flood damages by approximately 64 percent and would leave average annual residual damages estimated at \$50,000,000. The population at risk within the 1 percent ACE floodplain for the No Action Alternative is 94,600. The recommended plan would reduce the population at risk to approximately 6,600. Average annual economic benefits are estimated to be \$87,000,000; net average annual economic benefits are \$54,000,000. The benefit-to-cost ratio is 2.6 to 1.

9. The recommended plan is similar to an alternative considered in the Final Environmental Impact Statement (FEIS), filed by U.S. Army Corps of Engineers (USACE) with the Environmental Protection Agency (EPA) on June 7, 2013, and Record of Decisions (dated July 19, 2013 and September 13, 2013) for Section 408 approval for the alteration of federal project levees under the Feather River West Levee Project (FRWLP). The Sutter Basin Flood Risk Management Project (SBFRMP) and FRWLP affect the same general area, have similar flood risk management objectives, and share potential measures and effects. As a consequence, National Environmental Policy Act compliance for the SBFRMP was accomplished by supplementation of the Section 408 FRWLP FEIS to address the environmental effects of the

DAEN

SUBJECT: Sutter Basin, California

features of the SBFRMP that differ from the FRWLP. The Final Feasibility Report, Final Environmental Impact Statement, and Supplemental Environmental Impact Statement focuses on the additional effects that would result from the SBFRMP, incorporating by reference, where appropriate, information, analyses, and conclusions contained in the FRWLP FEIS.

10. The goals and objectives included in the Campaign Plan of the USACE have been fully integrated into the Sutter Basin Pilot Feasibility study process. The recommended plan has been designed to avoid or minimize environmental impacts while maximizing future safety and economic benefits to the community. The recommended plan uses environmentally sustainable design of fix-in-place levee construction that was in coordination with a local community coalition to integrate project objectives and public concerns.

11. In accordance with the Engineering Circular on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included an Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type I), and USACE Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. The IEPR was completed by Battelle Memorial Institute with all comments documented. The panel had 19 comments, one of which they considered significant, 15 were medium significance and 3 were low significance. The comments pertained to hydrology and hydraulic engineering, geotechnical engineering, civil engineering, economics and environmental concerns. In summary, the panel felt that the engineering, economics and environmental analysis were adequate and the additional sensitivity analysis and clarifications needed to be properly documented in the final report. The IEPR review comments resulted in no significant changes to the plan formulation, engineering assumptions, and environmental analyses that supported the decision-making process and plan selection. The final report/environmental impact statement also underwent state and agency review. The state and agency comments received during review of the final report/programmatic environmental impact statement provided no additional comments than those provided on the draft report that were incorporated into the final report. All comments from the above referenced reviews have been addressed and incorporated into the final documents as appropriate. Overall the reviews resulted in improvements to the technical quality of the report including the enhanced communication of risk and uncertainty. A safety assurance review (IEPR Type II) will be conducted during the design phase of the project.

12. Washington level review indicates that the project recommended by the reporting officers is technically sound, environmentally and socially acceptable, and economically justified. The plan complies with all essential elements of the U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Land related resources implementation studies and complies with other administrative and legislative policies and guidelines. Also, the views of interested parties, including federal, state and local agencies have been considered.

DAEN

SUBJECT: Sutter Basin, California

13. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce flood risk in the Sutter Basin area including Yuba City, California, be authorized in accordance with the reporting officers' recommended plan at an estimated cost of \$688,930,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Section 103 of Water Resources Development Act of 1986, as amended (33 U.S.C. 2213). The non-federal sponsor would provide the non-federal cost share and all LERRDs. Further, the non-federal sponsor would be responsible for all OMRR&R. This recommendation is subject to the non-federal sponsors agreeing to comply with all applicable federal laws and policies, including but not limited to:

a. Provide the non-federal share of total project costs, including a minimum of 35 percent but not to exceed 50 percent of total costs of the NED Plan, as further specified below:

(1) Provide 35 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, a contribution of funds equal to 5 percent of total project costs;

(3) Provide all lands, easements, rights-of-way (LER), including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material; perform or ensure the performance of all relocations; and construct all improvements required on LER to enable the disposal of dredged or excavated material all as determined by the government to be required or to be necessary for the construction, operation, and maintenance of the project;

(4) Provide, during construction, any additional funds necessary to make its total contribution equal to at least 35 percent of total costs of the NED Plan;

(5) Provide 100 percent of all costs of the LPP increment.

b. Shall not use funds from other federal programs, including any non-federal contribution required as a matching share, therefore, to meet any of the non-federal obligations for the project unless the federal agency providing the federal portion of such funds verifies in writing that expenditure of such funds for such purpose is authorized.

c. Not less than once each year, inform affected interests of the extent of protection afforded by the project.

d. Agree to participate in and comply with applicable federal flood plain management and flood insurance programs.

DAEN

SUBJECT: Sutter Basin, California

e. Comply with Section 402 of the WRDA of 1986, as amended (33 U.S.C. 701b-12), which requires a non-federal interest to prepare a flood plain management plan within one year after the date of signing a project cooperation agreement, and to implement such plan not later than one year after completion of construction of the project.

f. Publicize flood plain 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 project.

g. 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 LER or the addition of facilities which might reduce the level of protection the project affords, hinder operation and maintenance of the project, or interfere with the project's proper function.

h. Comply with all applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended (42 U.S.C. 4601-4655), and the Uniform Regulations contained in 49 Code of Federal Regulations (CFR) Part 24, in acquiring LER required for construction, operation, and maintenance of the project, including those necessary for relocations, the borrowing of materials, or the disposal of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act.

i. 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 federal 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 federal government.

j. Give the federal government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-federal sponsor owns or controls for access to the project for the purpose of completing, inspecting, operating, maintaining, repairing, rehabilitating, or replacing the project.

k. 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.

l. Keep and maintain books, records, documents, or other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of 3 years after completion of the accounting for which such books, records, documents, or other evidence are required, to the extent and in such detail as will properly reflect total project costs, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 CFR Section 33.20.

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SUBJECT: Sutter Basin, California

m. Comply with all applicable federal and state laws and regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army"; and all applicable federal labor standards requirements including, but not limited to, 40 U.S.C. 3141 - 3148 and 40 U.S.C. 3701 - 3708 (revising, codifying and enacting without substantial change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a *et seq.*), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 *et seq.*), and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c *et seq.*).

n. 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), Public Law 96-510, as amended (42 U.S.C. 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the federal government determines to be required for construction, operation, and maintenance of the project. However, for lands that the federal government determines to be subject to the navigation servitude, only the federal government shall perform such investigations unless the federal 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.

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

p. Agree, as between the federal 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.

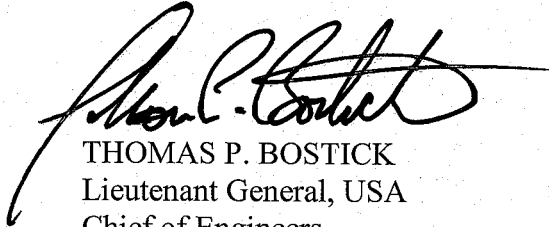
q. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5b), and Section 103(j) of the WRDA of 1986, Public Law 99-662, as amended (33 U.S.C. 2213(j)), which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until each non-federal interest has entered into a written agreement to furnish its required cooperation for the project or separable element.

14. 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

DAEN

SUBJECT: Sutter Basin, California

proposal for authorization and implementation funding. However, prior to transmittal to Congress, the sponsor, the state, interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.



THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers



DEPARTMENT OF THE ARMY
CHIEF OF ENGINEERS
2600 ARMY PENTAGON
WASHINGTON, D.C. 20310-2600

11 APR 2014

DAEN

SUBJECT: Truckee Meadows, Nevada

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on flood risk management for the Truckee Meadows area near the city of Reno, Nevada. It is accompanied by the report of the Sacramento District Engineer and the South Pacific Division Engineer. The Truckee Meadows Flood Control Project was authorized by Section 3(a) (10) of P.L. 100-676, the Water Resources Development Act (WRDA) of 1988. The Secretary of the Army received additional guidance regarding the preparation of the General Reevaluation Report (GRR) pursuant to the House Report 104-293 associated with P.L. 104-46, the Energy and Water Development Appropriations Act (EWDAA) of 1996, to consider additional flood protection along the Truckee River downstream of Reno as well as potential for environmental restoration along the Truckee River and tributaries in the Reno-Sparks area. Congress also gave direction as to the crediting of certain non-federal contributions in Section 113 of P.L. 109-103, the EWDAA of 2006.
2. The reporting officers recommend authorizing a plan to reduce flood risk by construction of floodwalls, levees, and floodplain terracing in the Truckee Meadows Reach and basic recreation features. The recommended plan includes approximately 9,650 linear feet of on-bank (6,500 feet) and in-channel (3,150 feet) floodwalls along the north bank and 31,000 linear feet of levees along the north and south banks in the Truckee Meadows Reach. The floodplain terracing feature involves excavating a benched area along portions of the south (right) bank of the Truckee River between Greg Street and McCarran Boulevard. Floodplain terracing would increase the flood flow channel capacity and thereby reduce water surface elevations in the Truckee Meadows area during a flood. The recommended plan for recreation consists of one small group picnic shelter; one medium group picnic shelter, with parking, playground, and restrooms; and 50 individual picnic areas located north of Mill Street between Greg Street and McCarran Boulevard. In addition, approximately 9,700 linear feet of paved trails and 8,900 linear feet of unpaved trails will be constructed linking the picnic areas with four kayak and canoe input areas and 13 fishing areas along the river. All recreation features would be located on lands required for flood risk management purposes. The estimated project first cost of the recommended plan is \$280,820,000.

DAEN

SUBJECT: Truckee Meadows, Nevada

3. The recommended plan would reduce flood risk to the Truckee Meadows area. The project would reduce Expected Annual Damages (EAD) within Truckee Meadows by approximately 40 percent (\$24,880,000). The residual EAD (\$36,601,000) would be caused by flooding from the Truckee River for infrequent flood events and flooding from small tributaries. Annual Exceedance Probabilities (AEP) for flooding within Truckee Meadows would be reduced from approximately 4-10 percent (depending on location) to approximately 1 percent. The project would increase the water surface elevations within the Truckee Meadows area along the downstream reaches of Steamboat Creek, Boynton Slough, and the North Truckee Drain by 4-8 inches for events between 2 percent and 1 percent Annual Chance Exceedance (ACE). The increased 1 percent ACE flood elevations would be inconsistent with National Flood Insurance Program (NFIP) regulatory requirements that prevent communities from allowing floodplain encroachments that would cause increased base flood elevations in areas with existing structures. Under U.S. Army Corps of Engineers (USACE) policy, compliance with the NFIP is a non-federal responsibility and compliance costs would be borne by non-federal interests. These estimated additional costs for NFIP regulatory compliance are identified as regulatory requirement costs which are not included as economic costs of the project. The recommended plan would cause temporary and permanent losses of riparian habitat from construction activities affecting about 28 acres of native riparian habitat. The recommended plan would convert about 66 acres of prime farmland for levee construction. The potential adverse environmental effects would be reduced to a less than significant level through project design, construction practices, preconstruction surveys and analysis, regulatory requirements, and best management practices. No compensatory mitigation would be required.

4. The project first cost was estimated on the basis of October 2013 price levels and amounts to \$280,820,000. The federal portion of the estimated first cost is \$181,652,000. The non-federal portion of the estimated first cost is \$99,168,000 including \$78,572,000 for lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRD). The Truckee River Flood Management Authority would also be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project, a cost currently estimated at about \$862,000 per year. The Authority is also responsible for the NFIP regulatory compliance requirements, currently estimated at \$195,000,000. The NFIP regulatory compliance costs are not included in project first cost.

5. Based on a 3.5 percent discount rate and a 50-year period of analysis, the total equivalent average annual economic costs of the project (including OMRR&R) are estimated to be \$11,823,000 (\$11,211,000 for flood risk management and \$612,000 for recreation). The recommended plan is estimated to be 95-99 percent reliable (depending on location) in providing flood risk management for the Truckee Meadows area, from a 2 percent ACE flood event. Total average annual economic benefits are estimated to be \$25,505,000 (\$24,880,000 for flood risk management and \$625,000 for recreation); net average annual economic benefits are \$13,682,000 (\$13,669,000 for flood risk management and \$13,000 for recreation). The overall benefit-to-cost ratio is 2.2 to 1 (1.0-to-1 for recreation).

DAEN

SUBJECT: Truckee Meadows, Nevada

6. The goals and objectives included in the Campaign Plan of the USACE have been fully integrated into the Truckee Meadows study process. The recommended plan has been designed to avoid or minimize environmental impacts while maximizing future safety and economic benefits to the community. The recommended plan uses environmentally sustainable design including revegetation of floodplain terraces with native species. Environmental experts were consulted during the planning process, and coordination was conducted with a local community coalition to integrate project goals and public concerns.

7. An earlier USACE project, designated as the Truckee River and Tributaries Project, was authorized and constructed in this area pursuant to Section 203 of P.L. 83-780, the Flood Control Act (FCA) of 1954, and Section 203 of P.L. 87-874, the FCA of 1962. The reporting officers have recommended that the part of the existing Truckee River and Tributaries Project between Glendale Avenue and Vista be modified in accordance with the recommended plan for the Truckee Meadows Flood Control Project within that same reach. The Truckee River and Tributaries Project involved improvements at various reaches of the Truckee River between Lake Tahoe and Pyramid Lake. In the Truckee Meadows reach, maintained by the State of Nevada, the first project involved channel straightening and enlargement to provide a channel capacity of 6,000 cubic feet per second (cfs) of flow for flood risk management purposes. The proposed project will modify the Truckee River and Tributaries Project by increasing channel capacity, and by the placement of rip rap on banks and around bridge piers to avoid scouring. The operations and maintenance responsibility will be transferred from the State of Nevada to the present non-federal sponsor. This transfer of operations and maintenance responsibility for the Truckee River and Tributaries Project will ensure that the non-federal sponsor for the Truckee Meadows Flood Control Project has full and clear responsibility to the Department of the Army for OMRR&R of all federal flood risk management elements between Glendale Avenue and Vista. OMRR&R responsibilities for the parts of the Truckee River and Tributaries Project upstream of Glendale Avenue or downstream of Vista would not be changed by the recommended plan.

8. The reporting officers have further recommended additional studies to investigate further reduction of the residual flood risk to the Reno-Sparks area and/or ecosystem restoration opportunities along the Truckee River. Such studies could be part of a future comprehensive investigation of the Truckee River watershed, or a portion thereof. The previously authorized purpose of fish and wildlife enhancement (i.e., ecosystem restoration) may be retained for the Truckee Meadows Flood Control Project for potential future implementation.

9. In accordance with the Engineer Circular 1165-2-214, entitled "Civil Works Review", all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included an Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type I), and a USACE Headquarters policy and legal review. ATR concerns have been addressed and incorporated into the final report. The IEPR was completed by Battelle Memorial Institute. A total of 58 comments were documented. The IEPR comments identified significant concerns in areas of the explanation of the plan

DAEN

SUBJECT: Truckee Meadows, Nevada

formulation, hydraulic analysis, and environmental analyses. This resulted in expanded narratives throughout the report to support the decision-making process and justify the recommended plan. All comments from the above referenced reviews have been addressed and incorporated into the final documents. Overall the reviews resulted in improvements to the technical quality of the report. A safety assurance review (IEPR Type II) will be conducted during the design phase of the project.

10. The final GRR and EIS were published for State and Agency Review on 17 January 2014. Comments from other federal agencies generally requested minor clarifications and encouraged further cooperation through the project life. Two more extensive comment letters were received from the Pyramid Lake Paiute Tribe (PLPT) and Reno-Sparks Indian Colony (RSIC). The PLPT expressed concerns relating to tribal coordination and consultation, potential downstream impacts and impacts to the delta at Pyramid Lake, and cumulative impacts of other flood control projects. The PLPT also requested that ecosystem restoration work be included in this project. USACE responded to PLPT with commitments for further coordination and clarification on modeling analyses. Additional studies to investigate further ecosystem restoration opportunities are recommended in the report by the reporting officers. The RSIC letter expressed continued concern with not being a signatory to the Programmatic Agreement (PA) per Section 106 of the National Historic Preservation Act. The RSIC also requested revisions to the final EIS relating to Tribal claims, traditional cultural property (TCP) identification, and provision of funding for tribal monitors during construction. In the response letter sent to the RSIC, USACE committed to including RSIC as a signatory party to the PA and to abide by the stipulations of the PA, which will govern future activities to determine the presence of historic properties, including TCPs, and potential effects of the project.

11. Washington level review indicates that the project recommended by the reporting officers is technically sound, environmentally and socially acceptable, and economically justified. The plan complies with all essential elements of the 1983 U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Land Related Resources Implementation Studies and complies with other administrative and legislative policies and guidelines. Also the views of interested parties, including federal, state and local agencies have been considered.

12. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce flood damage in the Truckee Meadows area near the City of Reno, Nevada, be authorized in accordance with the reporting officers' recommended plan at an estimated cost of \$280,820,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal laws and policies, including Section 103 of P.L. 99-662, WRDA 1986, as amended (33 U.S.C. 2213). These requirements include, but are not limited to, the following items of local cooperation from the non-federal sponsor:

DAEN

SUBJECT: Truckee Meadows, Nevada

a. Provide a minimum of 35 percent, but not to exceed 50 percent, of total flood risk management costs and 50 percent of total recreation costs as further specified below:

(1) Provide, during design, 35 percent of design costs allocated to flood risk management and 50 percent of design costs allocated to recreation.

(2) Pay, during the first year of construction, funds so its contribution equals 35 percent of the costs of the reevaluation report for the project.

(3) Pay, during construction, 5 percent of total flood risk management costs.

(4) Provide all lands, easements, and rights-of-way, including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material, and perform or ensure the performance of all relocations, as determined by the government to be required for the construction, operation, and maintenance of the project.

(5) During construction, pay any additional funds necessary to make its total contribution equal to at least 35 percent of total flood risk management costs and 50 percent of total recreation costs.

b. Provide, during construction, 100 percent of the total recreation costs that exceed 10 percent of the federal share of total flood risk management costs.

c. Inform affected interests, at least yearly, of the extent of protection afforded by the flood risk management features; participate in and comply with applicable federal floodplain management and flood insurance programs; comply with Section 402 of P.L. 99-662, 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 flood risk management features.

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 flood risk management features afford, hinder operation and maintenance of the project, or interfere with the project's proper function.

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

f. Operate, maintain, repair, rehabilitate, and replace the project, at no cost to the federal government, in a manner compatible with the project's authorized purposes and in accordance

DAEN

SUBJECT: Truckee Meadows, Nevada

with applicable federal and state laws and regulations and any specific directions prescribed by the federal government.

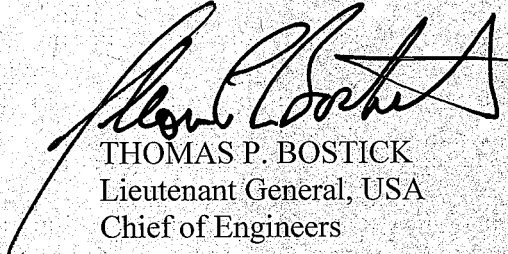
g. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, rehabilitation, and replacement of the project, except for damages due to the fault or negligence of the United States or its contractors.

h. 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), P.L. 96-510, as amended (42 U.S.C. 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the federal government determines to be required for construction, operation, and maintenance of the project.

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

j. Agree, as between the federal 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.

13. 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 implementation funding. However, prior to transmittal to Congress, the sponsor, the state, interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.



THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers



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

DAEN

MAR 27 2014

SUBJECT: Lynnhaven River Basin Ecosystem Restoration Project, Virginia

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on ecosystem restoration in the Lynnhaven River Basin, Virginia. It is accompanied by the report of the district and division engineers. These reports are an interim response to a resolution by the Committee on Transportation and Infrastructure of the United States House of Representatives, Docket 2558, adopted May 1998. The resolution requested the review of the report of the Chief of Engineers on the Lynnhaven Inlet, Bay, and Connecting Waters, Virginia, published as House Document 580, 80th Congress, 2nd Session, and other pertinent reports to determine whether any modifications of the recommendations contained therein are advisable at the present time in the interest of environmental restoration and protection and other related water resources purposes for the Lynnhaven River Basin, Virginia. Preconstruction, engineering, and design activities for the Lynnhaven River Basin Ecosystem Restoration Project will continue under the authority provided by the resolution cited above.
2. The Lynnhaven River Basin, the southernmost tributary to the Chesapeake Bay in Virginia, is a 64 square mile tidal estuary in the lower Chesapeake Bay Watershed. The Lynnhaven River's three branches, the Eastern, Western, and the Broad Bay/Linkhorn Bay, represent approximately 0.4 percent of the area of Virginia and approximately 0.2 percent of the Chesapeake Bay Watershed. However, the basin encompasses one-fourth of the area of the city of Virginia Beach and provides vital functions to the city and its residents. As has happened throughout the Chesapeake Bay, the Lynnhaven River Basin has seen declines in essential habitat - submerged aquatic vegetation (SAV), wetlands, oysters and scallops - and an overall reduced water quality from alterations to the ecosystem primarily stemming from increased development and population.
3. The significance of this ecosystem is demonstrated on the national, regional, and local level. Five federal and state endangered species occur or potentially occur in the Lynnhaven River Basin, including the hawksbill, Kemp's Ridley and leatherback sea turtles and the roseate tern. Also within the basin there are four additional state endangered species to include the eastern chicken turtle, Wilson's plover, Rafinesque's big-eared bat, and the canebrake rattlesnake. The Lynnhaven River Basin includes essential fish habitats for 19 species of fin fish, which demonstrates the important of estuaries as rearing grounds not only for fin fish sought by commercial and recreational fishermen, but for shell fish as well. During 2012, more than 149,000 pounds of fin fish, 369,000 pounds of blue crabs, 2,400 pounds of conch and 18,500 pounds of hard shell clams were landed in the Lynnhaven River Basin with an approximate value

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of \$1 million. In 1983, 1987 and 2000, the states of Virginia, Maryland, and Pennsylvania, the District of Columbia, the Chesapeake Bay Commission, and the U.S. Environmental Protection Agency (EPA), representing the federal government, signed historic agreements establishing the Chesapeake Bay Program, a strong partnership to protect and restore the Chesapeake Bay ecosystem. In addition, Section 704(b) of the Water Resources Development Act (WRDA) of 1986, as amended through Section 505 of the WRDA of 1996; the re-authorization of Section 704(b); Section 342 of the WRDA of 2000; and the Section 704(b) as amended by Section 5021 of WRDA 2007 provided for the restoration of oysters within the Chesapeake Bay and its tributaries. Recently, all of the laws and agreements affecting the restoration, protection, and conservation of the Chesapeake Bay have been brought into focus under the Chesapeake Bay Protection and Restoration Executive Order (EO 13508) signed by President Barack Obama on 12 May 2009. Locally, the city of Virginia Beach, The Trust for Public Land, and the Chesapeake Bay Foundation have partnered to purchase and protect 122 acres of natural lands known as Pleasure House Point, one of the largest undeveloped tracts of land on the Lynnhaven River.

4. The reporting officers recommend authorization of a plan to restore approximately 38 acres of wetlands, 94 acres of SAV, reintroduction of the bay scallop on 22 acres of the restored SAV, and construction of 31 acres of artificial reef habitat. The restoration measures, at various sites throughout the basin, will significantly increase three types of habitats, at least two of which are an essential part of the food web for several of the endangered species and form the basis of many of the essential fish habitats. The recommended plan is the National Ecosystem Restoration (NER) Plan. Implementation of the recommended plan will have substantial beneficial impact on the biological integrity, habitat diversity, and resiliency of the Lynnhaven River Basin.

5. Based on an October 2013 FY14 price level, the estimated project first cost of the NER Plan is \$35,110,000, which includes a 10-year monitoring and adaptive management program at an estimated cost of \$1,750,000, developed to adequately address the uncertainties inherent in a large environmental restoration project and to improve the overall performance of the project. In accordance with the cost sharing provisions contained in Section 103(c) of the WRDA 1986, as amended (33 U.S.C. 2213(c)), ecosystem restoration features are cost-shared at a rate of 65 percent federal and 35 percent non-federal. Thus the federal share of the project first cost is \$22,821,500 and the non-federal share is estimated at \$12,288,500, which includes the costs of land, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRD) estimated at \$740,000. The non-federal sponsor will receive credit for the costs of LERRD toward the non-federal share. The City of Virginia Beach is the non-federal cost-sharing sponsor for the recommended plan. The city would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction, an average annual cost currently estimated at \$2,000.

6. Based on a 3.5 percent discount rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be \$1,554,000, including monitoring estimated at \$30,000 and \$2,000 for OMRR&R. All project costs are allocated to the authorized purpose of ecosystem restoration and are justified by an increase in species diversity (measured

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using a biological index), an increase in secondary production, and an increase in marsh productivity (an average increase of 70 points using the EPA Marsh Assessment Score). The plan would improve essential estuarine habitats in the most cost-effective and sustainable manner.

7. The recommended plan was developed in coordination and consultation with various federal, state, and local agencies using our cost effectiveness and incremental cost analysis techniques to formulate ecosystem restoration solutions and evaluate the impacts and benefits of those solutions. Plan formulation evaluated a wide range of non-structural and structural alternatives under Corps policy and guidelines as well as consideration of a variety of economic, social, and environmental goals. The recommended plan delivers a sustainable approach to solve water resources and ecosystem challenges while contributing towards the goals of the EO 13508 strategy to restore tidal wetlands, enhance degraded wetlands, sustain fish and wildlife by restoring oyster habitat in a tributary of the Chesapeake Bay, and restore priority habitat such as submerged aquatic vegetation.

8. In accordance with the Corps Engineering Circular on sea level change (SLC), three sea level rise rates; a baseline estimate representing the minimum expected SLC, an intermediate estimate, and a high estimate representing the maximum expected SLC were analyzed during the study. Projecting the three rates over the 50-year period provides a predicted low level rise of 0.73 feet (ft), an intermediate level rise of 1.14ft, and a high level rise of 2.48ft. The project is designed based upon the historical, or minimum rate of SLC. The two elements of the project that would be most impacted by SLC are the SAV and wetland restoration, while SLC would have little or no effect on the reef habitat or scallop restoration. Marshes within the Lynnhaven basin have historically sustained themselves from the effect of SLC through vertical accretion, although migration landward is a possibility. Similarly, as the water column becomes deeper due to SLC, the SAV will migrate into shallow waters if allowed by the geography and development of the inundated shoreline. Because a large amount of the Lynnhaven shoreline is developed, the ability of the SAV and marshes to adjust to SLC may be limited.

9. In accordance with Corps Engineering Circular on review of decision documents, all technical, engineering, and scientific work underwent an open, dynamic, and vigorous review process to ensure technical quality. This included District Quality Control, Agency Technical Review (ATR) - coordinated by the Ecosystem Restoration Planning Center of Expertise (ECO-PCX), policy and Legal Compliance Review, Cost Engineering Directory of Expertise Review and Certification, and Model Review and Approval. All concerns of the ATR have been addressed and incorporated in the final report. Given the nature of the project, an exclusion from the requirement to conduct Type I Independent Peer Review was granted on 31 July 2013. Concerns expressed by the ECO-PCX team have been addressed and incorporated in the final report.

10. Washington level review indicates the plan recommended by the reporting officers is technically sound, environmentally and socially acceptable, and on the basis of Congressional directives, economically justified. The plan complies with all essential elements of the U.S. Water Resources Council's 1983 Economic and Environmental Principles and Guidelines for

DAEN

SUBJECT: Lynnhaven River Basin Ecosystem Restoration Project, Virginia

Water and Land Related Resources Implementation Studies. The recommended plan complies with other administration and legislative policies and guidelines. The views of interested parties, including federal, state, and local agencies, have been considered. State and agency comments received during review of the final report and environmental assessment were addressed. The EPA inquired whether information on sea level rise from another study in the area was considered. The Commonwealth of Virginia expressed concern regarding whether the required leases would be able to be obtained expeditiously; summarized prior coordination with and commitments to Virginia's regulatory and resource agencies; and made recommendations concerning project methods.

11. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan for ecosystem restoration in the Lynnhaven River Basin, Virginia be authorized in accordance with the reporting officers' recommended plan at an estimated cost of \$35,110,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Section 103 of WRDA 1986, as amended (33 U.S.C. 2213). Accordingly, the non-federal sponsor must agree with the following requirements prior to project implementation.

a. Provide 35 percent of total ecosystem restoration costs as further specified below:

(1) Provide 35 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 all lands, easements, and rights-of-way, including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material; perform or ensure the performance of all relocations; and construct all improvements desired on lands, easements, and rights-of-way to enable the disposal of dredged or excavated material as determined by the government to be required or to be necessary for the construction, operation, and maintenance of the project;

(3) Provide, during construction, any additional funds necessary to make its total contribution equal to 35 percent of total project costs.

b. Prior to initiation of construction, obtain approval from the Commonwealth of Virginia of an administrative designation in perpetuity for the river bottom areas required for the artificial reef and aquatic vegetation features of the project that provides sufficient protection to those areas from uses incompatible with the project;

c. 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 outputs produced by the project, hinder operation and maintenance of the project, or interfere with the project's proper function;

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SUBJECT: Lynnhaven River Basin Ecosystem Restoration Project, Virginia

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

e. Comply with all applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended (42 U.S.C. 4601-4655), and the Uniform Regulations contained in 49 Code of Federal Regulations Part 24, in acquiring lands, easements, and rights-of-way required for construction, operation, and maintenance of the project, including those necessary for relocations, the borrowing of materials, or the disposal of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;

f. 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 federal 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 federal government;

g. Hold and save the United States free from all damages arising from the design, 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.

h. 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), Public Law 96-510, as amended (42 U.S.C. 9601-9675), that may exist in, on, or under the lands, easements, or rights-of-way that the federal government determines to be required for construction, operation, and maintenance of the project. However, for lands that the federal government determines to be subject to the navigation servitude, only the federal government shall perform such investigation unless the federal 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;

i. Assume, as between the federal government and the non-federal sponsor, complete financial responsibility for all necessary cleanup 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 federal government determines to be required for construction or operation and maintenance of the project;

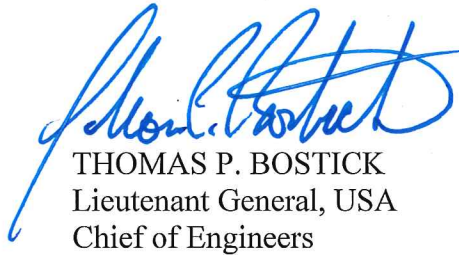
j. Agree, as between the federal government and the non-federal sponsor, that the non-federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability, and to the maximum extent practicable, operate, maintain, repair, rehabilitate, and replace the project in a manner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

12. The recommendation contained herein reflects the information available at this time and current departmental policies governing the formulation of individual projects. It does not reflect

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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 Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the City of Virginia Beach, Virginia (the non-federal sponsor), the state, interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.



THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers



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

DAEN

16 APR 2014

SUBJECT: Lake Worth Inlet, Palm Beach Harbor, Navigation Improvements Project, Palm Beach County, Florida

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on navigation improvements for Lake Worth Inlet, Palm Beach Harbor, Palm Beach County, Florida. It is accompanied by the reports of the district and division engineers. These reports were prepared as an interim response to a resolution by the House Committee on Transportation and Infrastructure dated 25 June 1998 which requested the Secretary of the Army to review the report of the Chief of Engineers on the Palm Beach Harbor, Florida, published as House Document 283, 86th Congress, 1st Session, and other pertinent reports, with a view of determining if the authorized project should be modified in any way at this time, with particular reference to widening the existing interior channel through Lake Worth Inlet. Preconstruction engineering and design (PED) activities for the Lake Worth Inlet, Palm Beach Harbor, Palm Beach County, Florida Navigation Project will continue under the authority cited above.
2. The reporting officers recommend authorization of a project that will contribute significantly to the economic efficiency and increased safety of commercial navigation in Palm Beach Harbor. The harbor entrance (also known as Lake Worth Inlet) is an artificial cut through the barrier island and limestone formation connecting Palm Beach Harbor to the Atlantic Ocean. The closest major ports to the Port of Palm Beach are Port Everglades, in Ft. Lauderdale, and Miami Harbor, approximately 40 miles and 65 miles to the south, respectively. Palm Beach Harbor is the 4th busiest container port in Florida and the eighteenth busiest in the continental United States. The port is a major center for the shipment of bulk sugar, molasses, cement, utility fuels, produce, break bulk and specialized items, and container shipments to the Caribbean. Lake Worth Inlet, serving as the entrance channel to the port, is inadequate both in width and depth, negatively impacting future port potential and creating economic inefficiencies with the current fleet of vessels. Based on existing fleet sizes, the port is operating with insufficient channel width and depth. As a result of these deficiencies, the local harbor pilots in conjunction with the U.S. Coast Guard have placed restrictions on vessel transit to ensure safety, resulting in economic inefficiencies and increased costs to the nation. The Port of Palm Beach is the non-federal cost-sharing sponsor.
3. The reporting officers identified a plan for improvements to the existing Lake Worth Inlet federal navigation project which will contribute significantly to the economic efficiency of commercial navigation in the region. The recommended plan is the National Economic

DAEN

SUBJECT: Lake Worth Inlet, Palm Beach Harbor, Navigation Improvements Project, Palm Beach County, Florida

Development (NED) Plan and is supported by the non-federal sponsor. The recommended plan includes channel deepening, widening, improvements to the main turning basin, and an advanced maintenance plan to reduce the costs of future operations and maintenance:

a. Main Channels Improvement Plan: The project would deepen the inner channel from the -33 feet mean lower low water (MLLW) to a project depth of -39 feet MLLW and the entrance channel from -35 feet MLLW to -41 feet MLLW. The channel widening footprint includes the addition of a new channel flare on the south side of the outer portion of the entrance channel, widening of the entrance channel from 400 feet to between 440-460 feet, and widening the inner channel from 300-450 feet.

b. Turning Basins: The Main Turning Basin would be deepened from -33 feet MLLW to -39 feet MLLW and extend the southern boundary of the turning basin an additional 150 feet south. The project would also remove a notch south of Peanut Island on the north side of the turning basin. No additional navigational improvements are being recommended for the smaller North Turning Basin with depths remaining at -25 feet MLLW.

c. Advanced Maintenance Plan: Several settling basins critical to the advanced maintenance plan would be dredged to depths ranging from -26 feet MLLW to -51 feet MLLW just north of the entrance channel to catch sediment before it enters the entrance channel. A 1,700 linear foot section of the entrance channel would be deepened for advanced maintenance to depths of -51 feet MLLW in the more easterly half of the entrance channel and -44 feet MLLW in the westerly section. Due to the additional deepening of the entrance channel for advanced maintenance, the project also includes the cost of stabilizing the north jetty with a 600 linear-foot sheet pile wall installed along the oceanward length of the jetty to a depth of -60 feet MLLW. The advanced maintenance plan will reduce the frequency of operation and maintenance (O&M) dredging to once every two years (currently once per year), resulting in an annual savings of \$850,000 to the O&M program.

4. The project would require the removal of approximately 1.4 million cubic yards of rock that will be placed at the designated Palm Beach Ocean Dredged Material Disposal Site (ODMDS) located about 5 miles east of the project. The U.S. Army Corps of Engineers (Corps), in coordination with the U.S. Environmental Protection Agency, will complete a study during PED to increase the allowable disposal limit per dredging event in the ODMDS over and above the current limit of 500,000 cubic yards per dredging event. It is the policy of the Corps to beneficially use dredged material where practical. Approximately 450,000 cubic yards of sand dredged from the channels will be placed in the near shore zone below the mean high water line out to the -17 feet MLLW contour along an approximate 3,000 feet reach of coast south of the inlet.

DAEN

SUBJECT: Lake Worth Inlet, Palm Beach Harbor, Navigation Improvements Project, Palm Beach County, Florida

5. Impacts caused by the navigational improvements include the losses of 4.5 acres of seagrass habitat and 4.9 acres of low relief hardbottom habitat, for which mitigation will be required. To mitigate for the impacts to seagrasses the project includes a mitigation plan that proposes filling existing borrow areas in Lake Worth Lagoon with approximately 125,000 cubic yards of dredged material to an elevation consistent with adjacent seagrass beds. Subsequent colonization of the restored substrate is anticipated by natural recruitment. The mitigation plan for the loss of hardbottom habitat is the creation of artificial reefs using limestone excavated from the entrance channel or quarried native limestone. The artificial reef construction would use about 25,100 cubic yards of rock to create mounds approximately 20 feet by 40 feet in size with a vertical relief of 3 to 4 feet. The exact locations of the mitigation sites and actual mitigation amounts will be determined after a more detailed resource survey and functional assessment conducted during PED. The current estimate of 11.25 acres of mitigation for both seagrasses and hardbottom is recommended based on the evaluation of comparable mitigation efforts from similar projects in the region. Monitoring of seagrass mitigation sites will be conducted on a monthly basis for the first year, then twice a year for years two and three, and once a year for years four and five. The monitoring program for the mitigation of hardbottoms will consist of physical monitoring to assess the degree of settling of the hardbottom materials after the first year, and biological monitoring to compare populations of algae, invertebrates and fish with natural hardbottom areas.

6. Project costs are allocated to the commercial navigation purpose and are based on October 2013 prices.

a. Project First Cost. The estimated project first cost is \$88,531,000, which includes the cost of constructing the general navigation features (GNFs) and the lands, easements, rights-of-way, and relocations (LERR) estimated as follows: \$87,209,000 for channel modifications and advanced maintenance settling basins, turbidity and endangered species monitoring, environmental mitigation, and dredged material placement; \$1,290,000 for post construction mitigation monitoring; and \$32,000 for real estate administrative costs.

b. Estimated Federal and Non-federal Shares. The estimated federal and non-federal shares of the project first cost are \$57,556,000 and \$30,975,000 respectively, as apportioned in accordance with the cost sharing provisions of Section 101 of Water Resources Development Act (WRDA) 1986, as amended (33 U.S.C. 2211), as follows:

(1) The cost for the GNFs from greater than 20 feet to 45 feet will be shared at a rate of 75 percent by the government and 25 percent by the non-federal sponsor, plus;

(2) In addition to the costs outlined in sub-paragraph (1) above, the project first cost includes federal administrative costs for lands, easements, rights of way and relocations

DAEN

SUBJECT: Lake Worth Inlet, Palm Beach Harbor, Navigation Improvements Project, Palm Beach County, Florida

estimated at \$32,000. The federal portion of these costs is \$19,000. The non-federal portion is \$13,000, all of which is eligible for LERR credit.

c. Additional 10 Percent Payment. In addition to the non-federal sponsor's estimated share of the total first cost of constructing the project in the amount of \$21,125,000 pursuant to Section 101(a)(2) of WRDA 1986, as amended, the non-federal sponsor must pay an additional 10% of the costs of GNFs of the project, \$8,849,900, in cash over a period not to exceed 30 years, with interest. The value of the LERR provided by the federal sponsor under Section 101(a)(3) of WRDA 1986 as amended will be credited toward this payment.

d. Operations and Maintenance Costs. The project results in a minor increase in the annual federal maintenance dredging from 117,500 to 120,000 cubic yards. However, the advanced maintenance plan will result in an average annual equivalent savings to the operation and maintenance program in the amount of \$850,000 in comparison to the annual operations and maintenance costs of about \$3,794,000 for the existing project.

e. Associated Costs. Estimated associated costs include \$25,000 for aids to navigation (a U.S. Coast Guard expense).

f. Authorized Project Cost and Section 902 Calculation. The project first cost, for the purposes of authorization and calculating the maximum cost of the project pursuant to Section 902 of WRDA 1986, as amended, should include estimates for general navigation features (GNF) construction costs, the value of lands, easements, and rights-of-way and the value of relocations provided under Section 101(a)(3) of WRDA 1986, as amended. Accordingly, as set forth in paragraph 4.a. above, based on Price Level Fiscal Year (FY) 2014, the estimated project first cost for these purposes are \$88,531,000. Based on FY 2014 price levels, a 3.5-percent discount rate, and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be \$3,960,000. The equivalent average annual benefits are estimated to be \$7,940,000. The average annual net benefits are \$3,980,000. The benefit-to-cost ratio for the recommended plan is 2.0.

7. The recommended plan was developed in coordination and consultation with various federal, state and local agencies using a systematic and regional approach to formulating solutions and evaluating the benefits and impacts. Risk and uncertainty were evaluated for economic benefits, costs and sea level rise. Economic sensitivities examined the effects of various commodity forecasts which included no growth, lower growth rates or capping the growth earlier in the period of analysis. These sensitivities showed that even with significantly reduced commodity throughput, the project would still be justified. In addition a cost and schedule risk analysis was completed. In accordance with the Corps Engineering Circular on sea level change the study analyzed three sea level rise rates. Historic (baseline), mid-level, and maximum rates were

DAEN

SUBJECT: Lake Worth Inlet, Palm Beach Harbor, Navigation Improvements Project, Palm Beach County, Florida

estimated to be 0.39 feet, 0.89 feet, and 2.47 feet, respectively, over the 50-year project life. The study concluded that no impact would result from sea level rise with respect to dredging and channel use, and that the terminal facilities would continue to operate under all conditions.

8. In accordance with the Corps Engineering Circular on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included District Quality Control (DQC), Agency Technical Review (ATR), Policy and Legal Compliance Review, Cost Engineering Center of Expertise Review and Certification, Model Review and Approval, and Independent External Peer Review (IEPR). All concerns of the ATR have been addressed and incorporated into the final report. The IEPR was completed by Battelle Memorial Institute in July 2013 and a revised Comment Response Record was issued by the IEPR panel on 10 January 2014 indicating that all comments were satisfactorily addressed. The panel had seven comments, two of which they considered significant, two were medium significance and three were low significance. The most significant finding by the panel related to the commodity forecast and vessel costing documentation. While the 2017-2067 commodity growth forecast appeared reasonable, the assumed growth between 2013 and 2017 was not adequately supported by the report documentation which raised questions about the reliability of the benefit estimates. The panel also commented that documentation on vessel operations and costing was insufficient. Other comments raised by the panel included capacity of the ODMDS, long-term management of dredged material, role of the existing sand bypassing north of the project, air quality, and shoaling rates. In summary, the panel felt that the engineering, economics and environmental analysis were adequate and the additional sensitivity analysis and clarifications needed to be properly documented in the final report. The final report was revised accordingly.

9. The plan recommended by the reporting officers is technically sound, environmentally and socially acceptable, and economically justified. The views of interested parties, including federal, state and local agencies have been considered. The U.S. Coast Guard requested information on the relocation of the aids to navigation, including the cost and schedule which were not fully described in the final report. The requested information has been provided to the Coast Guard. The USEPA submitted a number of comments during State and Agency review concerning seagrass mitigation, potential for effects to groundwater resources, air quality analysis, induced storm surge increases, railroad alternatives to harbor deepening and purpose and need for harbor deepening. The Corps has determined that the existing report adequately addresses effects to groundwater resources, railroad alternatives to harbor deepening, and purpose and need for the recommended improvements. In regards to possible storm surge increases, the Corps does not anticipate any negative flooding effects to be caused by the project due to the insignificant amount of possible increase (0-4 inches), infrequency of the flooding event (1% flood) that could lead to an increase, and much greater effects anticipated due to sea

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level rise. The following actions will be implemented as part of this project to address USEPA concerns:

a. Seagrass Mitigation. The Corps will conduct a survey prior to construction to confirm the extent of seagrasses at the site. The Corps will also continue to coordinate with Palm Beach County Department of Environmental Resources concerning siting of the seagrass mitigation areas. Lastly, the dredged material that would be used in the seagrass mitigation areas would be tested for contaminants prior to use.

b. Air Quality Analysis. The Corps has developed an errata sheet for the final feasibility report and EIS that clarifies that the air pollutants of concern are expressed in units of tons/year.

10. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that navigation improvements for Lake Worth Inlet be authorized in accordance with the reporting officers' recommended plan at an estimated cost of \$88,531,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Section 101 of WRDA 1986, as amended. This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable federal laws and policies including that the non-federal sponsor must agree with the following requirements prior to project implementation.

a. Provide, during the periods of design and construction, funds necessary to make its total contribution for commercial navigation equal to 25 percent of the cost of design and construction of the GNFs attributable to dredging to a depth in excess of -20 feet MLLW but not in excess of -45 feet MLLW.

b. Provide all lands, easement, and rights-of-way (LER), including those necessary for the borrowing of material and placement of dredged or excavated material, and perform or assure performance of all relocations, including utility relocations, all as determined by the government to be necessary for the construction or operation and maintenance of the GNFs.

c. Pay with interest, over a period not to exceed 30 years following completion of the period of construction of the GNFs, an additional amount equal to 10 percent of the total cost of construction of GNFs less the amount of credit afforded by the government for the value of the LER and relocations, including utility relocations, provided by the non-federal sponsor for the GNFs. If the amount of credit afforded by the government for the value of LER, and relocations, including utility relocations, provided by the non-federal sponsor equals or exceeds 10 percent of the total cost of construction of the GNFs, the non-federal sponsor shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of LER

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and relocations, including utility relocations, in excess of 10 percent of the total costs of construction of the GNFs.

d. Provide, operate, and maintain, at no cost to the government, the local service facilities 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.

e. In the case of project features greater than -45 feet MLLW in depth, provide 50 percent of the excess cost of operation and maintenance of the project over that cost which the government determines would be incurred for O&M if the project had a depth of -45 feet MLLW.

f. Give the government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-federal sponsor owns or controls for access to the project for the purpose of completing, inspecting, operating and maintaining the GNFs.

g. Hold and save the United States free from all damages arising from the construction or operation and maintenance of the project, any betterments, and the local service facilities, except for damages due to the fault or negligence of the United States or its contractors.

h. 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), 42 USC 9601-9675 that may exist in, on, or under LER that the federal government determines to be necessary for the construction or operation and maintenance of the GNFs. However, for lands, easements, or rights-of-way that the federal government determines to be subject to the navigation servitude, only the federal government shall perform such investigation unless the federal 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.

i. Assume complete financial responsibility, as between the federal government and the non-federal sponsor, for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under LER that the federal government determines to be necessary for the construction or operation and maintenance of the project.

j. To the maximum extent practicable, perform its obligations in a manner that will not cause liability to arise under CERCLA.

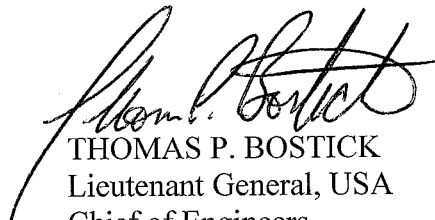
k. Accomplish all removals determined necessary by the federal government other than those removals specifically assigned to the federal government.

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1. Mitigation monitoring during construction and post construction shall be cost shared between the federal government and non-federal sponsor, 75 percent and 25 percent, respectively.

11. 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 implementation funding. However, prior to transmittal to the Congress, the State of Florida, the Port of Palm Beach (the non-Federal sponsor), interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.



THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers



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

16 APR 2014

DAEN (1105-2-10a)

SUBJECT: Jacksonville Harbor Navigation Study Final Integrated General Reevaluation Report II and Supplemental Environmental Impact Statement, Duval County, Florida

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress the final integrated feasibility report and environmental impact statement on navigation improvements for Jacksonville Harbor, Duval County, Florida, located on the St. Johns River. It is accompanied by the report of the district and division engineer. This report was prepared as an interim response to a resolution from the Committee on Public Works and Transportation, United States House of Representatives, dated February 5, 1992. Preconstruction engineering and design activities for the Jacksonville Harbor, Duval County, Florida Navigation Project will continue under the authority provided by the resolution cited. The Port of Jacksonville is designated as a Strategic Port supporting the 832nd Transportation Battalion, as well as the Marines and Navy. It is also included in the President's "We Can't Wait" Initiative; Executive Order 13604 of March 22, 2012.

2. The reporting officers recommend a project that will contribute to the economic efficiency of commercial navigation. Based on an evaluation of alternative plan costs and economic benefits, the national economic development (NED) plan includes a channel depth of 45 feet with associated channel widening and turning basins. The non-federal sponsor, the Jacksonville Port Authority (JAXPORT), subsequently requested a locally preferred plan (LPP) of 47 feet deep with associated channel widening and turning basins. The LPP has positive net benefits and is economically justified. In accordance with U.S. Army Corps of Engineers (USACE) policy, the LPP was submitted for consideration to the Assistant Secretary of the Army for Civil Works (ASA-CW) and approved for consideration as the recommended plan on May 17, 2013. The recommended plan is the LPP and consists of the following improvements:

a) The project would be deepened from the existing 40-foot mean lower low water (MLLW) channel depth of the St. John's River to 47 feet MLLW from the entrance channel to approximately River Mile (RM) 13;

b) The following areas of widening are included as part of the new channel footprint for the LPP: Mile Point: Widen to the north by 200 feet for Cuts 8-13 (~RM 3-5), Training Wall Reach: widen to the south 100 feet for Cuts 14-16 (~RM 5-6) transitioning to 250 feet for Cut 17 (~RM 6) and back to 100 feet for Cuts 18-19 (~RM 6), and the St. Johns Bluff Reach: widen both sides of the channel varying amounts up to 300 feet for Cuts 40-41 (~RM 7-8);

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c) The following turning basin areas are included in the recommended plan based on the ship simulation results: Blount Island: ~2,700 feet long by 1,500 feet wide located in Cut-42 (~RM 10) and Brills Cut: ~2,500 feet long by 1,500 feet wide located in Cut-45 (~RM 13).

d) Construction of the recommended plan involves dredging of approximately 18 million cubic yards of material. Fracturing (confined blasting) of consolidated sediments and underlying rock may be required prior to dredging. Based on analysis of the historical operation and maintenance (O&M) requirements and the proposed project expansion features, it is estimated that there will be an average annual increase of 137,000 cubic yards (CY) of shoal material to be dredged each year from the new project. All material dredged for construction is assumed to go to the ocean dredged material disposal site (ODMDS).

e) The following areas of advanced maintenance were identified; Area 1 (Entrance Channel to ~ River Mile 2) = Bar Cut-3 from Station 217+00 to Station 270+00 (Full Channel) plus Bar Cut-3 Station 270+00 to end/Station 300+00 (South side of channel or Range 0 to Range 380) plus Cut-4 entire length (South side of channel or Range 0 to Range 430) plus Cut-5 entire length (South side of channel or Range 0 to Range 455) plus Cut-6 entire length (South side of channel or Range 0 to Range 455); Area 2 (~River Mile 8) = Cut-41 Station 12+30 to Station 28+10 (North side of channel to include proposed widening or Range 0 to Range -500); Area 3 (~River Mile 9 to 11) = Cut-42 Station 19+79.05 to Station 135+00 (Full Channel); Area 4 (Adjacent to Cut-42) (~River Mile 10) = Entire Southern portion of Blount Island Turning Basin (Range -237.50 to Range -862.50); and Area 5 (~River Mile 13) = Entire Brills Cut Turning Basin (this covers the project channel by default from Cut-45 Station 3+18.43 to Station 28+18.43). Area 5 is the breakpoint where the project is going from the shallower and narrower 40-foot project depth to the new project depth of 47 feet which is deeper and will be wider with the incorporation of the Brill's Cut Turning Basin. It is expected that more shoaling will occur in this area as we have experienced historical increases in the Talleyrand area of the Terminal Channel where the depth goes from 34 feet to 40 feet. These areas represent similar surface areas to the previous advanced maintenance areas presented in the 2002 General Reevaluation Report (GRR) and also represent similar quantities of dredging. These items have been considered to maintain the lessened frequency of dredging in these areas.

f) An interagency assessment team was assembled to assist in conducting a Uniform Mitigation Assessment Method (UMAM) assessment for potential impacts and associated mitigation for the proposed deepening of Jacksonville Harbor. The team is composed of representatives from the following agencies: U.S. Environmental Protection Agency, USACE, Florida Department of Environmental Protection, Florida Fish and Wildlife Conservation Commission, National Marine Fisheries Service, and U.S. Fish and Wildlife Service. Numerous meetings and site visits were conducted to observe and discuss the characterization of the wetland areas/submerged aquatic vegetation (SAV), potential effects related to the proposed project and proposed compensatory mitigation. The effects assessment determined that the base

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mitigation plan would offset impacts to wetlands (394.57 acres) and SAV (180.5 acres). On a functional value scale of 0-1, these resources would experience a functional loss of 0.1, which results in 39.46 units of compensatory mitigation for wetlands and 18.05 units of compensatory mitigation for SAV. Mitigation is required for wetlands and submerged aquatic vegetation affected by the deepening. A base mitigation plan, consisting of conservation land purchase of 638 acres of freshwater wetlands, uplands, river shoreline, and salt marsh wetlands has been proposed. The base mitigation plan total cost is \$2,900,000. The USACE has determined that this plan would be sufficient to offset any minor effects that may occur as a result of the proposed project. As there were no discernible differences in the modeling results of impacts for the NED plan versus the recommended plan (LPP), there is no anticipated increase in mitigation needed for the LPP plan as compared to the NED plan. This total includes mitigation for fisheries effects.

g) Projected environmental impacts warrant initial mitigation (i.e. conservation land purchase) and monitoring during construction plus 1 year post construction. Although not required for the federal project, the non-federal sponsor has agreed to conduct additional monitoring and modeling efforts post construction at their cost. If based on the post construction monitoring the USACE determines that additional monitoring as part of the federal project is warranted, the USACE could share in the cost of the additional monitoring.

3. Project Cost Breakdown based on October 2013 Prices.

a) Project First Cost: The estimated project first cost is \$600,900,000, which includes the cost of constructing the General Navigation Features (GNFs) and the lands, easements, rights of way, and relocations (LERR) estimated as follows: \$600,200,000 for channel modifications, turbidity and endangered species monitoring, environmental mitigation, Planning Engineering and Design (PED), and Construction Management; and \$700,000 for real estate administrative costs. The Jacksonville Port Authority is the non-federal cost-sharing sponsor for all features.

b) Estimated Federal and Non-federal Cost Shares: The estimated federal and non-federal shares of the project first cost are \$362,000,000 and \$238,900,000 respectively, as apportioned in accordance with the cost sharing provisions of Section 101 of WRDA 1986, as amended (33 U.S.C. 2211), as follows:

(1) The cost for the GNFs from greater than 20 feet to 45 feet MLLW will be shared at a rate of 75 percent by the government and 25 percent by the non-federal sponsor, plus

(2) 100 percent of the costs attributable to dredging to a depth below -45 feet MLLW;

(3) In addition to the costs outlined in sub-paragraph (1) above, the project first cost includes federal administrative costs for lands, easements, rights of way and relocations

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estimated at \$700,000. The non-federal portion of this cost is 25% of the administrative costs,

(4) \$200,000, all of which is eligible for LERR credit.

c) Additional 10 Percent Payment. In addition to the non-federal sponsor's estimated share of the total first cost of constructing the project in the amount of \$238,900,000 pursuant to Section 101(a)(2) of WRDA 1986, as amended, the non-federal sponsor must pay an additional 10% of the costs for NED GNFs of the project, \$50,500,000, in cash over a period not to exceed 30 years, with interest. The value of the lands, easements, rights-of-way and relocations provided by the non-federal sponsor under Section 101(a)(3) of WRDA 1986 as amended will be credited toward this payment.

d) Operations and Maintenance Costs. It is estimated that there will be an average annual increase of 137,000 cubic yards (CY) of shoal material to be dredged each year from the new project with an added annual O&M cost of \$1,100,000. Much of the increase is due to the construction of two new turning basins that will be needed to accommodate the post-panamax container ships. With the incorporation of advanced maintenance zones into these turning basins, it may be possible to reduce the frequency of dredging required and thus reduce contract costs and equipment mobilization costs.

e) Associated Costs. Estimated associated federal costs of \$1,300,000 include navigation aids, (a U.S. Coast Guard expense).

f) Local Service Facilities. The associated cost for local service facilities is approximately \$82 million and is primarily for upgrading the bulkheads and berths at facilities which benefit from the deeper channel. These costs are 100% non-federal and are not included in the first total cost of the recommended plan.

g) Authorized Project Cost and Section 902 Calculation. The project first cost, for the purposes of authorization and calculating the maximum cost of the project pursuant to Section 902 of WRDA 1986, as amended, should include estimates for GNFs construction costs, the value of lands, easements, and rights-of-way and the value of relocations provided under Section 101(a)(3) of WRDA 1986, as amended. Accordingly, as set forth in paragraph 4.a. above, based on Price Level FY 2014, the estimated project first cost for these purposes is \$600,900,000 with a federal share of \$362,000,000 and a non-federal share of \$238,900,000.

5. Based on October 2013 (FY2014) price levels, a 3.5-percent discount rate, and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be \$33,700,000. The average annual equivalent benefits are estimated to be \$89,700,000. The average annual net benefits are \$56,000,000. The benefit-to-cost ratio for the recommended plan is 2.7.

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6. The federal government would be responsible for operation and maintenance of the navigation improvements proposed in this report upon completion of the construction contract.

The federal government currently maintains the existing project. The contractor would be responsible for all maintenance during the construction contract.

7. Risk and uncertainty were evaluated for economic benefits, costs and sea level rise. Economic sensitivities examined the effects of commodity forecasts which had lower growth rates or capped the growth earlier in the period of analysis. In accordance with the Corps Engineering Circular on sea level change the study analyzed four sea level rise rates; historic (baseline), intermediate, and high. The historic sea level rise rate was determined to be 0.0078 ft/year. The baseline, intermediate, and high sea level rise values at the end of the 50-year period of analysis were projected to be 0.39 ft, 0.87 ft, and 2.4 ft, respectively. In general, regional sea level rise (baseline, intermediate, and high) will not affect the function of the project alternatives or the overall safety of the design vessel. There is expected to be a minor impact to non-federal structures or berths that the non-federal sponsor would manage without effects to the project. The majority of salinity changes will occur due to sea level change; with only minor impacts attributable to the project.

8. In accordance with the Corps Engineering Circular on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included District Quality Control (DQC), Agency Technical Review (ATR), Policy and Legal Compliance Review, Cost Engineering Directory of Expertise (DX) Review and Certification, Independent External Peer Review (IEPR), and Model Review and Approval. The IEPR was completed by Battelle Memorial Institute. A total of 13 comments were documented. The IEPR comments identified concerns in areas of the explanation of the economics, hydraulic analysis, and environmental analyses. This resulted in expanded narratives throughout the report to support the decision-making process and justify the recommended plan. All comments from the above referenced reviews have been addressed and incorporated into the final documents. Overall the reviews resulted in improvements to the technical quality of the report.

9. Washington level review indicates that the plan recommended by the reporting officers is technically sound, environmentally and socially acceptable, and on the basis of congressional directives, economically justified. The plan complies with all essential elements of the 1983 U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Land Related Resources Implementation Studies. The recommended plan complies with other administration and legislative policies and guidelines. The views of interested parties, including federal, state and local agencies have been considered. The US Environmental Protection Agency (USEPA) submitted a comment regarding potential impacts of the project to

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the existing source water supply, and the consequences for the Jacksonville water utility should the 8.45 million gallons per day (MGD) currently being withdrawn from the surficial aquifer have to be supplied by the Floridan aquifer. The Corps has determined that the existing report adequately addresses the effects to the existing water supply. This conclusion is based on the results of a USGS study that determined that the project will not significantly increase the surficial aquifer salinity except at the boundary of the river channel where the surficial aquifer is likely already impacted from exposure to the high river salinity. The current consumptive use permit for the water utility permits a maximum base allocation of 142 MGD by the year 2021, thus, should an additional 8.45 MGD be required, additional pumping capacity would be available under the existing permit. Additionally, the USEPA, US Department of the Interior (USDOI), and Florida Department of Environmental Protection (FLDEP) requested that 10 years of post construction monitoring be done, and asked to be included as part of a Corrective Action Team (CAT) that would analyze monitoring results and advise the USACE on future potential actions related to monitoring and mitigation. The USACE will include these agencies as part of the CAT. The USACE has committed to cost share in monitoring efforts during the period of construction and one year post construction. In addition, the Port of Jacksonville has committed to funding on their own additional monitoring efforts up to 10 years post construction. The USACE will potentially cost share in the additional monitoring if we determine it is warranted based on the initial post construction monitoring results.

10. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that navigation improvements for Jacksonville Harbor be authorized in accordance with the reporting officers' recommended plan at an estimated first cost of \$600,900,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Section 101 of WRDA 1986, as amended. This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable federal laws and policies including that the non-federal sponsor must agree with the following requirements prior to project implementation.

a) Provide, during the periods of design and construction, funds necessary to make its total contribution for commercial navigation equal to:

(1) 25 percent of the cost of design and construction of the GNFs attributable to dredging to a depth in excess of -20 feet MLLW but not in excess of -45 feet MLLW, plus

(2) 100 percent of the costs attributable to dredging to a depth below -45 feet MLLW.

b) Provide all lands, easement, and rights-of-way (LER), including those necessary for the borrowing of material and placement of dredged or excavated material, and perform or assure performance of all relocations, including utility relocations, all as determined by the Government

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to be necessary for the construction or operation and maintenance of the GNFs. Provide and maintain during the authorized life of the project the mitigation lands (approximately 638 acres) determined to be required for mitigation for impacts for the project.

c) Pay with interest, over a period not to exceed 30 years following completion of the period of construction of the GNFs, an additional amount equal to 10 percent of the total cost of

construction of the NED GNFs less the amount of credit afforded by the government for the value of the LER and relocations, including utility relocations, provided by the non-federal sponsor for the GNFs. If the amount of credit afforded by the government for the value of LER, and relocations, including utility relocations, provided by the non-federal sponsor equals or exceeds 10 percent of the total cost of construction of the GNFs, the non-federal sponsor shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of LER and relocations, including utility relocations, in excess of 10 percent of the total costs of construction of the GNFs.

d) Provide, operate, and maintain, at no cost to the government, the local service facilities 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.

e) In the case of project features greater than -45 feet MLLW in depth, provide 100 percent of the excess cost of operation and maintenance of the project over that cost which the government determines would be incurred for operation and maintenance if the project had a depth of 45 feet.

f) Accomplish all removals determined necessary by the federal government other than those removals specifically assigned to the federal government.

g) Hold and save the United States free from all damages arising from the construction or operation and maintenance of the project, any betterments, and the local service facilities, except for damages due to the fault or negligence of the United States or its contractors.

h) 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), 42 USC 9601-9675, that may exist in, on, or under LER that the Government determines to be necessary for the construction or operation and maintenance of the GNFs. However, for lands, easements, or rights-of-way that the government determines to be subject to the navigation servitude, only the government shall perform such investigation unless the government provides the non-federal sponsor with prior specific written direction, in which case

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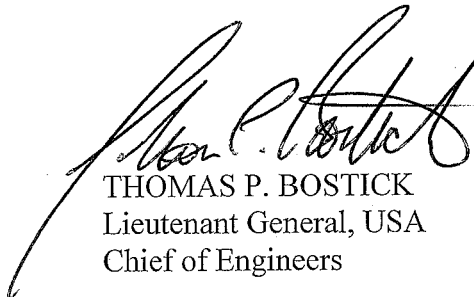
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the non-federal sponsor shall perform such investigations in accordance with such written direction.

i) Assume complete financial responsibility, as between the government and the non-federal sponsor, for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under LER that the government determines to be necessary for the construction or operation and maintenance of the project.

j) To the maximum extent practicable, perform its obligations in a manner that will not cause liability to arise under CERCLA.

11. 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 implementation funding. However, prior to transmittal to the Congress, the State of Florida, the Jacksonville Port Authority (the non-federal sponsor), interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.



THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers