DEPARTMENT OF THE ARMY
CHIEF OF ENGINEERS
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8 Apr 2020

SUBJECT: Comprehensive Everglades Restoration Plan, Loxahatchee River Watershed Restoration Project, Martin and Palm Beach Counties, Florida

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the Loxahatchee River Watershed Restoration Project, Martin and Palm Beach counties, Florida. It is accompanied by the report of the Jacksonville District Engineer. These reports are in response to Section 601(b)(1) of the Water Resources Development Act (WRDA) of 2000, which approved the Comprehensive Everglades Restoration Plan (CERP) as a framework for modifications and operational changes to the Central and Southern Florida (C&SF) project that are needed to restore, preserve, and protect the south Florida ecosystem while providing for other water related needs of the region, including water supply and flood protection. WRDA 2000 identified specific requirements for implementing components of the CERP, including the development of a decision document known as a Project Implementation Report (PIR). The requirements of a PIR are addressed in this report and are subject to review and approval by the Secretary of the Army. Preconstruction engineering and design activities for this project will be continued under the May 12, 2000 CERP Design Agreement, as amended.

2. Construction and operation of C&SF features in the project area since the 1950s greatly reduced flood impacts and allowed extensive development, but cut off the Northwest Fork of the Loxahatchee River from Loxahatchee Slough and the rest of its watershed. Unintended consequences included too much or too little water; reduction in spatial extent of wetland systems; declining estuary health; massive reductions in wading bird populations; degradation of water quality; and loss of native habitat to invasive non-native vegetation. The reporting officer recommends authorizing a plan to restore flows to the Northwest Fork of the Loxahatchee River and restore 27,000 acres of freshwater and estuarine habitat. The restoration actions also improve connectivity over a combined 78,000 acres of natural areas. The recommended plan is the National Ecosystem Restoration plan and is supported by the non-federal sponsor, the South Florida Water Management District. The plan includes:

a. In the south and southeast (Flow-way 1): construct conveyance structures in the C-18 Canal, a pump station at the M-1 Canal, and earthwork to improve connectivity in the Grassy Waters Triangle.

b. In the southwest and west (Flow-way 2): construct a 9,500 acre-foot above ground storage reservoir with pump stations and inflow and discharge canals; four (4) co-located aquifer storage and recovery (ASR) wells; new canals, structures, and a pump station to connect the M-

O Canal to the reservoir and wetland restoration in Loxahatchee.

c. In the north (Flow-way 3): restore wetland restoration sites (Kitching Creek, Gulfstream East, Moonshine Creek, Cypress Creek, and Pal-Mar East) and construct a flow-through attenuation facility including a pump.

d. Recreation features: gravel parking with boat ramps and trailheads, dry vault toilets, shelters, small boardwalks and bridges, information signs, and Americans with Disabilities Act compliant fishing platforms.

e. Monitoring and Adaptive Management Plan: Implementation of the monitoring and adaptive management plan will help ensure ecosystem restoration success is evaluated and inform adaptive management options to improve project success, if needed. Monitoring will continue until ecosystem restoration of wetlands and flows to the river are determined to be successful based on the identified criteria within the Adaptive Management and Monitoring Plan included in Annex D. Monitoring is expected to last no more than 10 years.

3. The recommended plan will deliver 98% of the wet season restoration flow target and 91% of the dry season restoration flow target for the Northwest Fork of the Loxahatchee River, thus reversing the trend of increasing salinity levels and helping conserve the remaining riverine cypress habitat designated as the first "National Wild and Scenic River" in Florida, and improving riverine and estuarine habitats that support federally managed fish species and Endangered Species Act (ESA) protected species. The recommended plan improves wetland hydrology in the Pal-Mar natural area complex and restores 17,000 acres of various types of agricultural land that are part of the historical Greater Everglades, and improves an additional 10,000 acres of natural areas in the J.W. Corbett Wildlife Management Area, Loxahatchee Slough, and Kitching Creek. These habitats collectively include a unique mix of ridge and slough, mesic and wet flatwoods, wet prairie, cypress floodplain, cypress strand, dome swamps, depression marsh, mesic and hydric hammock plant communities that contribute to the recovery of the endangered Everglade snail kite, threatened eastern indigo snake, threatened Florida manatee, and threatened wood stork, and provide habitat for many wading birds.

4. Based upon October 2019 price levels, the total project first cost of the recommended plan is estimated to be $740,760,000. The project first cost for the ecosystem restoration features is estimated to be $736,862,000 and for recreation features is estimated to be $3,898,000. In accordance with the cost-sharing requirements of Section 601 (e) of WRDA 2000, construction costs for ecosystem restoration are shared 50-50 between the government and non-federal sponsor. Construction costs associated with recreation features are also cost-shared 50-50 in accordance with Section 103 of WRDA 1986, as amended. Additionally, the government is responsible for 100% of cultural resources data recovery costs, up to 1 % of federal share of total project costs. Therefore, in consideration of estimated costs for cultural resources data recovery, the federal cost of the recommended plan would be $372,232,000 and the non-federal cost would be $368,528,000. The estimated lands, easements, right-of-way, and relocation (LERRs) costs for the recommended plan are $303,848,000. Based on a 2.75 percent interest rate and a 50-year period of analysis, the average annual cost of the recreation features is $209,000 and the average

annual benefits are $464,000, resulting in net benefits of $255,000 and a 2.22 to 1 benefit to cost ratio.

5. A monitoring and adaptive management plan was developed to address key uncertainties that pose some risk to the project successfully meeting ecosystem restoration objectives, while avoiding constraints associated with maintaining existing water supply and flood risk management levels of service. One key uncertainty was related to restoration of high impact agricultural sites and the potential need for additional berm, plugging, and regrading to ensure natural flow through restored wetlands toward the river. Another uncertainty focused on control of invasive and nuisance species, especially in the early phases of wetland restoration response, and need for planting to promote successful recruitment of natural vegetation. Some uncertainties are related to whether proper substrate for oyster recruitment will exist in new salinity ranges/locations caused by project operations and the timing of flow deliveries to the river. Finally, another key uncertainty is related to ensuring that ASR well operations do not affect future drinking water supply and that project implementation does not affect existing levels of flood risk management service in nearby residential areas. Monitoring is in place for up to 10 years to address these uncertainties and inform adaptive management options to provide improvements to project performance. Total costs are up to $7,310,000 for ecosystem restoration monitoring and up to $3,831,000 for adaptive management contingency options.

6. The project complies with the following requirements of WRDA 2000:

a. Project Implementation Report. The requirements of a PIR as defined by Section 601 (h)(4)(A).

b. Water Made Available for the Natural System, Water to be Reserved or Allocated for the Natural System and Water for Other Water-Related Needs. Sections 601 (h)(4)(A)(iii)(IV) and (V) require identification of the appropriate quantity, timing, and distribution of water dedicated and managed for the natural system and the amount of water to be reserved or allocated for the natural system. In accordance with the regulations, an analysis was conducted to identify water dedicated and managed for the natural system. Accordingly, the non-federal sponsor will protect the water that was identified as necessary to achieve the benefits of the project, using water reservation or allocation authority under Florida law.

c. Effects on Existing Legal Sources of Water. Section 601 (h)(5)(A) states that existing legal sources of water shall not be eliminated or transferred until a new source of water supply of comparable quantity and quality is available to replace the water to be lost as a result of the project. An analysis of project effects on existing legal sources of water was conducted and it was determined that sources of water to meet agricultural and urban demand in Water Restriction Area 1 of southern Martin County and Water Restriction Area 2 of northern Palm Beach County will continue to be met by their current sources, primarily Lake Okeechobee, surface water in the regional canal network, and the surficial aquifer system. Sources of water for the Seminole Tribe of Florida and Miccosukee Tribe of Indians of Florida, Everglades National Park, and fish and wildlife will not be affected by the project.

d. Maintenance of Flood Protection. Section 601 (h)(5)(B) states that the plan shall not reduce levels of service for flood protection that are in existence on the date of enactment of this Act and in accordance with applicable law. Comparison of canal stages and groundwater levels indicate that implementation of the project will not reduce the levels of service for flood protection within the areas in southern Martin County and northern Palm Beach County adjacent to the project.

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 District Quality Control, Agency Technical Review, Independent External Peer Review (Type 1), and a USACE Headquarters policy and legal review. All concerns from these reviews have been addressed and incorporated into the final report. Overall, the reviews resulted in improvements to the technical quality of the report.

8. Washington level review indicated that the project recommended by the reporting officer 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. 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.

9. I concur with the findings, conclusions, and recommendations of the reporting officer. I recommend that the Loxahatchee River Watershed Restoration Project, Florida, be authorized at an estimated first cost of $740,760,000 with such modifications thereof 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. The cost of the plan recommended in this report would be cost shared in accordance with Section 601 of the Water Resources Development Act of 2000, as amended, with a non-federal share of 50 percent of total costs. Federal implementation of the selected plan would be subject to the non-federal sponsor agreeing to comply with applicable federal laws and policies, including but not limited to:

a. Provide 50% of total project costs consistent with the provisions of Section 601(e) of the WRDA of 2000, as amended, including authority to perform design and construction of project features consistent with federal law and regulation.

b. Provide all lands, easements, and rights-of-way, including suitable borrow and dredged or excavated material disposal areas, and perform or assure the performance of all relocations that the federal government and the non-federal sponsor jointly determine to be necessary for the construction, operation, maintenance, repair, replacement, and rehabilitation of the project and valuation will be in accordance with the Master Agreement.

c. Shall not use the ecosystem restoration features or lands, easements, and rights-of way required for such features as a wetlands bank or mitigation credit for any other non-CERP

projects.

d. Give the federal government a right to enter, at reasonable times and in a reasonable manner, upon land that the non-federal sponsor owns or controls for access to the project for the purpose of inspection and, if necessary, for the purpose of constructing, completing, operating, maintaining, repairing, replacing, or rehabilitating the project.

e. Assume responsibility for operation, maintenance, repair, rehabilitation, and replacement (OMRR&R) of the project or completed functional portions of the project, including mitigation features, in a manner compatible with the project's authorized purposes and in accordance with applicable federal and state laws and specific directions prescribed in the OMRR&R manuals and any subsequent amendments thereto. Cost-sharing for OMRR&R will be in accordance with Section 601(e) of WRDA 2000, as amended. Notwithstanding Section 528(e)(3) of WRDA 1996 (110 stat. 3770), the non-federal sponsor shall be responsible for 50% of the cost of OMRR&R activities authorized under this section.

f. Operate, maintain, repair, replace, and rehabilitate the recreational features of the project; the non-federal sponsor is responsible for 100% of the cost.

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

h. Unless otherwise provided for in the statutory authorization for this project, comply with Section 221 of the Flood Control Act of 1970 (Public Law 91-611), as amended, and Section 103 of the WRDA of 1986 (Public Law 99-662), as amended, 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.

i. Hold and save the federal government free from all damages arising from construction, 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 federal government or the federal government's contractors;

j. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project to the extent and in such detail as will properly reflect total project costs in accordance with the Master Agreement between the Department of the Army and the non-federal sponsor dated August 13, 2009, as amended, including Article XI Maintenance of Records and Audit.

k. 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), 42 USC 9601-9675, that may exist in, on, or under lands, easements, or rights-of-way necessary for the construction, operation, and maintenance of the project; except that the

non-federal sponsor shall not perform such investigations on lands, easements, or rights-of-way that the federal government determines to be subject to the navigation servitude without prior specific written direction by the federal government.

l. Assume complete financial responsibility for all necessary clean-up and response costs of any CERCLA-regulated materials located in, on, or under lands, easements, or rights-of-ways that the federal government determines necessary for construction, operation, maintenance, repair, replacement, and rehabilitation of the project;

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

n. Prevent obstruction of, 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 ecosystem restoration features, hinder operation and maintenance of the project, or interfere with the project's proper function.

o. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646), as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 CFR part 24, in acquiring lands, easements, and rights-of-way, and performing relocations for construction, operation, and maintenance of the project, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act.

p. 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 substantive 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]);

q. Comply with Section 106 of the National Historic Preservation Act in completion of all consultation with the Florida State Historic Preservation Officer and other interested parties including federally recognized tribes and, as necessary, the Advisory Council on Historic Preservation, prior to construction as part of the preconstruction engineering and design phase of the project.

r. Provide 50% of that portion of total data recovery activities associated with historic

preservation that exceed 1% of the amount authorized to be appropriated for the Loxahatchee River Watershed Restoration Project; data recovery costs under 1% of the authorized Loxahatchee River Watershed Restoration Project cost will be funded in their entirety by the federal government. Any costs of data recovery that exceed 1% of the amount authorized to be appropriated for the Loxahatchee River Watershed Restoration Project shall not be included in project construction costs or project OMRR&R costs (as defined by the Master Agreement); therefore, credit shall not be afforded to the non-federal sponsor for costs or work-in-kind associated with data recovery activities that exceed 1% of the amount authorized to be appropriated for the LRWRP.

s. 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 expressly authorized and in accordance with Section 601 (e)(3) of the WRDA of 2000, as amended, and in accordance with the Master Agreement.

t. The non-federal sponsor agrees to participate in and comply with applicable federal floodplain management and flood insurance programs consistent with its statutory authority:

(1) Not less than once each year, the non-federal sponsor shall inform affected interests of the extent of protection afforded by the project.

(2) The non-federal sponsor shall publicize flood plain information in the area concerned and shall provide this information to zoning and other regulatory agencies for their use in preventing unwise future development in the flood plain, 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.

(3) The non-federal sponsor shall comply with Section 402 of WRDA 1986, as amended (33 U.S.C. 701b-12), which requires a non-federal interest to have prepared, within one year after the date of signing a project partnership agreement for the project, a floodplain management plan. The plan shall be designed to reduce the impacts of future flood events in the project area, including but not limited to, addressing those measures to be undertaken by non-federal interests to preserve the level of flood protection provided by the project. As required by Section 402, as amended, the non-federal sponsor shall implement such plan not later than one year after completion of construction of the project. The non-federal sponsor shall provide the federal government an information copy of the plan upon its preparation.

(4) The non-federal sponsor shall prescribe and enforce regulations to prevent obstruction of or encroachment on the project—or on the lands, easements, and rights-of-way determined by the federal government to be required for the construction, operation, maintenance, repair, replacement, and rehabilitation of the project—that could reduce the level of protection the project affords, hinder operation or maintenance of the project, or interfere with the project's proper function.

u. The non-federal sponsor shall execute, or certify that Florida Department of

Environmental Protection executed, under state law the reservation or allocation of water for the natural system as identified in the PIR for this authorized CERP project as required by Section 601(h)(4)(B)(ii) of WRDA 2000. The non-federal sponsor shall provide information to the federal government regarding such execution. In compliance with 33 CFR 385, the District Engineer will verify such reservation or allocation in writing. Any change to such reservation or allocation of water shall require an amendment to the project partnership agreement after the District Engineer verifies in writing, in compliance with 33 CFR 385, that the revised reservation or allocation continues to provide for an appropriate quantity, timing, and distribution of water dedicated and managed for the natural system after considering any changed circumstances or new information since completion of the PIR for the authorized CERP project.

v. Consistent with the September 14, 2011 Memorandum from the Assistant Secretary of the Army (Civil Works), the non-federal sponsor shall be 100% responsible for the cost of all actions taken due to the presence of residual agricultural chemicals, at no expense to the federal government. Any future costs associated with the presence of residual agricultural chemicals at the federal project site are 100% a non-federal sponsor cost and responsibility. As stated in the September 14, 2011 Memorandum, normal project engineering and construction activities will remain part of the total project cost provided that these are the same activities required to implement the project features absent the presence of residual agricultural chemicals.

w. The determination of applicable water quality standards for the water associated with this project and any necessary treatment or remediation of this water shall be made by regulatory agencies with jurisdiction over any laws or regulations which apply to this project. Cost share for water quality treatment is as follows:

(1) If source water violates applicable surface water quality standards, the non-federal sponsor shall be responsible for treatment costs necessary to prevent the violation of those surface water standards prior to well recharge. Additional treatment costs necessary to further reduce the concentration of pollutants in source water to meet Underground Injection Control (UIC) and/or applicable groundwater standards prior to well recharge shall be cost-shared as a project cost.

(2) To the extent that source water becomes contaminated by virtue of the addition of substances required for pre-injection treatment and injection, changes or interactions in the ASR well, or retrieval, all costs of treating the water to comply with applicable water quality standards shall be cost-shared as a project cost.

(3) In cases where the source water violates applicable surface water standards but there is no applicable UIC or groundwater standard for the constituent causing the violation, and there is no increase in contamination resulting from those factors identified in paragraphs (2) and (4), the non-federal sponsor shall be responsible for treatment costs to prevent violation of applicable water quality standards prior to discharge of retrieved water back into the source water body.

(4) If the water in the affected aquifer violates applicable ground water quality standards, the non-federal sponsor shall report this to the appropriate regulatory authorities for a

determination of the party or parties responsible for causing this contamination. If the federal project is to proceed at that site, the non-federal sponsor shall certify to the federal sponsor that any necessary measures to prevent violations of groundwater quality standards prior to surface discharge from the project at that site have been accomplished by the party or parties determined to be responsible for remediating the aquifer contamination. Costs of such measures shall not be a federal responsibility and shall not be included in the total project costs. Where there is an increase in contamination in the groundwater resulting from those factors identified in paragraph (2) above, due to natural occurrence, or due to the subsurface interaction between stored and native aquifer water, additional treatment costs necessary to bring groundwater into compliance with applicable surface water quality standards necessary for discharge shall be cost shared as a project cost where it is determined to be economically feasible and within the scope of the original project.

10. 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 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 comment further.

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