



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

CECW-SAD

15 September 2020

MEMORANDUM FOR Assistant Secretary of the Army (Civil Works)

SUBJECT: Central and Southern Florida, Canal 111 (C-111) South Dade Project, Florida, Replacement of Interim Pump Stations S-332B and S-332C, Final Integrated General Re-evaluation Report and Environmental Assessment

1. Purpose. To provide for your review the subject Post-Authorization Change Report (PACR). The report documents the need to modify the existing project authorization to include the replacement of interim pump stations with new pump stations at an estimated first cost of \$133,473,000 (October 2020 price level) and documents changes to the Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) cost sharing and depreciation payments.
2. Post Authorization Change. This PACR presents a revised cost estimate and updated analysis of the authorized project. The cost is for the replacement of interim pump stations S-332B and S-332C. Pump stations S-332B and S-332C were designed and constructed in response to a 1999 U.S. Fish and Wildlife Service Jeopardy Biological Opinion to support the immediate needs of the endangered Cape Sable Seaside Sparrow and were designed and built with non-hardened structures. Aside from the construction of new pump stations, the PACR does not include any new additional formulation and there are no changes in the currently authorized project location, purpose, or scope. The recommended plan is supported by the non-federal sponsor, the South Florida Water Management District (SFWMD). The permanent pump stations cannot be constructed as federal structures and cannot be fully implemented until the pump stations are authorized and the new project cost is authorized. The estimated first cost of the permanent pumps is \$133,473,000 (October 2020 price level).
3. Project Authorizations. The PACR was prepared under the authority of Section 216 of the Flood Control Act of 1970 and in response to a 29 April 2014 memorandum from your office which directed the U.S. Army Corps of Engineers (USACE) to develop a PACR to examine: authorization for replacing the pumps; possible alternative measures; cost sharing of recommended features in accordance with Section 316(b) of the Water Resources Development Act (WRDA) of 1996, Public Law 104-303; depreciation payments made by USACE to the SFWMD toward the federal share of replacement costs; in-kind contributions; and the overall schedule. Implementation of the recommended plan for construction and cost sharing would modify the existing authority in Section 316 of the WRDA 1996.
4. National Ecosystem Restoration Plan. The recommended plan will continue to provide the same ecosystem benefits and flood risk management as was obtained with the prior constructed features of the C-111 South Dade project and current pump stations, while reducing long-term costs and reducing vulnerability of the pump stations to weather-induced damages. The recommended plan is the cost-effective alternative plan and the National Ecosystem Restoration Plan.

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5. Background. The C-111 South Dade project is part of the larger Central and Southern Florida (C&SF) project, and Section 316 of WRDA 1996 modified the authority for the C&SF project in Section 203 of the Flood Control Act of 1948, as modified by Section 203 of the Flood Control Act of 1968. The purposes of the C-111 South Dade project include ecosystem restoration in Taylor Slough and the eastern panhandle of Everglades National Park (ENP) while preserving the authorized level of flood risk management levels for the agricultural areas in the C-111 Basin. The North Detention Area (NDA), South Detention Area (SDA), and S-332D Detention Area features of the C-111 South Dade project currently form a hydraulic ridge that extends from the 8.5 Square Mile Area to Taylor Slough for the combined purposes of reducing groundwater seepage losses from ENP while maintaining flood protection for adjacent agricultural lands. In the early phase of construction of C-111 South Dade project features, two interim pump stations, S-332B and S-332C, were built between 2000 and 2003 in response to a 1999 U.S. Fish and Wildlife Service Jeopardy Biological Opinion to support the immediate needs of the endangered Cape Sable Seaside Sparrow. It is believed that these pump stations were intended to be replaced, as they were designed with non-hardened outer structures. Now, the pump stations require extensive repairs and are at risk of storm-induced damages as they are vulnerable to extreme weather events. If a severe weather event were to occur, catastrophic damage could cause failure of these pump stations and eliminate the ecosystem restoration and flood risk management benefits that the project currently provides. Replacement of S-332B and S-332C pump stations has the dual benefit of reducing the average annual operating costs and reducing the annual probability of pump station failure.

6. The Recommended Plan. The recommended plan includes the following features that are further described in Section 3 of the PACR:

a. New permanent pump station S-332B features: a 575 cubic feet per second (cfs) capacity pump station with hardened outer structures located approximately 300 feet west and 300 feet south from the existing pump station location along the L-31N Canal; an additional electric pump unit (75 cfs) provided as backup for operational flexibility; a new concrete intake canal; a short concrete lined discharge channel (extending slightly west of the eastern SDA perimeter levee); a parallel weir to tie into the existing S-332B SDA inflow corridor; expansion of the NDA by approximately 7.1 acres as a result of degrading a section of the NDA levee; a gated culvert connecting the concrete discharge channel with the NDA; and demolition of the existing interim pump station and connecting features.

b. New permanent pump station S-332C features: a 575 cfs capacity pump station with hardened outer structures located approximately 300 feet west and 300 feet south from the existing pump station location along the L-31N Canal; an additional electric pump unit (75 cfs) provided as backup for operational flexibility; a new concrete intake canal; a short concrete lined discharge channel (extending slightly west of the eastern SDA perimeter levee); a parallel weir to tie into the existing S-332C SDA inflow corridor; and demolition of the existing interim pump station and connecting features.

7. Updated Costs and Benefits. Based on October 2020 price levels, the total first cost for the recommended plan to replace interim pump stations S-332B and S-332C and associated features is estimated to be \$133,473,000. The cost sharing for implementation is 50 percent federal and 50 percent non-federal, consistent with the existing construction cost sharing

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authority in Section 316(b) of WRDA 1996. The estimated federal share for construction of the recommended plan is \$66,736,500, and the estimated non-federal share is \$66,736,500. The estimated cost of lands, easements, rights of way, and relocations (LERRs) for the recommended plan is \$0 because all required LERRs were previously certified to the C-111 South Dade Project. Pursuant to the 13 January 1995 Project Cooperation Agreement, as amended on 14 August 2014, the USACE made depreciation payments to the SFWMD that were linked to the SFWMD's planned construction of replacements of the interim pump stations. Because construction for the replacement pump stations has not yet occurred, the cumulative depreciation payments of \$4,105,723 that have been made by the USACE will be credited to the federal share of construction. The C-111 South Dade project will continue to meet the federal objectives of maintaining ecosystem restoration and flood risk management benefits, which include restoring the natural hydrological conditions within eastern ENP and improving the habitat for the endangered Cape Sable Seaside Sparrow. No new benefits will be accumulated through the replacement of interim pump stations S-332B and S-332C.

8. Project Operations. The findings of the PACR do not change the operations of S-332B and S-332C, as the purpose of this PACR is to authorize replacement of the pump stations. The replacement pump stations would initially be operated under the Water Control Plan, which governs the C-111 South Dade project features (either the current 2012 Everglades Restoration Transition Plan and the associated 2017 Increment 2 field test, or the anticipated 2020 Combined Operational Plan). Replacement of the interim pump stations will provide the dual benefit of reducing the average annual operating costs and reducing the annual probability of pump station failure. Ecosystem restoration and flood risk management objectives will continue to be met by the project along with the same benefits the project provides today, but at a lower annual cost.

9. Change to Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R). The OMRR&R of the new replacement pump stations S-332B and S-332C and their associated new concrete intake canals, discharge channels, parallel weirs, new NDA diversion culvert, and existing pump station S-332D, is \$1,037,800 per year. It is recommended that the non-federal sponsor shall be responsible for performance of all OMRR&R activities. It is further recommended that the cost share for the OMRR&R for existing pump station S-332D and the replacement pump stations S-332B and S-332C plus associated features will be 60 percent federal and 40 percent non-federal, consistent with the Operations and Maintenance (O&M) cost sharing of pump stations in Section 316(b) of WRDA 1996. The estimated federal cost of OMRR&R is \$622,680 per year, and the estimated non-federal cost of OMRR&R is \$415,120 per year. The government shall contribute 60 percent of OMRR&R costs for these features by providing payments to the non-federal sponsor for OMRR&R costs that are incurred by the non-federal sponsor.

a. The cost share of OMRR&R for all other remaining features of the existing C-111 South Dade project (including detention areas, buffer areas, levees, berms, spillways, weirs, culverts, flow-ways, canals, and channels), as documented in the 2016 C-111 South Dade Limited Reevaluation Report and subsequent reports, will be unchanged from prior authorization and will continue to be a 100 percent non-federal cost.

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b. Future full replacement construction for pump stations S-332B, S-332C and S-332D will be a construction activity rather than an OMRR&R activity. Decision documentation would be developed in accordance with applicable Department of the Army policy at that time and existing construction cost share authority would apply.

10. Environmental Considerations. There are no unresolved environmental considerations associated with the authorized project. An updated environmental evaluation was conducted under the National Environmental Policy Act resulting in an Environmental Assessment (EA) and a Finding of No Significant Impact (FONSI). The draft PACR/EA and FONSI were coordinated for public and agency review in January 2020. Consultation with the U.S. Fish and Wildlife Service was completed through a concurrence letter received 6 April 2020. Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, the USACE determined that historic properties would not be adversely affected by the recommended plan. The State Historic Preservation Officer concurred with the determination on 3 March 2020.

11. Technical, Policy, and Legal Review. In accordance with USACE 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, and a headquarters policy and legal review. All concerns from these reviews have been addressed and incorporated into the final PACR. A review by the Cost Engineering Mandatory Center of Expertise was also completed with certification signed on 26 March 2020.

12. Conclusion. I have reviewed the PACR and concur with the plan being recommended. The views of interested parties, including federal, state, and local agencies, have been considered. The USACE technical, policy and legal review of the PACR concluded there are no unresolved issues. I find the report to be technically sound, environmentally acceptable, and economically justified.

13. Recommendation. I recommend that the PACR for the C-111 South Dade project for the replacement of interim pump stations S-332B and S-332C be transmitted to Congress to modify Section 316 of the Water Resources Development Act of 1996 at an estimated first cost of \$133,473,000. I further recommend that changes to O&M cost share be authorized and the depreciation payment of \$4,105,723 made by the USACE be credited toward the federal share of the cost for construction of the replacement pump stations.



ALVIN B. LEE
Director of Civil Works

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