

CECW-SAD (1105-2-10a)

SUBJECT: Broward County Water Preserve Areas (BCWPA), Florida - Comprehensive Everglades Restoration Plan

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on ecosystem restoration improvements for the Broward County Water Preserve Areas Project, located in Broward County, Florida. It is accompanied by the report of the district and division engineers. These reports are in response to Section 601 (b)(2)(C)(iv-vi) of the Water Resources Development Act (WRDA) of 2000, which authorized the three components and a portion of a fourth component that make up the Broward County Water Preserve Areas Project, subject to review and approval of a Project Implementation Report (PIR) by the Secretary. Preconstruction engineering and design activities for this Project will be continued under the cited authority.

2. The Broward County Water Preserve Areas Project includes three components of the Comprehensive Everglades Restoration Plan (CERP) approved by WRDA 2000 as a framework for the purpose of restoring, preserving, and protecting the south Florida ecosystem while providing for other water-related resource needs of the region, including water supply and flood protection. WRDA 2000 identified specific requirements for implementing components of the CERP, including development of a decision document known as a PIR. The requirements of a PIR are addressed in this report.

3. The PIR recommends a project that significantly contributes to two of the goals and objectives of the CERP: improving habitat and functional quality and improving native plant and animal species abundance and diversity in remaining natural areas. Scientists have established that a mosaic of uplands, freshwater marsh, deep-water sloughs, and estuarine habitats supporting a diverse community of fish and wildlife was one of the defining characteristics of the pre-drainage Everglades ecosystem. Currently in south Florida, habitat function and quality has significantly declined in remaining natural system areas due to water management projects and practices, resulting in a loss of suitable nesting, foraging, and fisheries habitat and a decline in native species diversity and abundance. The PIR reconfirms information in the CERP and provides project-level evaluation of costs and benefits associated with construction and operations of two impoundments and a seepage management area. The selected plan would significantly reduce seepage losses from Water Conservation Areas (WCA) 3A and 3B while also eliminating the need to discharge water from the C-11 Basin (through the S-9 Pump) into WCA by storing it in the C-9 and C-11 Impoundments and discharging to better meet the needs

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<sup>1</sup> This report contains the proposed recommendation of the Chief of Engineers. The recommendation is subject to change to reflect Washington level review and comments from Federal and State agencies)

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of basins at the right time. Due to the advanced land acquisition activities conducted jointly by the Federal Government and the State of Florida, the Project can be implemented relatively quickly, significantly advancing the realization of project benefits in an area that has been degraded by past water management activities.

4. The reporting officers recommend implementing the Broward County Water Preserves Areas Project to improve the ecological function of the Everglades and to improve the quality, quantity, timing and distribution of water flows in the Everglades. The project will moderate the damaging effects of extreme high and low water events on fish and wildlife habitat in Water Conservation Areas 3A and 3B and provide a way to moderate the harmful effect of excess nutrients on Everglades marshes. The seepage management area component also provides an opportunity to increase the spatial extent of functional fish and wildlife habitat within the study area. In addition, the project would also beneficially affect downstream areas of Everglades National Park. Between the Federal money contributed from the Farm Bill funds, the Land and Water Conservation funds and the other Federal Grant funds, the Department of Interior has provided a total of approximately \$51 million, which will be credited to the Federal Government toward the acquisition of lands in the Broward County Water Preserve Areas components. The Broward County Water Preserve Areas (BCWPA) Project includes the C-9 Impoundment, C-11 Impoundment, WCA 3A/3B Seepage Management Area, North New River Channel Modifications, and recreation features. The C-9 Impoundment features a 1,641-acre, 4.3-foot deep compartment, and 339 acres of 1-foot deep wetland marsh area. The C-11 Impoundment features a 1,068-acre, 4.3-foot deep compartment and a 475-acre, 1-foot deep wetland marsh area. WCA 3A/3B Seepage Management Area includes a 4,560-acre buffer strip. Modifications will be made to the North New River Channel from C-11 Impoundment to Seepage Management Area. Recreational opportunities have also been identified within the project footprint.

5. Section 601(b)(2)(C)(iv, v, vi and ix) of the WRDA 2000 initially authorized the Broward County Water Preserve Areas Project features at costs of:

a) Water Conservation Areas 3A/3B Levee Seepage Management, at a total cost of \$100,335,000, with an estimated Federal cost of \$50,167,500 and an estimated non-Federal cost of \$50,167,500,

b) C-11 Impoundment and Stormwater Treatment Area, at a total cost of \$124,837,000, with an estimated Federal cost of \$62,418,500 and an estimated non-Federal cost of \$62,418,500,

c) C-9 Impoundment and Stormwater Treatment Area, at a total cost of \$89,146,000, with an estimated Federal cost of \$44,573,000 and an estimated non-Federal cost of \$44,573,000, and

d) North New River Improvements, at a total cost of \$77,087,000, with an estimated Federal cost of \$38,543,500 and an estimated non-Federal cost of \$38,543,500.

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The North New River Improvements Project was authorized in WRDA 2000, as it was a necessary project for numerous CERP projects to function. The portion required for the BCWPA Project is described in the Water Conservation Area 3A/3B Seepage Management Area component in the Restudy while costs are accounted for in the North New River Improvements Project in the WRDA 2000 authorization noted above. This work does not include and would not violate the prohibition in Section 601 (d) (iv) prohibiting appropriations for the construction of component SS of the North New River Improvements.

6. The already authorized projects mentioned in paragraph 5 a, b, and c (above), and certain components of the project mentioned in 5 d, are being combined into a single integrated project to be authorized for construction through adoption of this single project implementation report. The original separate project authorizations for Water Conservation Areas 3A/3B Levee Seepage Management, C-11 Impoundment and Stormwater Treatment Area, and C-9 Impoundment and Stormwater Treatment Area should be de-authorized concurrently with the authorization of this integrated project. The total cost of the four previously authorized projects was \$ 391,405,000 (1999 price levels). The total cost of the BCWPA Project is estimated at \$746,980,000 (October 2006 price levels). The overall project costs for the work included in this plan have increased from the original estimates due to inflation in construction costs, land values, and refinements in design. In accordance with the cost-sharing requirements of Section 601(e) of the WRDA 2000, the Federal cost of the recommended plan would be \$373,490,000 and the non-Federal cost would be \$373,490,000. The estimated lands, easements, right-of-way, and relocation costs for the recommended plan are \$308,920,000 of which \$50,790,000 has been provided to the State by the Federal government in the Federal Farm Bill. The equivalent annual cost of the proposed project is estimated at \$51,800,000, which includes operation, maintenance, repair, rehabilitation and replacement (OMRR&R), monitoring, interest and amortization. The estimated annual costs for restoration OMRR&R are \$5,790,000. The OMRR&R costs for recreation are estimated at \$190,000. The annual cost for project level monitoring is estimated at \$480,000 for five years. In accordance with Sections 601(e)(4) and 601(e)(5)(D) of WRDA 2000, restoration OMRR&R costs and adaptive assessment and monitoring costs will be shared equally between the Federal Government and the non-Federal sponsor. OMRR&R costs related to recreation features will be funded 100 percent by the non-Federal sponsor.

7. The selected plan is integral for achieving the system-wide ecosystem restoration and other water-related needs, goals and objectives for CERP and for this area of the south Florida region. Anticipated fish and wildlife habitat benefits of the project include reduction of withdrawals of water from Lake Okeechobee and Everglades wetlands, reestablishment of natural hydropatterns within existing natural areas, and improvement of water quality in WCA 3. The selected plan will provide additional water for the natural system in WCA 3B and ENP, which will be reserved or allocated for the natural system by the State of Florida. The project will affect to approximately 563,000 acres. The results indicate that the project makes up to 50,000 acre-feet of beneficial water available to the Everglades National Park on an annual basis. The median value (water year) of water made available in Everglades National Park is approximately 15,000

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acre-feet. The results also indicate that beneficial water is made available by the project in WCA 3B in both the wet season and dry season. The median value (water year) of water made available in WCA 3B is approximately 2,000 acre-feet. This incremental water produced by the project will be reserved or allocated for the natural system in accordance with the requirements of WRDA 2000. Extreme high and low water events in WCAs 3A and 3B has had a damaging effect on fish and wildlife habitat in the natural areas. In addition, excess nutrients in Everglades marshes has caused a damaging shift in plant species composition from a diverse array of native species to monocultures of invasive species. Runoff from western Broward County is presently discharged via the C&SF Project S-9 pump station to WCA 3A to maintain flood protection in the C-11 Canal basin. This creates harmful conditions for fish and wildlife in the Everglades (WCAs), since typically flood control discharges occur when water levels in the natural system are already high. Discharges to maintain flood control also result in excess nutrient (phosphorus and nitrogen) loading into Everglades marshes, which causes a shift in vegetative cover and further contributes to loss of ecosystem function (e.g., decline in breeding, nesting and forage areas for fish and wildlife). Further, natural system water within the Everglades seeps (via groundwater movement into the adjacent canal system) out of the Everglades into developed areas due to the highly transmissive aquifer underlying the study area and the construction of the C&SF Project and associated secondary and tertiary drainage features. Seepage of water out of the natural system also contributes to decline of ecosystem function in the study area, since seepage effects are increased during dry periods when water is withdrawn from the natural system for water supply and protection against salt-water intrusion into drinking water aquifers. Excess water in the study area is also discharged to tide via the C-9 Canal.

8. The recommended plan improves functional fish and wildlife habitat in the Everglades Ridge and Slough community, which is part of the mosaic of community types forming the Everglades, the only sub-tropical wetland habitat in the United States. The Everglades has been designated an International Biosphere Reserve (1976) and a World Heritage Site (1979) by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and a Wetland of International Importance (1987) in accordance with the Ramsar Convention. The portion of the Everglades ecosystem directly affected by Broward County Water Preserves Areas Project provides habitat for the Federally-listed endangered or threatened animal species, including the Everglades snail kite. In accordance with the WRDA 2000 Section 601(f)(2), individual CERP projects shall be justified by the environmental benefits derived by the South Florida ecosystem. Similarly, Section 385.9(a) of the CERP Programmatic Regulations (33 CFR Part 385) requires that individual projects shall be formulated, evaluated, and justified based on their ability to contribute to the goals and purposes of the Plan and on their ability to provide benefits that justify costs on a next-added increment (NAI) basis. Based on the system formulation and evaluation, the selected plan is expected to provide an aggregated total of 543,781 average annual habitat units for all Everglades ecosystem attributes beneficially affected by the project, in comparison to the “No Action” alternative. Everglades ecosystem attributes beneficially affected include the ridge and slough landscape (one of the defining landscape attributes of the pre-drainage Everglades), tree islands (another defining landscape attribute of the pre-drainage

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Everglades), and the Everglades snail kite (a Federally-listed endangered species that inhabits the Everglades ecosystem). An estimated 303,228 average annual habitat units for sawgrass and 240,553 average annual habitat units for snail kite are expected from the selected plan. Additionally, the selected plan will increase the spatial extent of functional habitat for fish and wildlife in the WCA 3A/3B Seepage Management Area compared to future without-project conditions. These habitat units do not include the ecological benefits that are provided by the replacement mitigation plan. The average annual cost per the combined average annual habitat units generated by the project is approximately \$95 and the cost per acre affected of \$1,327. It was determined through two separate and distinct analyses that there are benefits associated with both NAI analyses that were completed for the BCWPA Project. The upper range of benefits based on load reduction and project component interaction increases from 14,670 habitat units (HUs) to approximately 24,000 HUs. If related projects are assumed to be dependent on the BCWPA Project and seepage is not differentiated from runoff, considerable additional lift can be expected. Overall, the project design is consistent with attaining project goals and objectives. Operational flexibility will lead to increased benefits by further minimizing potential high flows to the estuary as well as by minimizing discharges (and associated sediment loads) to the freshwater marshes.

9. The recommended plan will result in unavoidable, impacts to existing 404 mitigation sites located within both of the impoundment footprints. Within the proposed C-11 Impoundment site there are three existing DA permitted wetland mitigation areas (Weston Increment III, which consists of two sites; and White Construction located near the two northern borrow pits). Within the proposed C-9 Impoundment site there are three existing DA permitted mitigation areas (Sunset Lakes, Bregmann tract, and the Florida Department of Transportation “chimney” site). The majority of the existing mitigation areas are of low ecological value although the mitigation activities described by the DA permits have been completed and the permittees have fulfilled their legal obligations pursuant to the applicable permits. The two Weston Increment III mitigation areas are of moderately high ecological value and have been deemed successful mitigation areas. Impacts to the permitted mitigation areas have been avoided and minimized to the maximum extent possible. The selected plan includes a compensatory mitigation plan to replace the permitted 404 mitigation sites. This mitigation plan provides environmental benefits above and beyond those required to justify the Federal project and provides benefits in excess of those required to offset impacts to existing 404 mitigation sites. As stated above, the Restudy recognizes the replacement mitigation plan should be separate from the project benefits. In order to be ecologically successful, the mitigation areas within the impoundments need additional water (above and beyond what would be provided in a rainfall driven system) which will be supplied by the project. The ecological lift that will occur as a result of the replacement mitigation in the impoundments is not being counted for project benefits i.e., habitat units; however, the storage provided by the replacement mitigation areas, though not used to justify Federal participation in the project, will contribute to project benefits downstream.

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10. Section 601(e)(5)(B) of the WRDA 2000 authorizes the Secretary of the Army to provide credit to the non-Federal sponsor for work completed by it during the period of construction pursuant to a project cooperation agreement and a determination by the Secretary that the work is integral to the CERP. As part of its initiative for early implementation of certain CERP projects known as the “Acceler8 Program”, the non-Federal sponsor has stated that it may construct features of the Broward County Water Preserve Areas Project consistent with this report, in advance of Congressional authorization and the signing of a project cooperation agreement. The non-Federal sponsor is exploring alternative project delivery methods to expedite implementation of features of the Broward County Water Preserve Areas Project through the Acceler8 Program. Such delivery methods may include public-private partnerships in which the non-Federal sponsor contracts with a private or not-for-profit entity for services that may include designing, building, operating or financing these components. I believe that it would be in the public interest for this Project to be implemented expeditiously due to the early benefits to the surrounding habitat, as well as hydrologic benefits to Federal lands and estuaries in other portions of the South Florida ecosystem. Therefore, I recommend that should the non-Federal sponsor construct portions of the Broward County Water Preserve Areas Project prior to the execution of a project cooperation agreement for this Project, the non-Federal sponsor be credited for such construction costs at the time the project cooperation agreement for the Broward County Water Preserve Areas Project is executed. Such credit would be applied toward the non-Federal sponsor’s share of the costs associated with the implementation of the CERP as authorized by Section 601(e)(5)(C) of WRDA 2000, shall not include cash reimbursements, and shall be subject to: a) the authorization of the Broward County Water Preserve Areas Project by law; b) a determination by the Secretary of the Army that the activities are integral to the CERP restoration project; c) a certification by the District Engineer that the costs are reasonable, allowable, necessary, auditable, and allocable; and d) a certification by the District Engineer that the activities have been implemented in accordance with U.S. Army Corps of Engineers design and construction standards and applicable Federal and State laws.

11. Credits for non-Federal design and construction will be evaluated based on the provision of documentation by the non-Federal sponsor. All documentation provided by the non-Federal sponsor will be thoroughly reviewed by the USACE to determine reasonable, allowable, necessary, auditable, and allocable costs. Upon completion of this review, a financial audit will be conducted prior to granting final credit. Coordination between the USACE and the Sponsor will occur throughout design and construction via the USACE Regulatory process. The credit afforded to the non-Federal sponsor will be limited to the lesser of the following: (1) actual costs that are reasonable, allowable, necessary, auditable, and allocable to the Project; or (2) the USACE’s estimate of the cost of the work allocable to the Project had the USACE performed the work at the same time. The non-Federal sponsor intends to implement this work using its own funds and would not use funds originating from other Federal sources unless the Federal granting agency verifies in writing that the expenditure of such funds is expressly authorized by statute and in accordance with Section 601 (e)(3) of WRDA 2000.

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12. The Project complies with the following requirements of WRDA 2000:

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

b. Water Reservations. 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. Additional water delivered to and retained in natural areas was identified and will be reserved or allocated by the State of Florida.

c. Elimination or Transfer of 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 Plan. Implementation of the Broward County Water Preserve Areas Project will result in a positive effect on the quantity of water available from existing (2000) legal sources for Everglades National Park and fish and wildlife. In general, average stages and flows are increased in these areas compared to Pre-CERP Baseline conditions. Project implementation will reduce the quantity of runoff from the C-11 West basin entering WCA 3, and ultimately Everglades National Park, but offsets that reduction by increasing the volume of water retained in the natural system by controlling seepage out of the natural system. This is one of the primary objectives of this project; however, this transfer of a portion of the existing legal sources of water for the WCAs and Everglades National Park does not preclude operations of the C&SF Project to make supplemental deliveries to the WCAs during drought conditions to compensate for water supply releases from the WCAs to the Lower East Coast.

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. Potential effects of the storage reservoir on water levels on adjacent lands were evaluated. In response to these evaluations, existing levels of service for flood protection will not be diminished through implementation of the BCWPA Project.

13. I generally concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan described herein for ecosystem restoration be authorized for implementation as a Federal Project, with such modifications as in the discretion of the Chief of Engineers may be advisable, and subject to cost-sharing, financing, and other applicable requirements of Section 601 of WRDA 2000. I also recommend that the Water Conservation Areas 3A/3B Levee Seepage Management Project, the C-11 Impoundment and Stormwater Treatment Area Project, and the C-9 Impoundment and Stormwater Treatment Area Project which were authorized under Section 601(b)(2)(C)(iv-vi) of WRDA 2000, at costs of \$100,335,000 (\$136,520,000 Oct 2006 price levels), \$124,837,000 (\$156,520,000 Oct 2006 price

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levels), and \$89,146,000 (\$114,290,000 Oct 2006 price levels) respectively, be deauthorized as separate projects and included as features in the recommended plan for the Broward County Water Preserve Areas. In addition, I recommend that the non-Federal sponsor be authorized to receive credit for work accomplished prior to the execution of a project cooperation agreement for this Project, in accordance with the terms described in paragraph 10 of this report. Also, this recommendation is subject to the non-Federal sponsor agreeing to comply with all applicable Federal laws.

14. I recommend that credit for value of lands, easements, and rights-of-way required for the Project shall be as follows:

a. If the lands, easements and rights-of-way were acquired prior to the execution of the Project Cooperation Agreement, the creditable value shall be their purchase price, subject to a determination of reasonableness, together with their reasonable and necessary incidental costs of acquisition.

b. The value of lands, easements, or rights-of-way acquired by the Non-Federal Sponsor after the effective date of the Project Cooperation Agreement executed for this Project shall be the fair market value of such real property interests at the time the interests are acquired, together with the reasonable and necessary incidental costs of acquisition.

15. The recommendations contained herein reflect the information available at this time and current Departmental policies governing formulation of individual projects. They 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 sponsor, the State, interested Federal agencies, and other parties will be advised of any modifications and will be afforded an opportunity to comment further.

CARL A. STROCK  
Lieutenant General, U.S. Army  
Chief of Engineers