CENTRAL EVERGLADES
PLANNING PROJECT

ANNEX C

DRAFT PROJECT OPERATING MANUAL

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1.0 INTRODUCTION

The main purpose of this Draft Project Operating Manual (DPOM) is to provide an overview of water management operations after the integration of the Central Everglades Planning Project (CEPP) elements. The project phase that this DPOM covers is the Project Implementation Report (PIR) phase. The DPOM is intended to provide the operating criteria associated with the new CEPP features to achieve the goals, purposes, and benefits outlined in the PIR, by improving the quantity, quality, timing, and distribution of water for the natural system, while providing for other water-related needs and meeting the requirements for protection of health and public safety. Report preparation is pursuant to Engineering Regulation (ER) 1110-2-240, and is in accordance with guidance contained in Engineering Manual (EM) 1110-2-3600, ER 1110-2-8156, and the Programmatic Regulations Draft Guidance Memoranda (GM) #5. All elevations referenced in this DPOM are in feet (ft.), and reference the National Geodetic Vertical Datum of 1929 (NGVD).

The final Project Operating Manual (POM) assumes completion of all CEPP components. The POM will undergo several updates and refinements over time as explained in Section 6 of the CEPP PIR and in this document. The triggers, thresholds, and knowledge gained over time will be used in future modeling and updates, and the POM will be developed in coordination with and consistent with the CEPP Adaptive Management Plan. Modifications and/or revisions to the POM will occur during subsequent project phases. Development of the POM is an iterative process that will continue throughout the life of the project. The POM will be updated at periodic intervals during the detailed design, construction and operational testing and monitoring phases of the project. Refinements to the operating criteria in the POM will be made as more project design details, data, operational experience, and general information are gained during these project phases. An interim POM will be developed based on the implementation schedule and shall cover operation as individual component or groups of components become fully functional and shall include operation criteria for construction periods. It is also anticipated that once the POM is completed and the long-term operations and maintenance phase is underway, it may be necessary to revise the POM from time to time based on additional scientific information and implementation of new Comprehensive Everglades Restoration Project (CERP) or non-CERP activities. The adherence to the authorized project purposes will be sustained through the periodic revisions to the POM.

It is important to understand that the POM would develop over time as the details of the design of CEPP components are developed. The operations discussed herein represent the start-up operational strategy, recognizing that constraints in the system may be removed over time due to the completion of many of the CEPP components as well as other CERP and Non-CERP Projects. Refinements to the POM may be needed in response to phased implementation of CEPP components, changes during the design and construction phases, and the potential of reduced performance of components due to model limitations, among other factors. However, the fulfillment of the authorized project purposes will be preserved, through revisions and periodic updates to the POM as necessary. This draft is presented with the recognition that multiple revisions and operational refinements will occur over the life of the project, as described below in Figure 1-1.

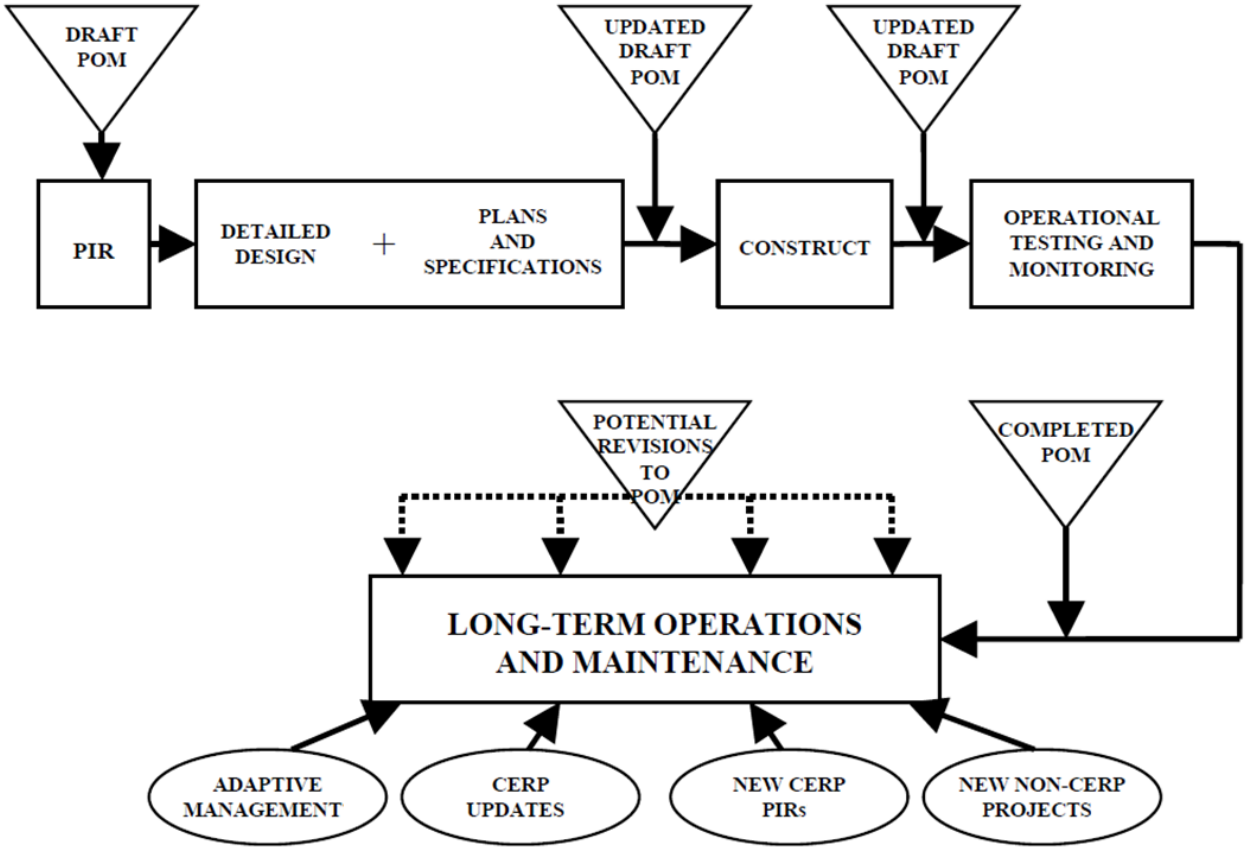

Figure 1-1 Evolution of the Project Operating Manual

2.0 GENERAL PROJECT PURPOSES, GOALS, OBJECTIVES, AND BENEFITS

The purpose of CEPP is to improve the quantity, quality, timing, and distribution of water flows to the central Everglades [Water Conservation Area 3 (WCA-3) and Everglades National Park (ENP)]. CEPP is composed of increments of project components that were identified in CERP, reducing the risks and uncertainties associated with project planning and implementation. This study approach is consistent with the recommendations from the National Research Council to utilize Incremental Adaptive Restoration to both achieve timely, meaningful benefits of CERP and to lessen the continuing decline of the Everglades ecosystem.

The goals of CEPP include the enhancement of ecological values and the enhancement of economic values and social well-being. The goal of enhancing ecological values can be realized through the achievement of the CEPP objectives as listed: restore seasonal hydroperiods and freshwater distribution to support a natural mosaic of wetland and upland habitat in the Everglades system; improve sheetflow patterns and surface water depths and durations in the Everglades system in order to reduce soil subsidence, the frequency of damaging peat fires, the decline of tree islands, and salt water intrusion; slightly reduce high volume discharges from Lake Okeechobee to improve the quality of oyster and submerged aquatic vegetation (SAV) habitat in the Caloosahatchee and St. Lucie Estuaries; reduce water loss out of the natural system to promote appropriate dry season recession rates for wildlife utilization; and restore more natural water level responses to rainfall to promote plant and animal diversity and habitat function. The goal of enhanced economic values and social well being can be realized through

the achievement of the remaining CEPP objective to increase availability of water for other related water uses.

CEPP objectives are planned to be fulfilled through a variety of changes including:

- Refinements to the Lake Okeechobee regulation schedule
- Construction of the A-2 Flow Equalization Basin (FEB) to be operated integrally with the State's A-1 FEB and STA-2 and STA-3/4
- Redistribute water from STA-2 and STA-3/4 to WCA-3A
- Reestablish conveyance from WCA-3A to WCA-3B and ENP
- Mitigation for potential increase in seepage from WCA-3B and ENP
- Modifications to structures, canals, and levees to improve water deliveries
- SFWMD allocation of additional water made available to consumptive use permits in Lower East Coast Service Area 2 (LECSA 2) and LECSA 3

The recommended plan will provide approximately 210,000 acre-feet (ac-ft) per year of additional water flow to the Everglades by redirecting (through the EAA) Lake Okeechobee water which is currently being discharged to tide via the St. Lucie and Caloosahatchee Estuaries and providing FEB storage to attenuate flow rates, prior to water quality treatment using available, off-peak capacity of the state-operated STA-2 (See Figure 3-2) and STA-3/4 (See Figure 3-3). Following water quality treatment, this additional flow quantity will be re-distributed as inflows to WCA-2A and WCA-3A (See Figure 3-4), and the recommended plan features will modify the quantity, quality, timing, and spatial distribution of flows into and through WCA-3A, WCA-3B (See Figure 3-5), and ENP to Florida Bay in order to meet the project objectives. With conveyance improvements to the L-5 Canal and new water control structures along the L-5 and L-6 Canals, treated discharges from STA-2 and STA-3/4 will be distributed across the northwestern boundary of WCA-3A. Approximately 2.9 miles of the southern L-4 Levee, west of the Structure 8 (S-8), would be removed. Excluding approximately 1.5 miles of the Miami Canal immediately south of S-8, the remaining portion of the Miami Canal south of L-4 and north of I-75 would be backfilled and most spoil mounds would be removed, and multiple tree island mounds would be constructed within the prior canal footprint to provide additional habitat. The S-8 Pump Station would need to be modified through rehabilitation of the existing structure or reconstructed to allow for the same discharge capacity as the existing pump station. These actions would help provide restoration of the northern WCA-3A hydropatterns.

In order to reestablish conveyance of water from WCA-3A to WCA-3B, three new water control structures would be added along the L-67A Levee (See Figure 7-5). Two of these structures will provide water to the WCA-3B flowway, and one additional structure will be located north of the flowway. Within the WCA-3B flowway, approximately 8 miles of L-67C Levee would be removed without the backfilling of the adjacent L-67C Canal. A new 8.5 mile levee (L-67D, commonly referred to as the Blue Shanty Levee) would be constructed in the southwestern portion of WCA-3B (general north to south orientation), which would connect the L-67A Levee and the L-29 Levee. Approximately 4.3 miles of the L-29 Levee west of the Blue Shanty levee would be removed to allow the passage of water from WCA-3B to the L-29 Canal and ultimately ENP. The remaining 5.5 miles of the L-67 Extension (L-67E) Levee would be removed and the adjacent L-67C Canal would be backfilled. In addition, the capacity of S-333 would be increased to 2,500 cubic feet per second (cfs) with construction of a new gated spillway structure to allow more water to pass from WCA-3A to Northeast Shark River Slough (NESRS) in ENP.

In order to mitigate seepage from WCA-3B and NESRS, a new 1,000 cfs S-356 Pump Station would be constructed to replace the existing temporary 500 cfs S-356 Pump Station. The feasibility of constructing a seepage reduction feature (e.g. partial or fully penetrating seepage barrier of a to-be-determined length and location) will be evaluated and constructed to assist or partially replace the seepage management provide by the S-356 Pump Station. The location and depth will consider that the seepage rate per mile reduces considerably a mile south of Tamiami Trail Pump Station.

As project components become operational and the project objectives begin to be realized, numerous ecological benefits are expected. With completion of the CEPP components, some of the water which is currently being discharged to the northern estuaries would be able to be sent south to the Everglades. Restoration of the environmental conditions within WCA-3A, WCA-3B, ENP, and Florida Bay would contribute to the increased survival and reproduction of many important native species. Re-establishment can occur for tree islands and other landscape characteristics that are important for the endemic species of the Everglades system. Increased availability of fish and amphibians, which serve as essential prey sources for many predators in the ecosystem, would raise productivity in the ecosystem and a healthier, natural pattern of vegetation would be restored. Habitat function would be increased and the unique plant and animal diversity that defines the Everglades would be maintained. Management of the region's water resources would be maintained. These measures would also increase recreation opportunities.

3.0 PROJECT FEATURES

3.1 EXISTING FEATURES

3.1.1 Lake Okeechobee

Spillway S-351

S-351, which has a design capacity of 1,500 cfs, is a gated spillway located in L-D2, the perimeter dike of Lake Okeechobee, at the connection of the Hillsboro Canal and the North New River Canal to Lake Okeechobee. It is adjacent to the S-2 Pump Station. S-351 permits releases to be made from Lake Okeechobee to help meet water requirements in the Miami Canal service area, to the Lower East Coast, and to ENP. It will permit flows to be discharged from the EAA into Lake Okeechobee when the lake level is low. It will also prevent hurricane tides from entering the Hillsboro Canal and North New River Canal. S-351 will be used, under certain conditions, to make regulatory or water supply releases from Lake Okeechobee into WCA-2A or WCA-3A. S-351 is operated unless the water level in Lake Okeechobee is too high, and then S-2 is utilized. See Figure 3-1 for structure location.

S-2 Pump Station

S-2, which has a design capacity of 3,600 cfs, is a pump station located at the connection of the North New River Canal and Hillsboro Canal to Lake Okeechobee, about two miles northwest of the town of Belle Glade. It is adjacent to Spillway S-351. Pumping is initiated when the S-6 Pump Station cannot maintain the stage in the Hillsboro Canal below 12.5 ft., NGVD or when the G-370, G-434 and G-435 Pump Stations and Structure G-371 cannot maintain the stage in the North New River Canal below 12.5 ft., NGVD, unless the water level in Lake Okeechobee is low enough to permit gravity discharge into the lake through S-351 at a desirable rate, or when flooding occurs in the basin and S-2 continues to pump until the stages within the EAA can be practically controlled by the southern pump stations. The minimum desirable stage in the Hillsboro Canal or North New River Canal is 10.0 ft., NGVD. S-351 is closed when ways-2 is pumping. See Figure 3-1 for structure location.

Spillway S-354
S-354, which has a design capacity of 1,450 cfs, is a gated spillway located in L-D9, the perimeter dike of Lake Okeechobee, at the connection of the Miami Canal to Lake Okeechobee. It is adjacent to the S-3 Pump Station. S-354 permits releases to be made from Lake Okeechobee to help meet water requirements in the Miami Canal service areas. S-354 permits flows to be discharged from the EAA into Lake Okeechobee when the lake level is low. It will also prevent hurricane tides from entering the Miami Canal. S-354 will be used, under certain conditions, to make regulatory or water supply releases from Lake Okeechobee into WCA-3A via the Miami Canal. S-354 is operated unless the water level in Lake Okeechobee is too high, and then S-3 is utilized. See Figure 3-1 for structure location.

S-3 Pump Station
S-3, which has a design capacity of 2,580 cfs, is a pump station located at the connection of the Miami Canal to Lake Okeechobee just north of the town of Lake Harbor. It is adjacent to Spillway S-354. Pumping is initiated when the G-372 Pump Station and Structure G-373 cannot maintain the stage in the Miami Canal below 12.5 ft., NGVD, unless the water level in Lake Okeechobee is low enough to permit gravity discharge into the lake through S-354 at a desirable rate, or if flooding occurs in the basin and S-3 continues to pump until the stages within the EAA can be practically controlled by the southern pump stations. The minimum desirable stage in the canal is 10.0 ft., NGVD. S-354 is closed when S-3 is pumping. See Figure 3-1 for structure location.

3.1.2 Everglades Agricultural Area
(See Figure 3-1 for Everglades Agricultural Area Map)

S-6 Pump Station
The primary purpose of S-6, which has a design capacity of 2,925 cfs, is to convey stormwater runoff from the EAA collected by the Hillsboro Canal into STA-2. S-6 is located in the alignment of the Hillsboro Canal just north of WCA-2A. In addition to conveying EAA runoff to STA-2, S-6 may also be used in conjunction with G-338 and G-339 to divert Hillsboro Canal flows around STA-2. The minimum desirable stage in the canal is 10 ft., NGVD. S-2, in combination with S-351, can, when pumping at their maximum rates, remove 3/4 inch per day from the 146 square mile tributary drainage area. STA diversion, or the delivery of surface water to the Everglades Protection Area without entering an STA, may occur under one or more of the following scenarios: maintenance, flood control, to avoid substantial damage to the treatment facilities, to address conflicts with the Endangered Species Act (ESA), to address conflicts with the Migratory Bird Treaty Act (MBTA) and for low flow water supply purposes.

S-7 Pump Station
The primary purpose of S-7, which has a total capacity of 2,490 cfs, is to convey STA-3/4-treated stormwater to WCA-2A. S-7 is located in the alignment of the North New River Canal at the western corner of WCA-2A, about 30 miles southeast of the town of Belle Glade and immediately east of Highway U.S. 27. In addition to conveying STA-3/4 discharges, S-7 may also be used (when G-371 is open) to divert North New River Canal flows or Lake Okeechobee releases around STA-3/4. S-7 also has an adjacent gated spillway that allows water to enter WCA-2A via gravity when downstream stages are low.

S-8 Pump Station
The primary purpose of S-8, which has a total capacity of 4,160 cfs, is to convey STA-3/4- and STA-5/6-treated stormwater to WCA-3A. S-8 is located in the alignment of the Miami Canal at the northern boundary of WCA-3A. In addition to conveying STA discharges, S-8 may also be used (when G-373 is

open) to divert Miami Canal flows around STA-3/4. S-8 also has an adjacent gated spillway that allows water to enter WCA-3A via gravity when downstream stages are low. See Section 3.3.3 Modified Features for potential S-8 confluence modifications.

Structure S-150
Structure S-150, which has a total capacity of 1,000 cfs, is a control structure that can convey STA-3/4 discharges and Lake Okeechobee regulatory and water supply releases to northeastern WCA-3A when water levees in WCA-3A are low enough to permit gravity inflows. S-150 is located at the northeastern corner of WCA-3A just west of S-7. When WCA-3A is high, S-150 can also release water from WCA-3A into the North New River Canal.

G-434 Pump Station
The primary purpose of G-434, which has a total capacity of 1,120 cfs, is to convey stormwater runoff collected by the North New River Canal into STA-2 Cells 4, 5, and 6. G-434 may also be operated to convey limited flows to STA-2 Cells 1, 2, and 3. G-434 is located northwest of STA-2 Cell 5 and just east of the North New River Canal.

G-435 Pump Station
The primary purpose of G-435, which has a total capacity of 480 cfs, is to convey stormwater runoff collected by the North New River Canal into STA-2 Cells 7 and 8. G-435 is located northwest of STA-2 Cell 7 and just east of the North New River Canal.

G-372 Pump Station
The primary purpose of G-372 is for flood protection to the upstream S-3/S-8 Basin. G-372, which has a design capacity of 3,700 cfs, conveys stormwater runoff from the EAA collected by the Miami Canal into STA-3/4. The secondary objective of G-372 is to convey Lake Okeechobee releases to STA-3/4 for eventual conveyance to the downstream environment (i.e. WCAs and ENP) during times when Lake Okeechobee releases are required and WCA-3A conditions allow. During dry hydrologic periods, water can also be delivered from Lake Okeechobee, when available, to maintain hydration of treatment cells. S-354 would be opened to release water from Lake Okeechobee, and G-372 would pump this water into STA-3/4. It is located near the northwest corner of the Holey Land Tract at the Miami Canal.

G-370 Pump Station
The primary purpose of G-370 is for flood protection to the upstream S-2/S-7 Basin. G-370, which has a design capacity of 2,775 cfs, conveys stormwater runoff from the EAA collected by the North New River Canal into STA-3/4. The secondary objective of G-370 is to convey Lake Okeechobee releases to STA-3/4 for eventual conveyance to the downstream environment (i.e. WCAs and ENP) during times when Lake Okeechobee releases are required and WCA-2A or WCA-3A conditions allow. During dry hydrologic periods, water can also be delivered from Lake Okeechobee, when available, to maintain hydration of treatment cells. S-351 would be opened to release water from Lake Okeechobee, and G-370 would pump this water into STA-3/4.

Miami Canal Divide Structure (G-373)
G-373 primarily serves as an STA-3/4 diversion structure and is located in the Miami Canal approximately seven miles north of the S-8 Pump Station. G-373 is normally closed and serves to separate stormwater runoff in the Miami Canal from STA-3/4- and STA-5/6-treated stormwater. As stated above, STA diversion may occur under one or more of the following scenarios: maintenance, flood control, to avoid substantial damage to the treatment facilities, to address conflicts with the

Endangered Species Act (ESA), to address conflicts with the Migratory Bird Treaty Act (MBTA) and for low flow water supply purposes. The structure can also be operated to provide water supply deliveries south from Lake Okeechobee to the Big Cypress Seminole Tribe of Florida Reservation or WCA-3A or north from WCA-3A to the EAA.

North New River Canal Divide Structure (G-371)

G-371 primarily serves as an STA-3/4 diversion structure and is located in the North New River Canal just northwest of the S-7 Pump Station. G-371 is normally closed and serves to separate stormwater runoff in the North New River Canal from STA-3/4-treated stormwater. As stated above, STA diversion may occur under multiple scenarios. The structure can also be operated to provide water supply deliveries south from Lake Okeechobee to WCA-2A or north from WCA-2A to the EAA.

G-404 Pump Station

G-404 is located on the Miami Canal at its confluence with the L-4 Borrow Canal. The pump station is located south of Structure G-357 and north of the S-8 Pump Station, and adjacent to the southeastern corner of the Rotenberger Wildlife Management Area. There are two operational objectives for G-404: (1) to supply the northwest corner of WCA-3A with treated discharges from STA-3/4 and STA-5/6, and (2) to provide supplemental irrigation water supply to the Big Cypress Seminole Tribe of Florida Reservation (G-404 would be operated in conjunction with G-409 in this scenario). Although not explicit project objectives, there is another ancillary benefit of G-404; during storm events, G-404 may supplement the capacity of S-8 to remove STA-3/4 discharges. G-404 has a total nominal capacity of 600 cfs. See Section 3.3.3 Modified Features for potential S-8 confluence modifications.

Structure G-357

G-357, which is located northwest of the S-8 Pump Station, is a control structure primarily used to facilitate the movement of water from the L-4 Borrow Canal to the Miami Canal. G-357, when closed, also prevents back flow from the L-4 Borrow Canal to the Miami Canal when the G-404 Pump Station is operating. If Miami Canal water levels are higher than the L-4 Borrow Canal water levels, G-357 may also be opened to allow gravity flow to the L-4 Borrow Canal from the Miami Canal during water supply operations. See Section 3.3.3 Modified Features for potential S-8 confluence modifications.

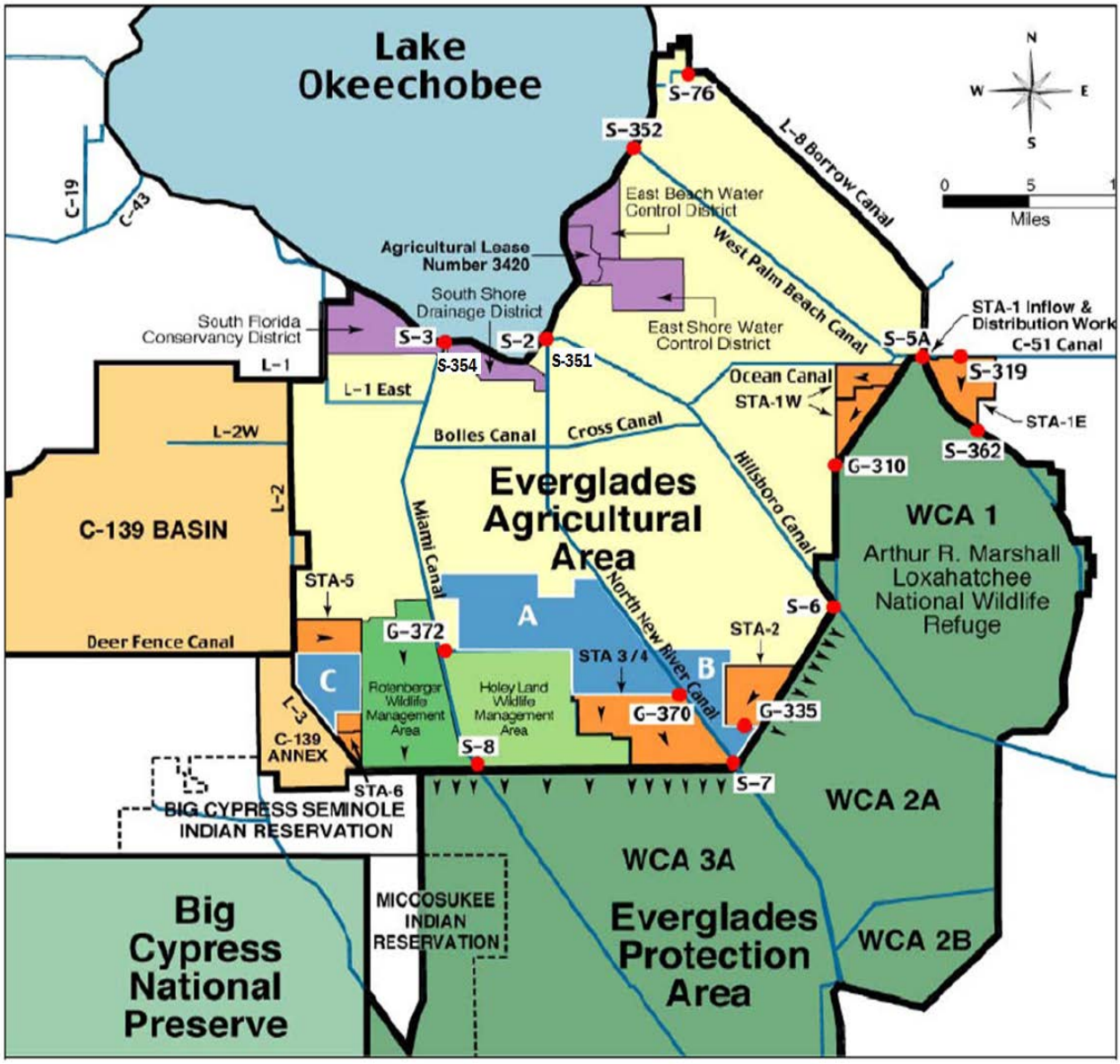

Figure 3-1 Everglades Agricultural Area Map

3.1.3 Stormwater Treatment Areas 2 and 3/4

STA-2 (Figure 3-2) is located in western Palm Beach County immediately west of WCA-2A. The STA is situated generally on and surrounding the former Brown's Farm Wildlife Management Area, Woerner Farm and the Okeelanta Farm. The original STA-2 consisted of three treatment cells (1, 2 and 3) and began operation in 2000. STA-2 was expanded by approximately 2,000 acres in December 2006 with the construction of Cell 4 and then further expanded by approximately 7,000 acres with the construction of Cells 5, 6, 7 and 8 (also known as Compartment B) which were flow capable in 2010 and permitted to operate in September 2012. Currently, STA-2 has a total of eight treatment cells and five flowways, and a total effective treatment area of approximately 15,500 acres. STA-2 receives stormwater runoff primarily from the S-6/S-2 Basin and can receive runoff from the S-2/S-7 Basin. During dry hydrologic

periods, water can be delivered from Lake Okeechobee, when available, to maintain hydration of treatment cells.

STA-3/4 (Figure 3-3) is also located in western Palm Beach County, west of STA-2, northeast of the Holey Land Wildlife Management Area and north or WCA-3A. STA-3/4 began operation in 2004 and has a total of six treatment cells and three flowways, and a total effective treatment area of approximately 16,300 acres. A 445-acre section of Cell 2B is the site of the STA-3/4 Periphyton-based STA (PSTA) Project, aimed at testing and evaluating PSTA treatment technology. STA-3/4 receives stormwater runoff from the S-2/S-7 Basin (collected by the North New River Canal), the S-3/S-8 Basin (collected by the Miami Canal), and Lake Okeechobee by means of STA-3/4 inflow pump stations, G-370 and G-372. During dry hydrologic periods, water can be delivered from Lake Okeechobee, when available, to maintain hydration of treatment cells.

G-335 Pump Station

G-335, which has a total capacity of 3,040 cfs, is one of two outflow pump stations for STA-2 and is located at the southeast corner of STA-2 Cell 1. G-335 discharges STA-2-treated stormwater to the L-6 Canal. Treated stormwater within the L-6 Canal is then conveyed to northwestern WCA-2A via uncontrolled box culverts G-336A, B, C, D, E and F and to western WCA-2A via G-336G and a 4,800 ft. degraded reach of the East L-6 Levee located north of S-7.

G-436 Pump Station

G-436, which has a total capacity of 1,600 cfs, is one of two outflow pump stations for STA-2 and is located just south of G-335 at the northeast corner of STA-2 Cell 8. Similar to G-335, G-436 discharges STA-2 treated stormwater to the L-6 Canal. Treated stormwater within the L-6 Canal is then conveyed to northwestern WCA-2A via uncontrolled box culverts G-336A, B, C, D, E and F and to western WCA-2A via G-336G and a 4,800 ft. degraded reach of the East L-6 Levee located north of S-7.

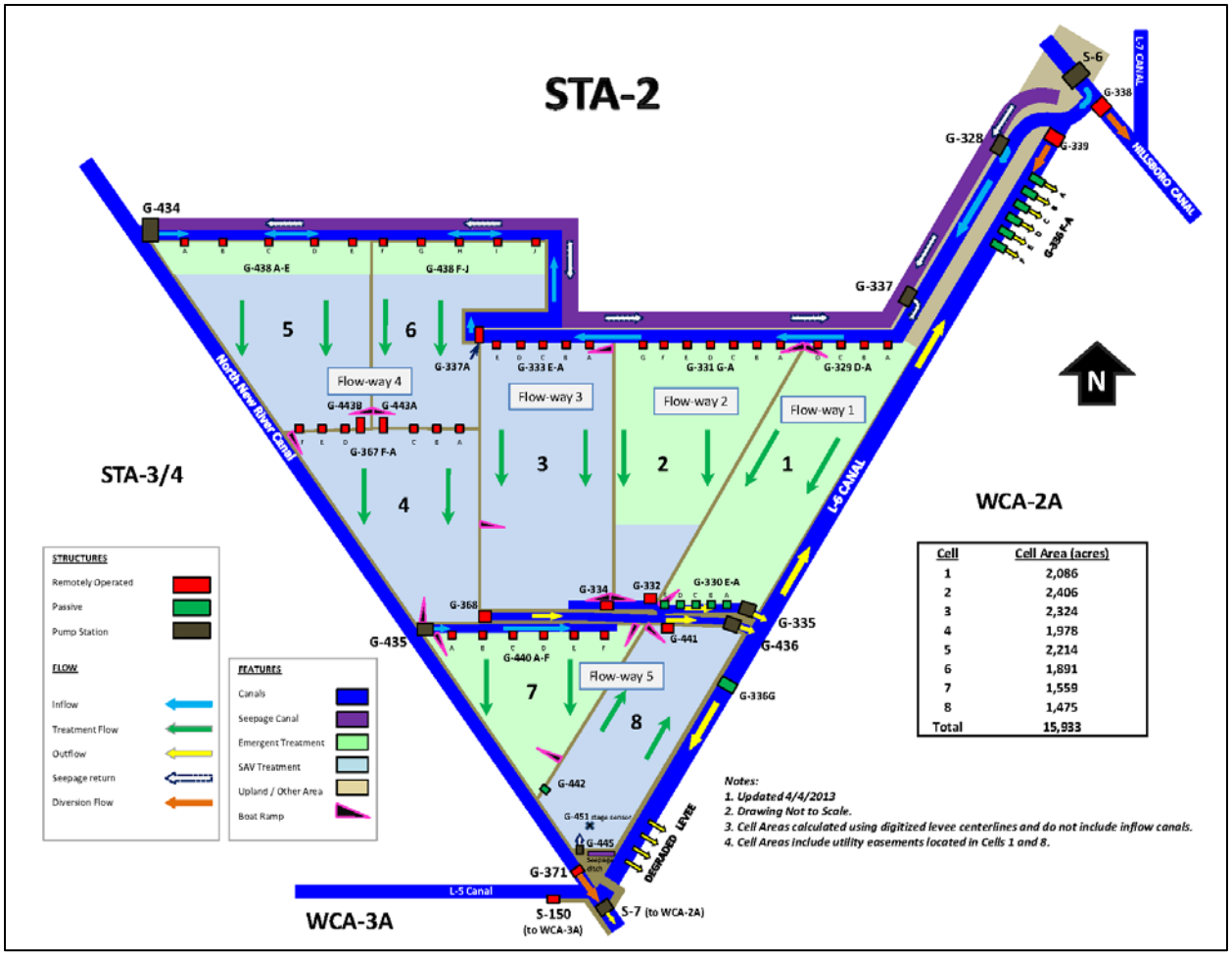

Figure 3-2 STA-2 Map

A schematic of STA-3/4 is presented in Figure 3-3. Untreated waters from the North New River Canal (S-2 and S-7 Basins) and the Miami Canal (S-3 and S-8 Basins) and Lake Okeechobee are directed into the STA at its northern boundary by means of pump stations, G-370 and G-372, respectively. Diversion structure G-371 is located on the North New River Canal at the southeast corner of the STA. Diversion Structure G-373 is located on the Miami Canal just south of G-372.

Under normal STA operations, diversion structure G-371 (located in the North New River Canal at the southeast corner of STA-3/4) and diversion structure G-373 (located in the Miami Canal just south of G-372) would be closed, and STA-3/4 inflow pump stations would convey stormwater runoff from the Miami Canal and the North New River Canal to the STA-3/4 Inflow/Supply Canal. The STA-3/4 Inflow/Supply Canal is located between G-370 and G-372 and is adjacent to the north boundary of the Holey Land Wildlife Management Area and borders the north side of the STA-3/4.

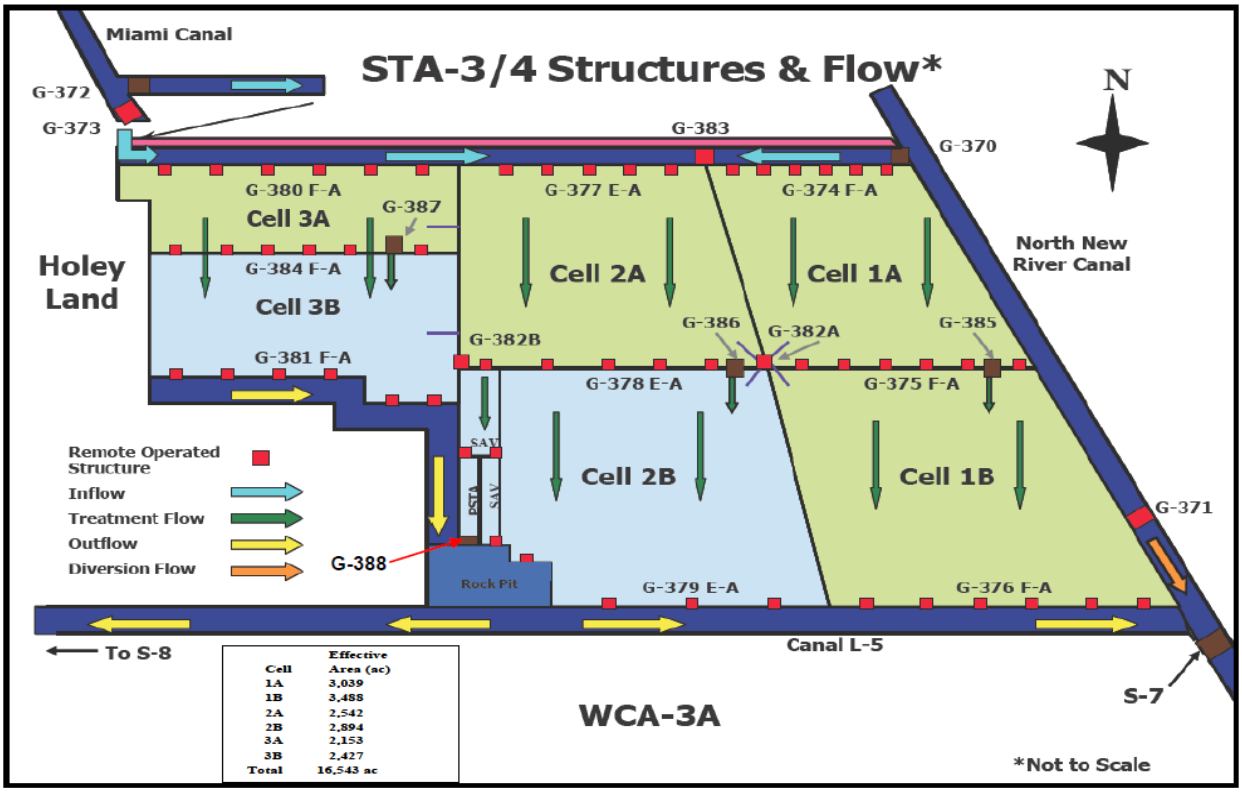

Figure 3-3 STA-3/4 Map

3.1.4 Water Conservation Area 3A and 3B

WCA-3A has an area of 767 square miles and is located in western Broward County and northwestern Miami-Dade County. Inflows to the area are from the S-11s, S-8, S-150, S-140, G-407, S-190, G-123, S-142, S-9, S-9A, and G-64. Outflows from WCA-3A are primarily made through the S-12s, S-333, S-343A, S-343B, S-344, and S-151 (see Figure 3-4 for a layout of WCA-3A and its features).

WCA-3B is approximately 154 square miles and is located in south-central Broward County and north-central Miami-Dade County. Inflows to WCA-3B are by way of S-151 and outflows are controlled via S-30, S-31, S-32, S-32A, S-335, and S-337 (See Figure 3-5 for a layout of WCA-3B and its features). There are also two discharge structures, S-355A and S-355B, along L-29 south of WCA-3B that are designed to move water from WCA-3B into the L-67C Canal, although the operation of these structures has not been previously authorized for more than short-term, temporary operations.

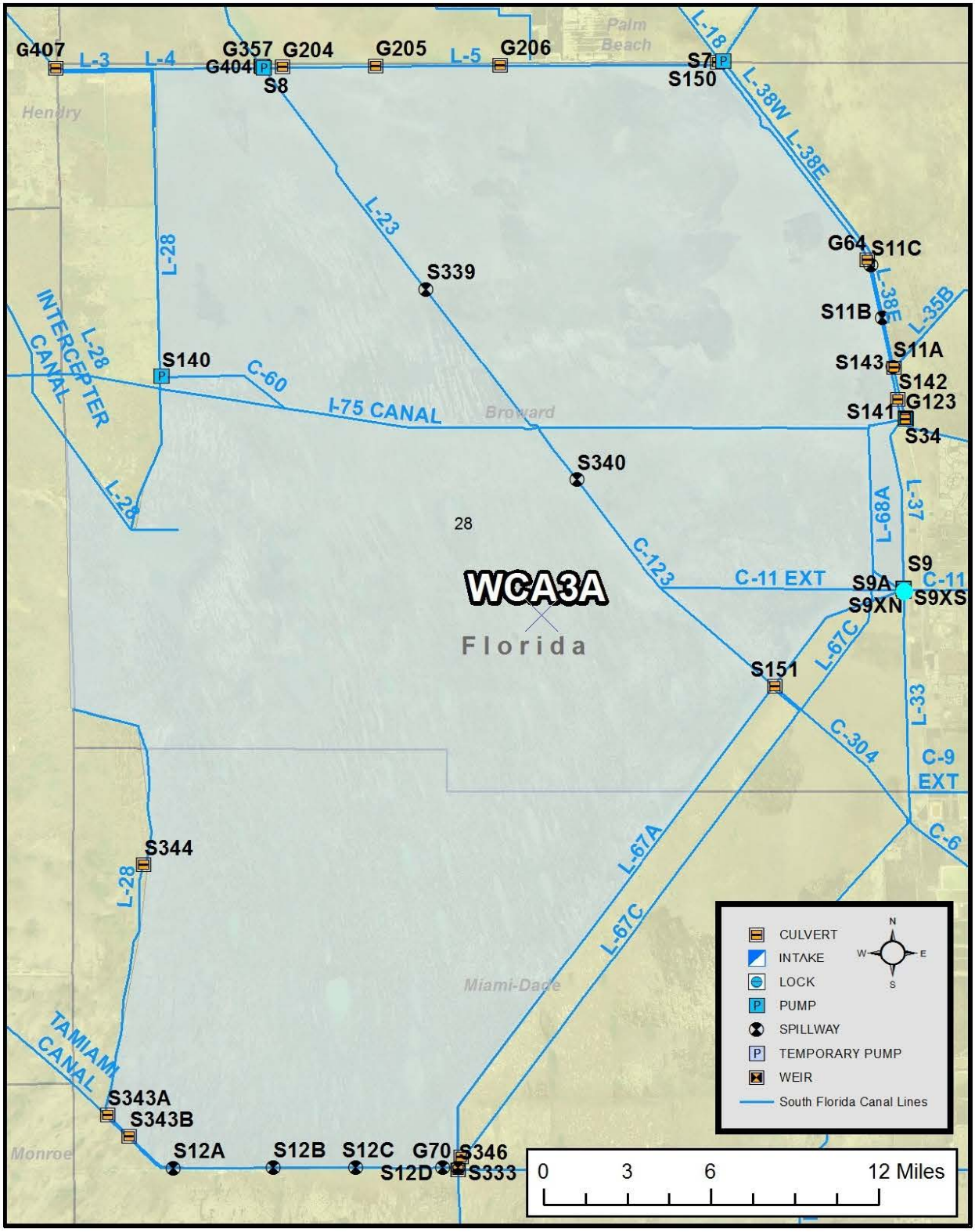

Figure 3-4 WCA-3A Map

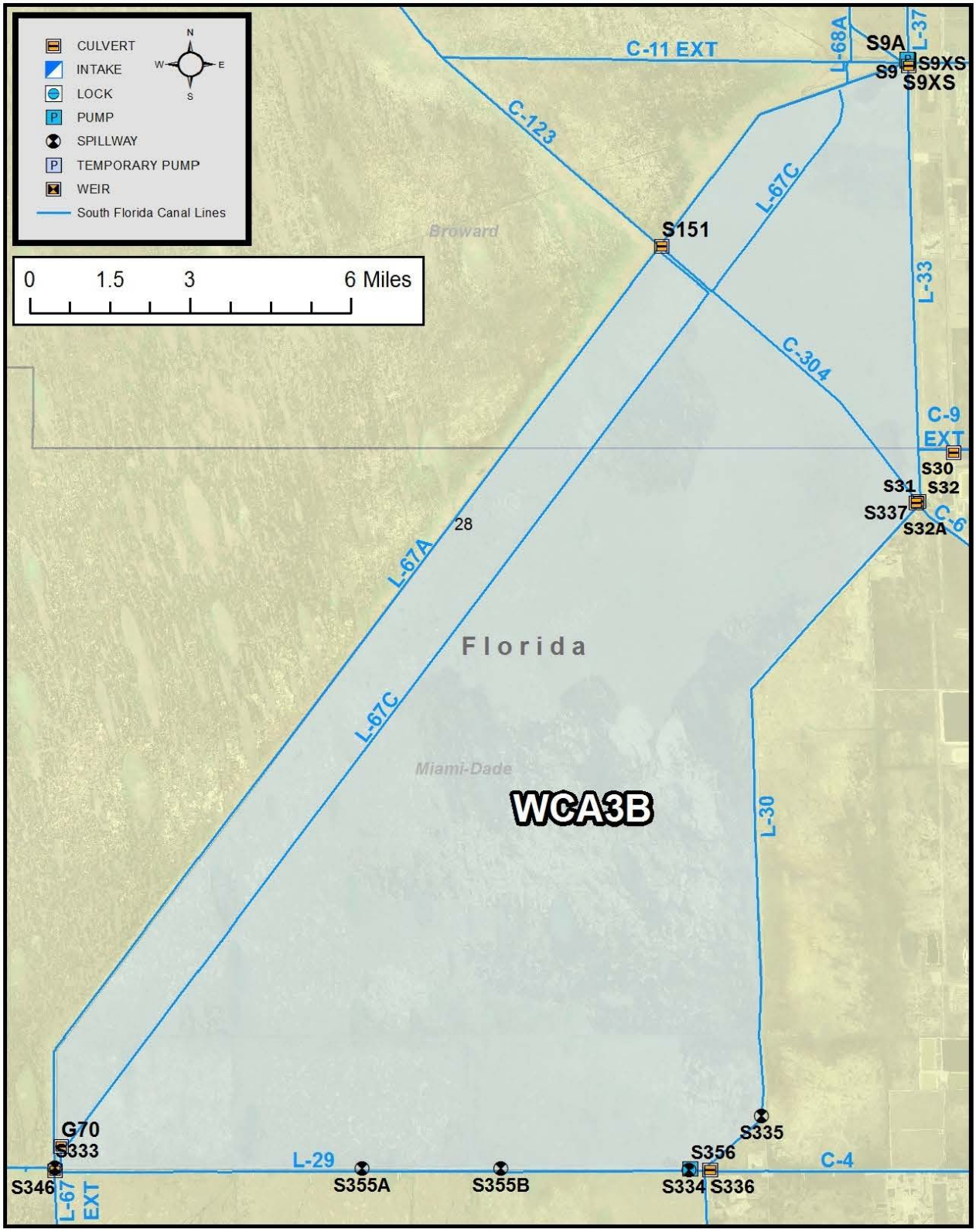

Figure 3-5 WCA-3B Map

3.1.5 South Dade Conveyance System

The South Dade Conveyance System (SDCS) supplies water to ENP and to District canals (C-6, C-4, C-1, C-102, C-103, C-113, and C-111) in Miami-Dade County during conditions of low natural flow. The purpose of the SDCS is supplying water to South Miami-Dade County canals to maintain water table elevations at high enough stages is to prevent saltwater intrusions into the Biscayne Aquifer. Design flows for the SDCS were based on maintaining South Miami-Dade County canal stage elevations at or above 2.0 ft., NGVD to prevent saltwater intrusion (See Figure 3-6 for a layout of the SDCS and its features).

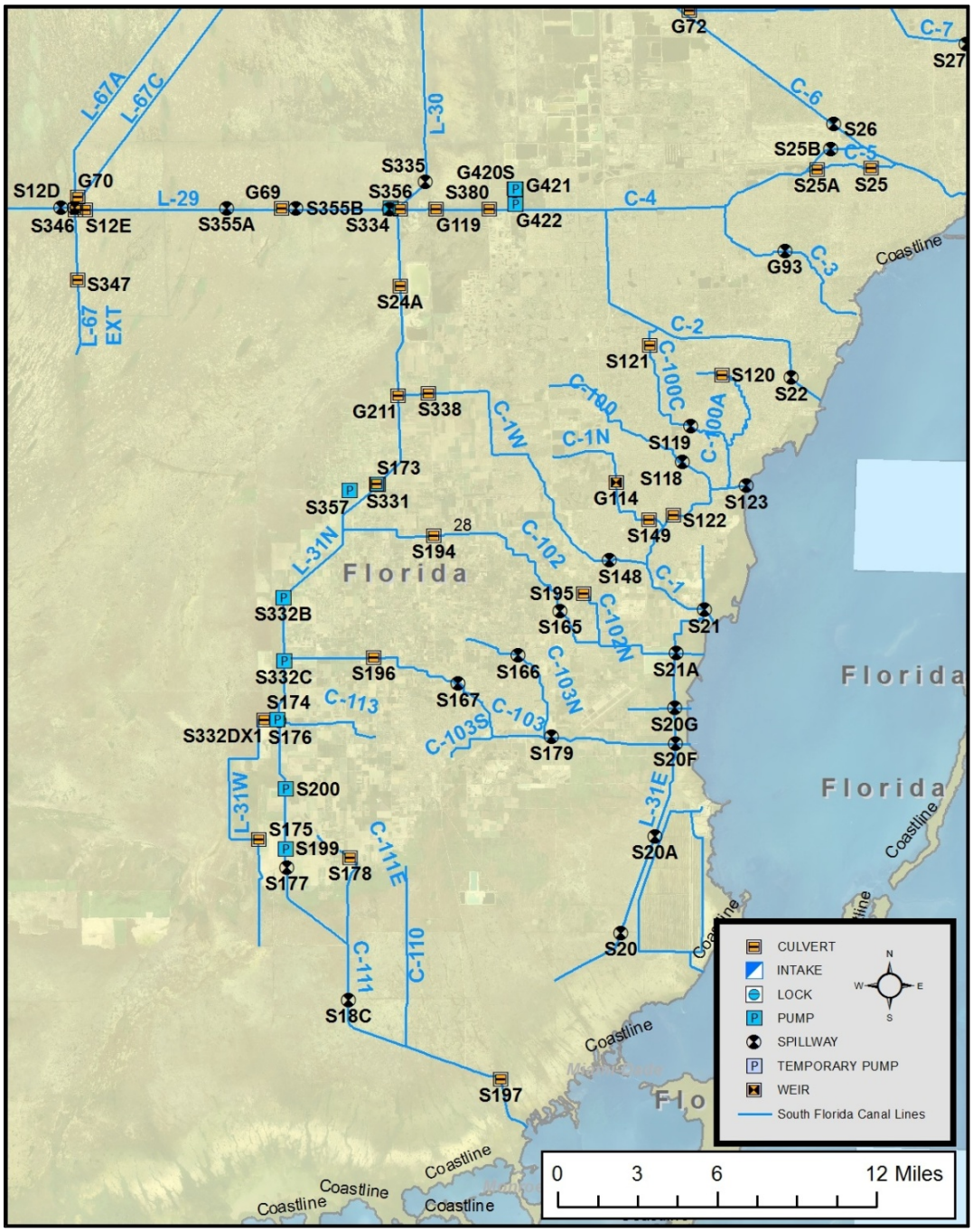

Figure 3-6 South Dade Conveyance System Map

3.2 PROPOSED FEATURES - NON-CEPP

3.2.1 Restoration Strategies - A-1 Flow Equalization Basin

The A-1 FEB, approximately 60,000 ac-ft, would be located upstream of STA-3/4 and STA-2 and serve to attenuate peak flows prior to water quality treatment in the STAs (Figure 3-7). The A-1 FEB would be designed and constructed by the South Florida Water Management District (SFWMD). The A-1 FEB would also assist in maintaining minimum water levels and reducing the frequency of dryout conditions within STA-2 and STA-3/4, which would help sustain phosphorus treatment performance. The A-1 FEB would have a footprint of approximately 15,000 acres.

Inflows would be directed towards the A-1 FEB via G-370 and G-372 along the STA-3/4 Inflow Canal and STA-3/4 Supply Canal respectively. Two sets of gated spillways would serve to control inflow to the A-1 FEB, one of which would be located on the western perimeter levee and the other in the southeastern corner of the basin. Inflows would be conveyed to the northern end of the A-1 FEB by above grade interior channels that are parallel to the east and west A-1 FEB perimeter levee. The water would be distributed to enable sheet flow from north to south within the facility to minimize short-circuiting and maximize hydraulic residence time. These conditions are expected to support emergent vegetation that would aid in the uptake of phosphorus within the A-1 FEB.

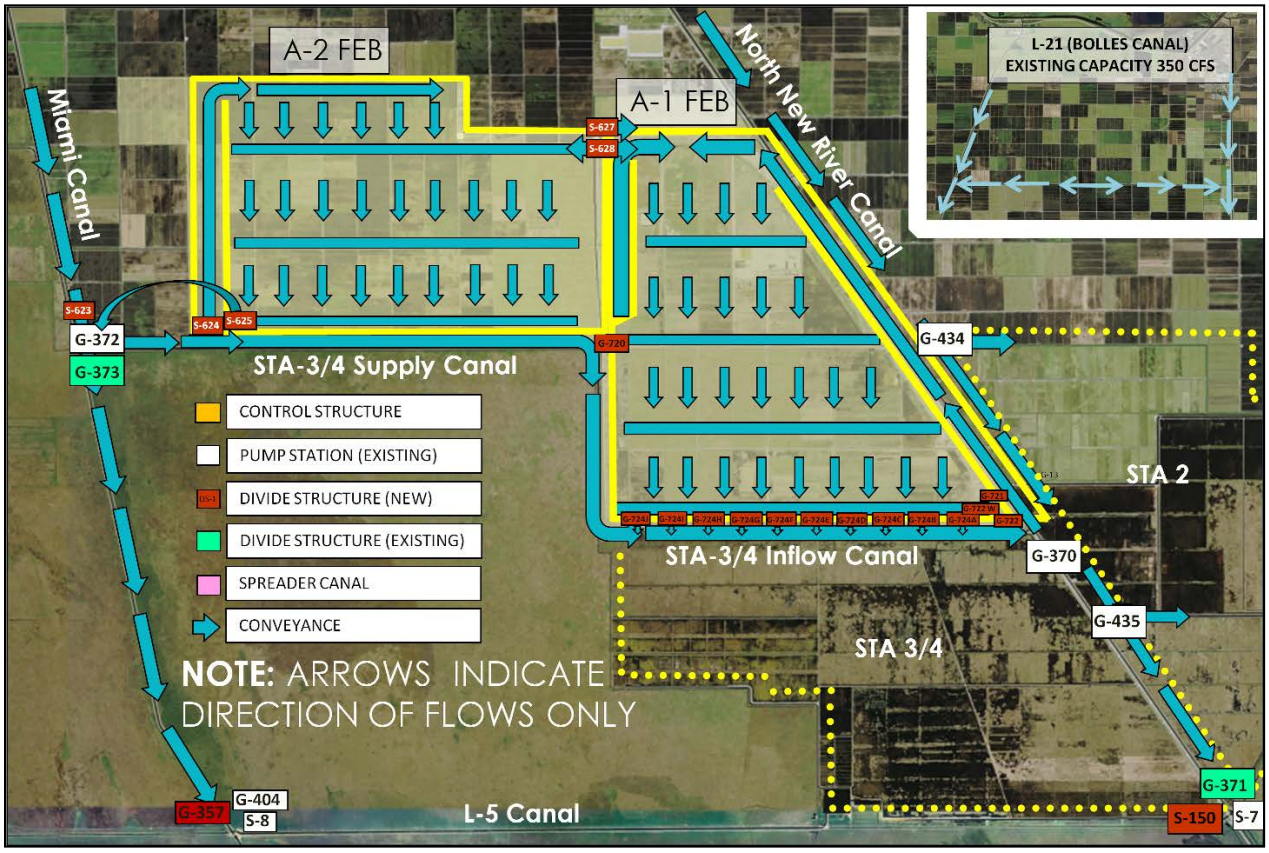

Figure 3-7 Combined FEB Flow Equalization Basin Schematic

3.3 PROPOSED FEATURES – CEPP

The features as outlined in the following subsections would be implemented as part of CEPP. In addition to construction of new features, there would be several existing features either removed or modified.

Preliminary Operating Criteria for the new and modified features listed below can be found in Section 7 of this DPOM.

3.3.1 New Features

3.3.1.1 A-2 Flow Equalization Basin

The A-2 FEB, approximately 56,000 ac-ft, would be located west of the A-1 FEB. The purpose of the A-2 FEB, which would be operated in conjunction with the use of the A-1 FEB, would be to capture additional water from Lake Okeechobee for delivery to the Everglades, while maintaining the pre-project capability to provide water quality treatment for the existing EAA runoff and limited Lake Okeechobee discharges. The combined FEB would be able to accept and provide some limited water quality pre-treatment of additional water from Lake Okeechobee during off-peak times, such as the dry season, when treatment capacity is available in the downstream STAs. See Figure 3-8 for a schematic of the A-2 FEB. The A-2 FEB would have a footprint of approximately 14,000 acres. The combined FEB would have a storage capacity of approximately 116,000 ac-ft. During the Preconstruction, Engineering, and Design (PED) phase, design of the FEB components will be assessed in further detail as described in **Appendix A Section A.10.1.5**. For operational flexibility, remotely controlling G-372 pumps for the A-2 FEB and other items described in **Appendix A Section A.10.1.5** are under operational considerations.

Figure 3-8 A-2 Flow Equalization Basin Schematic

Inflows from the Miami Canal would be directed towards the A-2 FEB via G-372 along the STA-3/4 Supply Canal. Inflows would be conveyed to the northern end of the A-2 FEB by an interior above-grade channel that would be parallel to the west perimeter levee. The water would be distributed to enable sheet flow from the north to the south within the facility to minimize short-circuiting and maximize hydraulic residence time. These conditions are expected to support emergent vegetation that would aid in the uptake of phosphorus within the A-2 FEB.

The following structures facilitate the operations of the combined FEB (Figure 3-7 and Figure 3-8):

S-623
The structure would be a gated spillway with a design capacity of 3,700 cfs, with less than 0.1 ft. of head loss. S-623 would serve as a divide structure to separate pre-treated FEB waters from untreated waters of the Miami Canal to maximize incidental water quality value of the flow-through impoundment. S-623 would be located in line with the STA-3/4 Supply Canal, west of the G-372 Pump Station. When open, S-623 would allow for the normal operations of G-372 to route Miami Canal water, or when closed can be used to route pre-treated FEB water through the STA-3/4 Supply Canal to STA-3/4.

S-624
The structure would be a gated sag culvert (i.e., a culvert used to convey water by gravity under another canal, also commonly referred to as an inverted siphon) with a design flow of 1,550 cfs that would serve as the inflow structure for the A-2 FEB. S-624 would be located near the southwest corner of the A-2 FEB, east of G-372. This structure would operate in conjunction with the existing G-372 to route flows from the Miami Canal into the FEB when storage capacity would be available. The structure would open for inflow operations into the FEB from G-372, and would close during A-2 FEB bypass operations (flow directly to STA-3/4 or the A-1 FEB) or to prevent back flow into STA-3/4 Supply Canal. S-624 would run from the STA-3/4 Supply canal, beneath the FEB discharge/collection canal, and into the FEB inflow canal/flowway.

S-625
The structure would be a discharge structure from the A-2 FEB. S-625 would be located in the southwest corner of the FEB in line with the western perimeter levee (L-624). This structure would be a gated culvert with a design capacity of 1,550 cfs. This structure would open to allow for the FEB to discharge from the FEB Collection Canal (C-625E) towards the headwaters of G-372 to provide hydraulic lift for redistribution through the STA-3/4 Supply Canal and for delivery to STA-3/4.

S-626
The structure would be a seepage pump station, with a design capacity of 500 cfs. S-626 would be located on the west side of seepage canal C-626 and deliver seepage back into the C-625W FEB outflow canal.

S-627
The structure would be an emergency overflow weir for the A-2 FEB, with a design capacity of 445 cfs. S-627 would be located in the northeast corner of the A-2 FEB, in line with the eastern levee of the A-2 FEB.

S-628
The structure would be a bi-directional inlet and outlet structure that hydraulically connects the A-2 FEB to the A-1 FEB with a design capacity of 930 cfs. S-628 would be located in the northeast corner of the A-2 FEB, in line with the eastern levee of the A-2 FEB. This feature would allow water to be passed between the A-2 and A-1 FEBs, depending on impoundment stages and capacity. Water from the Miami Canal could potentially be routed through the A-2 FEB by use of this structure. The opposite operation could also occur, using water routed through A-1 from the North New River Canal via G-370 to supplement water in the A-2 FEB (refer to Figure 3-8 for the A-2 FEB design layout).

L-624
L-624 would be the A-2 FEB perimeter levee, which would have a length of approximately 20 miles and an elevation of 20.3 ft., NGVD.

L-625
L-625 would be the A-2 FEB interior inflow canal levee which would have a length of approximately 4 miles.

C-624
C-624 would be the A-2 FEB inflow canal, with a design capacity of 1,550 cfs. C-624 would be located on the west side of the FEB and have an approximate length of 4 miles. The C-624 Canal would receive water from S-624; and the canal would be used to deliver water to the northern side of the A-2 FEB.

C-624E
C-624E would be a spreader canal located on the northern boundary of the A-2 FEB, with an approximate length of 4 miles. The C-624E Canal would distribute water across the northern part of the A-2 FEB.

C-625E
C-625E would be the A-2 collection/discharge canal with a design capacity of 400 cfs. C-625E would be located within the interior of the A-2 FEB along the southern perimeter. When stages in the A-2 FEB are low, sheet flow would collect in C-625E and would be conveyed to the S-625 discharge structure. When the FEB experiences greater depths, the C-625E Canal would be completely submerged, but would still provide conveyance assistance to the S-625.

C-625W
C-625W would be the A-2 FEB discharge canal, with a design capacity of 1,550 cfs. C-625W would be located exterior to the A-2 FEB between S-625 and G-372 Headwater (HW).

C-626
C-626 would be a seepage collection canal for the A-2 FEB, with a design capacity of 400 cfs. C-626 would be located along the west and northern exterior perimeter of the A-2 FEB, with a total length of approximately 4 miles.

3.3.1.2 WCAs, ENP, and SDCS

In order to improve habitat conditions and hydrologic conditions in WCA-3A, WCA-3B, and ENP, CEPP proposes to remove portions of existing levees, install new water control structures, and modify current canals and pump stations. The purpose of these system improvements would be to re-distribute flows through the landscape of WCA-3A, WCA-3B, and ENP in order to re-hydrate areas such as the northwest corner of WCA-3A, that have been considerably drier than the habitat restoration goals for northwestern WCA-3A. The following structures facilitate the operations of these areas:

S-8A (New)
For CEPP, the S-8 Pump Station (and/or G-404) may require design modifications (or possible replacement). The proposed S-8A structure would be two sets of gated culverts (with an associated canal), with a design capacity of 3,120 cfs to the L-4 Canal and 1,040 cfs to the Miami Canal. S-8A would

be located in the Miami Canal, immediately south of the existing S-8 Pump Station, to deliver water from the L-5 Canal (via S-8) west to the L-4 Canal and south to the remaining open segment of the Miami Canal (Refer to Section 3.3.3 Modified Features for potential S-8 confluence modifications). During the PED phase, the design uncertainties will be assessed/reassessed in further detail, as described in Appendix A of the PIR. For example, G-404 and G-357 could be abandoned after S-8A becomes operational. In addition, stage conditions will be checked to ensure that southern treatment cells in STA-5/6 will be able to discharge under design conditions.

S-620
The structure would be a gated culvert with a design capacity of 500 cfs. S-620 would be located at the southern end of the L-6 Canal to deliver water from the L-6 Canal to the eastern (remnant) L-5 Canal.

S-621
The structure would be a gated spillway with a design capacity of 2,500 cfs. S-621 would be located on the STA-3/4 outflow canal. S-621 would serve as a divide structure to separate STA-3/4 outflows from the eastern (remnant) L-5 Canal when L-6 deliveries are being made to the L-5 Canal. When open, S-621 would allow for a portion of the STA-3/4 outflow discharges to be delivered to the S-7 Pump Station. During normal operations, including L-6 diversion flows, CEPP would direct the majority of STA-3/4 discharges westward to the modified S-8 Pump Station, and operation of S-7 Pump Station to deliver STA-3/4 discharges to WCA-2A would be primarily during peak discharge events.

S-622
The structure would be a gated spillway with a design capacity of 500 cfs. S-622 would be located in the L-5 Canal to deliver water from the eastern (remnant) L-5 Canal to the western L-5 Canal.

S-630
The structure would be a pump station with a design capacity of 360 cfs. S-630 would be located in the L-4 Canal, east of the existing L-4 Levee gap, to maintain existing water supply deliveries to the Seminole Tribe of Florida's Big Cypress Reservation and to stage up water in the L-4 Canal to allow discharge over the L-4 Levee degrade.

S-631
The structure would be a gated culvert with a design capacity of 500 cfs. S-631 would be located in L-67A to deliver water from WCA-3A to WCA-3B, east of the L-67D Levee.

S-632
The structure would be a gated culvert with a design capacity of 500 cfs. S-632 would be located in L-67A to deliver water from WCA-3A to WCA-3B, within the WCA-3B flowway.

S-633
The structure would be a gated culvert with a design capacity of 500 cfs. S-633 would be located in L-67A to deliver water from WCA-3A to WCA-3B, within the WCA-3B flowway.

L-67D
The L-67D Levee would connect L-67A to L-29 and serve as the eastern perimeter levee for the WCA-3B flowway. It would run from due north from the L-29 Levee, starting approximately 4.3 miles east of S-333. The total length would be approximately 8.5 miles. The crest width would be 14 ft., the height would be 6 ft., and the side slopes would be 3:1.

S-333 (New)
The new S-333 gated spillway would have a design capacity of 1,150 cfs, to deliver water from the L-67A Canal to the L-29 Borrow Canal. It would be constructed just north of the existing S-333 structure, bringing the combined design capacity of both structures to 2,500 cfs. S-333 is proposed to have a tailwater constraint at 9.7 ft., NGVD. S-333 would be operated in accordance with Rainfall Driven Operations which would dictate releases based upon conditions. The combination of S-333 structures; along with the proposed S-631, S-632, and S-633; would supersede the S-12s in being the primary discharge point for WCA-3A.

S-355W
The S-355W structure would be a gated spillway located in line with the L-29 Canal at the southern extent of the proposed L-67D levee, with a design capacity of 1,230 cfs. The purpose of the S-355W would be to convey water from the L-29 Canal within the Blue Shanty Flowway, eastward towards the existing S-334 spillway to provide assistance in meeting ENP ecological objectives.

S-356 (New)
The new S-356 Pump Station would replace the current temporary pump station and have a design capacity of 1,000 cfs to provide seepage return to ENP. It would be located in the vicinity of the existing temporary pump station. This pump station should be able to concurrently handle the discharges from S-335 and the seepage into L-31N (from S-335 to G-211) without requiring discharges to tide. S-356 is proposed to have a tailwater constraint at 9.7 ft., NGVD and open/close criteria of 6.0/5.5 ft., NGVD in the wet season and 6.0/5.8 ft., NGVD in the dry season.

3.3.2 Removed Features

Miami Canal (Located from the northwestern to the eastern side of WCA-3A)
Approximately 13.5 miles of the Miami Canal would be backfilled to the north of I-75, from the I-75 highway to approximately 1.5 miles south of S-8. A significant portion of the spoil mounds adjacent to the Miami Canal would also be removed, and multiple tree island mounds would be constructed within the prior canal footprint to provide additional habitat. The backfilling would help alleviate the overdraining of the northern portion of WCA-3A by increasing hydroperiods and depths within the area.

L-4 Interior Levee (Northwest corner of WCA-3A)
Approximately 2.9 miles of the L-4 Levee would be removed from the area west of the S-8 structure. This would help promote sheetflow, rather than point source flows, into the area.

L-67C Levee (Separates WCA-3A from WCA-3B, parallel to the L-67A Levee)
Approximately 8 miles of the L-67C Levee, west of the proposed L-67D Levee, would be removed from the area north of Tamiami Trail within the WCA-3B flowway. The adjacent canal would not be backfilled. North of the new L-67D Levee, an approximate 6,000 ft. gap would be created to distribute discharges from S-631 to eastern WCA-3B. The levee removal and gapping would allow a more natural flow of water from WCA-3A to WCA-3B, and the WCA-3B flowway would provide a direct hydrologic connection to ENP.

L-67 Extension Levee (Located in ENP, south of S-333)
The entire remaining length of the L-67 Extension Levee (5.5 miles) would be removed and the adjacent borrow canal would be backfilled (5.5 miles). This would allow a more natural flow of water and provide a direct hydrologic connection between Northeast Shark River Slough and Western Shark River Slough.

The removal of this levee may be predicated on a number of factors, to include the completion of the C-111 Northern Detention Area (NDA), the 8.5 Square Mile Area (SMA) Flood Mitigation Project, and L-31N seepage management. Further details would be determined during the PED phase.

L-29 Levee (Southern boundary of WCA-3B, east of S-333)
Approximately 4.3 miles of the L-29 Levee, west of the new L-67D Levee, would be removed. This would allow water to move through the WCA-3B Flowway.

Old Tamiami Road (Located immediately south of the S-12s)
Approximately 6 miles of the Old Tamiami Trail road would be degraded, from the L-67 Extension to the ENP Tram Road, providing increased wetland acreage and increased discharge capability from the S-12C and S-12D structures.

S-346
The S-346 flashboard culvert structure is located in the L-67 Extension Borrow Canal (immediately south of Tamiami Trail) and would be removed with the corresponding removal of the L-67 Extension Levee and Canal.

S-347
The S-347 flashboard culvert structure is located in the L-67 Extension Borrow Canal (approximately 2.6 miles south of Tamiami Trail) and would be removed with the corresponding removal of the L-67 Extension Levee and Canal.

Temporary S-356 Pump Station
Due to the design of this structure being temporary in nature and the need for an increased capacity from 500 cfs to 1,000 cfs to provide increased seepage management capability, this pump station would be removed and replaced.

3.3.3 Modified Features

L-5 Canal East (Northern boundary of WCA-3A)
The eastern (remnant) L-5 Canal would be enlarged to allow a design capacity of 500 cfs.

L-5 Canal West (Northern boundary of WCA-3A)
The western L-5 Canal would be enlarged to allow a design capacity of 3,000 cfs.

L-67A Levee (Levee separating WCA-3A from WCA-3B)
The L-67A Levee would have three 500 cfs gated culverts constructed in line with the levee: S-631, S-632, and S-633. The L-67A Canal would act as a collector canal for these three structures.

S-8
S-8 is an existing pump station that is currently used to discharge runoff water via the Miami Canal, as well as provide an outlet for STA-3/4 discharges, into WCA-3A. CEPP will maintain this existing design capacity for the S-8 complex through a combination of the following design considerations: pump station design modifications, a new hydraulic connection from S-8 to the degraded L-4 Levee (New S-8A), utilization of the existing G-404 Pump Station (570 cfs design capacity), and leaving the 1-2 mile segment of the Miami Canal as available getaway conveyance capacity during peak flow events. For

CEPP, the S-8 Pump Station and/or G-404 will be modified (or possibly replaced). The Recommended Plan cost estimate includes costs for the potential S-8 complex modifications, which are included as the new S-8A (canal connection to L-4 and two culverts structures). During PED, the following design uncertainties will be assessed/reassessed in further detail: modifications to S-8 and/or G-404, to address pump efficiency concerns; the proposed S-8A culvert and associated canal connecting the Miami Canal to the L-4 Canal; and the required length of the unmodified Miami Canal to maintain hydraulic getaway conveyance capacity. Flood control operation capability will be maintained during S-8 modification construction. S-8 is equipped with four 1,040 cfs diesel pumps for a total capacity of 4,160 cfs. The pump station is located in the alignment of the Miami Canal at the northern boundary of WCA-3A. The new S-8A Pump Station would need to maintain or accommodate the important capabilities of the current pump station, such as allowing for safe and dry work conditions and maintenance of the pumps during multi-day hurricanes. The "worst case" scenario of the current S-8 Pump Station must be mitigated for in the modification or replacement. This scenario is the lowest intake stage (based on the lower of the break point stage data or the lowest stage required for maintaining the marsh levels) and the highest discharge stage (daily peak stage, plus the modeling uncertainty, plus 0.5 ft.).

L-31N (Northeast boundary of ENP)

Along a portion of the L-31N Levee, south of the S-356 structure and Tamiami Trail, a seepage barrier cutoff wall would be constructed. The barrier would be approximately 4.2 miles long and 35 ft. deep. The barrier would be constructed of soil cement bentonite. For approximately the first mile south of Tamiami Trail, the soil is more transmissive than further south. This may require a change to the proposed seepage barrier. This may also change the proposed G-211 operations, in order to divert more seepage water to the coastal structures. During the PED phase, these details may be modified or changed altogether as alternatives are considered.

4.0 PROJECT RELATIONSHIPS

There are several projects that may affect or be affected by CEPP. The CEPP recommended plan has been developed based on the operations of existing related projects, and/or related planned projects with approved operating plans, including both CERP and non-CERP activities. A summary of each related project and its relationship to CEPP is provided below.

4.1 2008 LAKE OKEECHOBEE REGULATION SCHEDULE (2008 LORS)

2008 LORS is the regulation schedule used in the current management of Lake Okeechobee water levels. It was identified to be effective at decreasing the risk to public health and safety, reducing the number of high-volume discharges to the estuaries, and providing critical flexibility to perform water management operations. CEPP benefits gained from sending new water south from Lake Okeechobee are derived in part from operational refinements that can take place within the existing, inherent flexibility of the 2008 LORS, and in part with refinements that are beyond the schedule's current flexibility. Modifications to 2008 LORS will be required to optimally utilize the added storage capacity of the A-2 FEB to send the full 210,000 ac-ft/yr of new water available in CEPP south to the Everglades, while maintaining compliance with Savings Clause requirements for water supply and flood control performance levels. These changes are part of the final operational assumptions within the modeling completed for the CEPP recommended plan. See Section 7.1.1 for additional information.

Independent of CEPP implementation, there is an expectation that revisions to the 2008 LORS will be needed following the implementation of other CERP projects and Herbert Hoover Dike infrastructure remediation. The USACE expects to operate under the 2008 LORS until there is a need for revisions due

to the earlier of either of the following actions: (1) system-wide operating plan updates to accommodate CERP "Band 1" projects, as described in Section 6.1.3.2 of the CEPP PIR, or (2) completion of sufficient HHD remediation for reaches 1, 2 and 3 and associated culvert improvements, as described in Section 2.5.1 of the CEPP PIR. When HHD remediation is completed and the HHD Dam Safety Action Classification (DSAC) Level 1 rating is lowered, higher maximum lake stages and increased frequency and duration of high lake stages may be possible to provide the additional storage capacity assumed with the CEPP Recommended Plan. The future Lake Okeechobee Regulation Schedule which may be developed in response to actions (1) and/or (2) is unknown at this time. It is anticipated that the need for modifications to the 2008 LORS will be initially triggered by non-CEPP actions and that these actions will occur earlier than implementation of CEPP. Therefore, the CEPP PIR, including the POM, will not be the mechanism to propose or conduct the required National Environmental Policy Act (NEPA) evaluation of modifications to the Lake Okeechobee Regulation Schedule. However, depending on the ultimate outcome of these future Lake Okeechobee Regulation Schedule revisions, including the level of inherent operational flexibility provided with these revisions, CEPP implementation may still require further Lake Okeechobee Regulation Schedule revisions to optimize system-wide performance and ensure compliance with Savings Clause requirements.

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CERP envisioned that changes to system operations may be required as groups of restoration components come on line and that updates to the system operating manual may be required at certain intervals of overall CERP implementation. The CEPP is composed of increments of project components that were identified in the CERP.

4.2 MODIFIED WATER DELIVERIES TO EVERGLADES NATIONAL PARK PROJECT (MWD)

The MWD Project entails structural improvements and additions to the existing Central and Southern Everglades (C&SF) Project to improve water deliveries into ENP and, to the extent practicable, take steps to restore the natural hydrologic conditions within ENP. These proposed improvements included the construction of several structures (the S-355s in L-29, temporary S-356), removal of 4 miles of the L-67 Extension Levee, modifications to the existing S-334, and construction of a 1-mile eastern Tamiami Trail bridge and Tamiami Trail roadway modifications. In addition, the 8.5 SMA Flood Mitigation Project and associated facilities, such as the S-357 Pump Station, are also part of the MWD Project. For planning purposes, the CEPP future without project condition assumed the MWD Project to be complete upon completion of those features currently under construction.

4.3 COMBINED OPERATIONAL PLAN FOR THE MODIFIED WATER DELIVERIES TO THE EVERGLADES NATIONAL PARK AND C-111

The Combined Operational Plan (COP) for the MWD and the C-111 South Dade projects would establish a long-term operations plan for the completed features of the MWD and C-111 South Dade projects, including potential conveyance between WCA-3A and WCA-3B, seepage control along the eastern boundary of ENP, and elevated portions of Tamiami Trail between WCA-3B and ENP to restore more natural flows into ENP (L-29 Canal operational criteria). Implementation of the COP could precipitate changes to the operations described within this DPOM. However, the scope of those changes, if any, cannot be determined at this time.

The Corps is re-initiating pursuit of operational testing (relaxation of G-3273 gage operational constraint and S-356 test) to utilize the constructed MWD features. Information from the field test will be used to develop the Final Water Control Plan for the Modified Water Deliveries project which will allow for re-distribution of water flows to NESRS. The Corps anticipates an operational plan and completion of MWD prior to CEPP implementation.

4.4 BISCAYNE BAY COASTAL WETLANDS PROJECT

The Biscayne Bay Coastal Wetlands (BBCW) CERP Project is intended to rehydrate wetlands and reduce point source discharge, improve water quality and provide more natural timing and quantity of water to Biscayne Bay. The proposed project would replace lost overland flow and partially compensate for reduction in groundwater seepage by redistributing, through a spreader system, available surface water entering the area from regional canals. The project should add water to the wetlands in the northern area of the Model Land, adjacent to Biscayne Bay. The BBCW CERP project was assumed in place for the CEPP future without project condition. It is premature to determine if the BBCW CERP Project would precipitate changes to the operations described within this DPOM.

4.5 FLORIDA BAY AND FLORIDA KEYS FEASIBILITY STUDY

The Florida Bay and Florida Keys (FB&FK) Feasibility Study was intended to take a comprehensive look at the FB&FK marine environments, and the actions and land uses upstream, to determine the modifications that are needed to successfully restore water quality and ecological conditions of Biscayne Bay. The reconnaissance phase of this project was followed by the Biscayne Bay Feasibility Study, Phase 1, for which Miami-Dade County was the local sponsor. It is premature to determine if the FB&FK Feasibility Study would precipitate changes to the operations described within this DPOM.

4.6 FLORIDA POWER AND LIGHT'S SOUTH DADE MITIGATION BANK

The Florida Power and Light (FP&L) mitigation bank consists of 13,367 acres of wetland interspersed within the Model Lands project area, adjacent to Biscayne Bay. In addition to preservation, numerous hydrologic improvements have been, or will soon be, implemented. While most changes anticipated as part of this DPOM should be complementary, any unanticipated adverse impacts could precipitate changes to the operations described within this DPOM.

4.7 EVERGLADES RESTORATION TRANSITION PLAN (ERTP)

The purpose of ERTP is to define water management operating criteria for C&SF Project features and the constructed features of MWD and C-111 Projects at the time of ERTP implementation (October 2012). ERTP objectives include improving conditions in WCA-3A for the endangered Everglade snail kite, wood stork, and wading bird species while maintaining protection for the endangered Cape Sable seaside sparrow and the Congressionally authorized purposes of the C&SF Project. The ERTP plan was a modification of the Interim Operational Plan (IOP) with operational flexibilities to provide further hydrological improvements amenable to multiple listed species. The changes associated with the WCA-3A Interim Regulation Schedule as a result of ERTP were assumed for the CEPP future without project conditions.

4.8 RESTORATION STRATEGIES PROJECTS

To address water quality concerns associated with existing flows to the Everglades Protection Area (which includes Wildlife Management Areas, the WCAs, and part of ENP), the SFWMD, Florida Department of Environmental Protection (FDEP), and United States Environmental Protection Agency engaged in technical discussions starting in 2010. The primary objectives were to establish a Water Quality Based Effluent Limit (WQBEL) that would achieve compliance with the State of Florida's numeric phosphorus criterion in the Everglades Protection Area and to identify a suite of additional water quality projects to work in conjunction with the existing Everglades STAs to meet the WQBEL.

Based on the collaborative effort described above, a suite of projects have been identified that would achieve the WQBEL. The projects have been divided into three flow paths (Eastern, Central and

Western), which are delineated by the source basins that are tributary to the existing Everglades STAs. The identified projects primarily consist of FEBs, STA expansions, and associated infrastructure and conveyance improvements. The primary purpose of FEBs proposed with the SFWMD Restoration Strategies is to attenuate peak stormwater flows prior to delivery to STAs and provide dry season benefits, while the primary purpose of STAs is to utilize biological processes to reduce phosphorus concentrations in order to achieve the WQBEL. The proposed CEPP A-2 FEB would work in conjunction with the proposed Restoration Strategies A-1 FEB.

4.9 INDIAN RIVER LAGOON – SOUTH AND C 44 CANAL

Some of the water utilized by agricultural users in the Lake Okeechobee Service Area (LOSA) from Lake Okeechobee will be transferred to WCA-3 and further south as a result of the implementation of the recommended plan. This transfer is anticipated to occur after the modification of the Lake Okeechobee Regulation Schedule that will allow full utilization of the CEPP A-2 FEB. The recommended plan has identified an additional source of water of comparable quantity and quality that will be available to replace the water sent south. Instead of discharging all water stored in the reservoir to tide via the S-80 or to meet C-44 Basin agricultural water supply demands, as assumed in the future without project baseline condition operations, the recommended plan retains a portion of the water stored in the CERP IRL-S C-44 Reservoir/STA in the regional system for backflow to Lake Okeechobee via the C-44 Canal and raises the Lake Okeechobee stage criteria to allow increased C-44 Canal backflow. The additional C-44 Canal backflow operations to Lake Okeechobee included in the CEPP recommended plan improves the ability to meet existing permitted demands in LOSA by retaining more water in the regional system and making it available to agricultural users.

The CEPP future without project condition allows backflow to Lake Okeechobee from the C-44 Canal when S-308 is not open for regulatory discharges and when the stage in Lake Okeechobee is 0.25 feet below the base of the 2008 LORS low sub-band (within the baseflow sub-band), which varies between 13.0 and 14.5 feet NGVD seasonally. This operational assumption is consistent with the existing operational protocols of Lake Okeechobee (2008 LORS) and the SFWMD Lake Okeechobee Water Shortage Management (LOWSM) operations. Discharges from the IRL-S project C-44 Reservoir to the C-44 Canal are otherwise limited to environmental deliveries for the St. Lucie Estuary and C-44 Basin agricultural water supply demands during these backflow operations.

The CEPP recommended plan operations expand on the 2008 LORS backflow operations (included in the future without project condition) to Lake Okeechobee through the following operational changes: (1) backflow to Lake Okeechobee from the C-44 Canal is allowed when S-308 is not open for regulatory discharge and the stage in Lake Okeechobee is below 14.5 feet NGVD (no seasonal variability); and (2) discharges from the IRL-S project C-44 Reservoir to the C-44 Canal are made when the stage in Lake Okeechobee is below the baseflow zone of the 2008 LORS schedule (the bottom of this zone varies between 12.6 and 13.0 feet NGVD seasonally) to provide an additional source of backflow water to Lake Okeechobee. The recommended plan operational changes result in an average annual increase in C-44 Canal backflow volume to Lake Okeechobee of 57.3 kAF (97.3 kAF in the recommended plan, compared to 40.0 kAF in the IORBL1) and an average annual increase in C-44 Reservoir discharges to the C-44 Canal of 21.3 kAF (37.6 kAF in the recommended plan, compared to 16.3 kAF in the IORBL1).

4.10 SITE 1 IMPOUNDMENT

The Site 1 Impoundment / Fran Reich Preserve Project, a component of CERP, would capture and store excess surface water runoff from the Hillsboro watershed as well as releases from the Arthur R. Marshall Loxahatchee National Wildlife Refuge and Lake Okeechobee. Located in the Hillsboro Canal Basin in

southern Palm Beach County, the project would supplement water deliveries to the Hillsboro Canal by capturing and storing excess water currently discharged to the Atlantic Intracoastal Waterway. These supplemental deliveries would reduce demands on the Loxahatchee National Wildlife Refuge. The 1,660-acre impoundment would also provide groundwater recharge, reduce seepage from adjacent natural areas, and prevent saltwater intrusion by releasing impounded water back to the Hillsboro Canal when conditions dictate. The operation of the Site 1 impoundment would aid in the better management of water supply needs in the Lower East Coast and help reduce the demands upon the Everglades Protection Area, hence furthering CEPP environmental goals for the Everglades Protection Area. The Site 1 CERP project was assumed in place for the CEPP future without project condition.

4.11 C-43 WEST BASIN STORAGE RESERVOIR

The Caloosahatchee River (C-43) West Basin Storage Reservoir CERP project would improve the timing, quantity, and quality of freshwater flows to the Caloosahatchee River and Estuary. The C-43 West Basin Storage Reservoir would help ensure a more natural, consistent flow of fresh water to the estuary. To restore and maintain the estuary during the dry season, the project would capture and store basin stormwater runoff, along with a portion of water discharged from Lake Okeechobee. Operating intent includes a slow release of the impounded water into the Caloosahatchee River, as needed. These features help to better balance the overall environmental needs as defined by CEPP planning for the Caloosahatchee Estuary. The C-43 West Basin Storage Reservoir CERP project was assumed in place for the CEPP future without project condition.

4.12 BROWARD COUNTY WATER PRESERVE AREAS

The Broward County Water Preserve Areas (BCWPA) CERP project is designed to reduce seepage loss from WCA-3A/3B to the C-11 and C-9 basins and to capture, store and distribute surface water runoff from the western C-11 Basin that has been discharged into WCA-3A/3B. Additional project functions include maintaining existing level of service flood protection, groundwater recharge, increasing spatial extent of wetlands, and improving hydroperiods and hydropatterns in WCA-3A/3B. The selected plan includes two above-ground impoundments, associated pumps, and water control structures. The C-11 Impoundment has an effective interior storage of 1,068 acres and two wetland marsh mitigation areas north of the C-11 Impoundment with 488 acres of wetland marsh. The C-9 Impoundment has an effective interior storage of 1,641 acres. The 4,353-acre WCA-3A/3B Seepage Management Area would manage seepage loss from the WCA-3A/3B and connect the two impoundments with a conveyance canal. The three components work together to form a regional project that manages seepage loss, captures stormwater, and conveys water for other purposes. This project aids in the reduction of seepage from the Everglades Protection Area, which is an objective of CEPP planning. The BCWPA CERP project was assumed in place for the CEPP future without project condition.

4.13 C-111 SPREADER CANAL (C-111 SC)

The overall C-111 SC Project would be authorized via two separate, yet related, PIRs, the C-111 SC Western Project and the C-111 SC Eastern Project. The C-111 SC Project is intended to improve quantity, timing and distribution of water delivered to Florida Bay via Taylor Slough; improve hydroperiods and hydropatterns in the Southern Glades and Model Lands to restore historic vegetation patterns; and to return coastal salinities to historical recorded conditions though the redistribution of water that is currently discharged to tide. These objectives will be realized through the creation of a hydrologic ridge between Taylor Slough and the C-111 Canal, to reduce seepage loss from Taylor Slough and its headwaters. Information gained from the C-111 SC Western Project will be used for the planning and design of a spreader canal system to replace the existing C-111 Canal (C-111 SC Eastern Project). Although the C-111 SC Eastern Project would chronologically follow the C-111 SC Western Project, it is

important to note that the POM for the C-111 SC Eastern Project could precipitate changes to the C-111 SC Western Project POM, or wholly supersede it. The C-111 SC Project was assumed in place for the CEPP future without project condition.

5.0 MAJOR CONSTRAINTS

5.1 STA-3/4 AND STA-2 DESIGN AND OPERATIONAL LIMITATIONS

STA operational decisions are based on various factors and STA conditions such as water depths, depth-durations, vegetation conditions, outflow phosphorus concentrations, inflow phosphorus concentrations, phosphorus loading rates, hydraulic loading rates, etc. Many of these parameters are available in real-time and are summarized for the previous week, month and year to assist with operational decisions and ensure STAs are operated consistent with their objective of reducing phosphorus concentrations to improve Everglades water quality.

Essential vegetation rejuvenation and rehabilitation activities, which help to sustain vegetation health and maintain treatment performance, typically occur during the dry season (November – May). These activities may result in portions of STAs or STA cells being temporarily unable to receive inflows (i.e. offline), referred to as STA resting periods, or operated with temporary flow or depth restrictions. STA resting periods were implemented in CEPP water quality modeling for each of the three flowways of STA-3/4 starting 1 April of each year for 45 days with a rotating frequency of once every three years to simulate conditions that would allow essential vegetation rejuvenation and rehabilitation activities. In addition, the water quality modeling of STA-2 and STA-3/4 performed for CEPP included assumptions intended to address STA offline time for major maintenance or rehabilitation activities.

STAs were built specifically for improving Everglades' water quality. However, their vast, shallow waters and rich plant life also make them outstanding habitat for wildlife, including threatened and endangered species. In particular, two avian species protected by Federal law have been observed nesting in the STAs which has resulted in operational limitations. The Everglade snail kite (*Rostrhamus sociabilis plumbeus*), protected by the Endangered Species Act, typically nests from March to August, but has been observed nesting as early as January and as late as October. The Black-necked stilt (*Himantopus mexicanus*), protected by the Migratory Bird Treaty Act, typically nests from April to July. Nesting activity in the STAs for both of these federally-protected birds has resulted in various degrees of STA operational limitations and is anticipated to continue to affect STA operations in the future.

Other physical or structural limitations (e.g. structure capacities and levee heights) to STA operations are documented in the Operation Plans for STA-2 and STA-3/4. These plans are revised on an as-needed basis by the SFWMD to incorporate new information such as project modifications, updated structure flow ratings, and revised operational guidance. In summary, FEB releases to STA-2 and STA-3/4 may be constrained based on various factors and STA conditions such as those described above. A-2 FEB inflows from G-370 and G-372 are constrained by STA-3/4 supply canal stages, which are maintained between 11.0 and 15.0 ft., NGVD.

5.2 S-12 OPERATIONAL LIMITATIONS

ERTP requires seasonal closure of S-12A from 01 November through 14 July and seasonal closure of S-12B from 01 January through 14 July in an attempt to provide favorable conditions for CSSS Subpopulation-A nesting and breeding. These flow limits can result in increased storage in WCA-3A, which may affect the ability of WCA-3A to receive inflows without exacerbating negative impacts caused by excessive water depths. The future without project condition assumes ERTP operations for WCA-3A,

including the seasonal closure periods for S-12A and S-12B. Seasonal closure periods for the S-12A and S-12B are also assumed for the CEPP recommended plan. Upon implementation of the CEPP components, it is anticipated that some of the previously defined WCA-3A discharge limitations may have a lesser impact due to the reduction in reliance of the S-12s as the major outlet of WCA-3A.

5.3 DISCHARGE CAPACITY ACROSS THE EASTERN SIDE OF TAMIAMI TRAIL (L-67 TO L-30)

Prior to MWD and CEPP implementation, there are limitations on the amount of flow that can be introduced across this reach of Tamiami Trail using the L-29 Canal. Under the existing conditions, the L-29 Canal stage is assumed limited due to concerns regarding potential flooding and seepage effects within residential or agricultural areas of Miami-Dade County and potential damage to the Tamiami Trail roadway sub-base. The water management operating criteria for the L-29 Borrow Canal between S-333 and S-334 is meant to limit the L-29 Borrow Canal stage to no more than 7.5 ft., NGVD in response to roadway sub-base concerns identified by the Florida Department of Transportation (FDOT), although short-term deviations have been previously implemented in response to specific hydrologic conditions. Higher water levels within the canal may erode the roadway sub-base and create a potential safety hazard, until completion of the MWD Tamiami Trail Modifications project. In addition, the L-29 Borrow Canal water level has an additional constraint related to potential flooding and seepage effects within residential and/or agricultural areas of Miami-Dade County. When the G-3273 water level within NESRS reaches 6.8 ft., NGVD, S-333 discharges to NESRS (design capacity of 1,350 cfs) will be discontinued until G-3273 falls below 6.8 ft., NGVD. Tamiami Trail roadway modifications, to accommodate potential maximum L-29 Borrow Canal water levels up to 8.5 ft., NGVD are currently in progress with the ongoing MWD project. Additionally, a one-to-two-year field test to incrementally relax the G-3273 operational constraint is under consideration for 2014.

The DOI, through the National Park Service (NPS) and ENP, completed a study to evaluate the feasibility of additional Tamiami Trail bridge length, beyond that to be constructed pursuant to the MWD Project to restore more natural water flow to ENP and Florida Bay and for the purpose of restoring habitat within ENP. This project arose as part of the 2009 Omnibus Appropriations Act passed by Congress on 10 March 2009. The Tamiami Trail Modifications Next Steps (TTNS) approved plan called for 5.5 miles of bridging, which would be in addition to the 1-mile bridge authorized by the MWD Project. The remaining un-bridged sections of roadway would be elevated to allow a design high water stage of 9.7 ft., NGVD in the L-29 borrow canal. This road height is expected to accommodate the maximum potential range of future stage increases envisioned by CERP without damage to the road. The project was authorized by Congress in the Consolidated Appropriations Act, 2012. The DOI is preparing an implementation strategy. Preliminary indications from the DOI are that the proposed western bridging along Tamiami Trail will be included in the initial DOI implementation increment.

The CEPP future without project condition assumed completion of the MWD and TTNS Tamiami Trail bridging and roadway modifications. However, since the final operational plan for MWD and the subsequent TTNS projects has not been developed, for planning purposes the CEPP future without project condition includes ERTP as the operational plan, with the L-29 Canal maximum operational stage limit of 7.5 ft., NGVD and the G-3273 constraint of 6.8 ft., NGVD. The CEPP future with project condition assumes the L-29 Canal maximum operational stage limit to be increased to 9.7 ft., NGVD and removal of the G-3273 constraint.

5.4 STRUCTURAL STABILITY

CEPP management measures involve the use of some existing facilities (i.e. G-370, G-372, S-8, S-7), which would be utilized more often under the CEPP recommended plan than under pre-project

operations. It is important that operators consider the limitations of existing facilities being used for CEPP purposes when applying any necessary adaptive management measures. Existing structures would be operated in accordance with their current operational limits for structural stability; in that same regard, new structures would be operated in accordance with their design operational limits for structural stability.

6.0 STANDING INSTRUCTIONS TO PROJECT OPERATORS

Once the operational testing and initial monitoring phase for the interim operations for the new CEPP components is concluded, the SFWMD will manage the day-to-day project operations of the newly constructed FEB storage area, control structures, and pump stations. Standing instructions for the project operators would be further developed during the interim operations phase of the project that include refinements in operations due to general and past operational experience, additional scientific information, CERP updates, new CERP or non-CERP activities that have been completed and the status of the removal of the constraints discussed in **Section 5** of this document.

During normal conditions, the project structures shall be operated in accordance with the approved operating manual. Deviations from the normal operations would be permitted as outlined in Section 15 of this DPOM.

The operator has the operational flexibility on where to maintain the canal stage within the limits of the operating criteria to allow the operator to respond to factors such as antecedent, current, and forecasted conditions.

6.1 STRUCTURE OPERATIONS

Actual structure operations should achieve or improve on the performance demonstrated by the modeling but should not be required to mimic the operation used by the models. The goal of the structure, whether with continuous staffing (24 hours per day) or partial staffing (e.g. 8 hours per day), is to control the water level within the required or desired range while averaging a stage appropriate for the conditions. For example, the target (average daily stage) may be near the bottom of the range early in the wet season or during especially wet periods and then change to the middle of the operation range at the end of the wet season. For pump stations, a pumping range or ranges should be developed which allows relatively steady running of pumps based on the number of pumps, capacity of the pumps, and stage response (quick or slow) to pumping. Specifically, the pumping range should be large enough to prevent rapid cycling of the pumps. Within the pumping range pumping rates may be changed by varying revolutions per minute (RPM) or changing the number of pumps in response to raising stage levels in the canal. In addition, the operator has operational flexibility on where in the range (top, middle, bottom) to maintain the stage to allow the operator to respond to factors such as 1) high stages in Northeast Shark Slough, 2) expected rain (e.g. the wet season rainfall), 3) large forecast rainfall events, 4) transition from the wet to the dry season, 5) operation during the dry season.

7.0 OPERATIONAL STRATEGY TO MEET PROJECT OBJECTIVES

The operational strategies described in this plan are intended to meet the goals, purposes, and benefits outlined in the PIR by improving the quantity, quality, timing, and distribution of water for the natural system while providing for other water-related needs and meeting the requirements for protection of health and public safety. These goals, purposes, and benefits will not be fully realized until the

completion of the construction and implementation of the CEPP components. These components will be phased in as they become operational. The interim operations have not yet been developed.

Additional "new" water may be made available for restoration purposes through modified Lake Okeechobee operations and the efficient use of the combined FEB and STAs to improve the quantity, timing, and distribution of environmental deliveries to the WCAs and ENP during the wet and dry seasons. Operational changes to deliver this new water would be conducted in a manner consistent with stage, volume, and/or flow-based restoration targets by treating and delivering water from Lake Okeechobee, water detained by CEPP components, or a combination of both and by providing temporary storage for releases from Lake Okeechobee to reduce the harmful effects of flood control releases on the St. Lucie and Caloosahatchee Estuaries.

It should be recognized that most of the EAA flood control discharge that is currently passed to the WCAs is an important part of the water budget of those areas. Additionally, some regulatory releases from Lake Okeechobee to the WCAs are also beneficial to the WCAs, provided that the regulatory releases have water quality treatment sufficient to maintain compliance with both the legal and restoration goals. However, there are times when the stages in the WCAs are higher than restoration targets. During those times, the runoff and regulatory releases to the WCAs can exacerbate both short and long term impacts due to high stages. The combined FEB system provides approximately 116,000 ac-ft of effective detention volume to attenuate EAA runoff flows and lake water, rather than sending the water to the WCAs when they are not ready to receive additional water. The combined FEB may be filled and emptied multiple times throughout the year in order to handle flows to the STAs. As a general operational strategy, the combined FEB would be operated to attenuate flows during the wet season and carry over water from September and October into the dry season when the release to the WCAs would be beneficial or cause less harm.

7.1 ACHIEVING NATURAL SYSTEM GOALS, OBJECTIVES, AND BENEFITS WITH CEPP

By changing the annual distribution cycle of releases, the WCAs and ENP would be able to receive, on average, an annual increase of over 210,000 ac-ft more water than under current operating regimes. Many components of CEPP, such as the increased hydrologic connectivity between WCA-3A and WCA-3B, are designed to provide an improved distribution of surface and groundwater flows such that improved hydration can occur in the central and southern wetland systems. The seepage management components are designed to reduce the loss of fresh water from the eastern area of ENP while maintaining pre-project levels of service for water supply and flood protection for the Lower East Coast. As the designs are finalized for each component, the operational specifics will be identified. For example, currently the improvements to the L-5 canal and associated water control structures would be operated to deliver up to 500 cfs from STA-2/L-6 to S-8 when capacity within the L-5 Canal is available and diverting water away from WCA-2 is desirable.

7.1.1 Lake Okeechobee Operations

Lake Okeechobee is currently operated in accordance with the 2008 LORS and the 2008 Lake Okeechobee and EAA Water Control Plan. CEPP benefits gained from sending new water south from Lake Okeechobee are derived in part from operational refinements that can take place within the existing, inherent flexibility of the 2008 LORS, and in part with refinements that are beyond the schedule's current flexibility. Modifications to 2008 LORS will be required to optimally utilize the added storage capacity of the A-2 FEB to send the full 210,000 ac-ft/yr of new water available in CEPP south to the Everglades, while maintaining compliance with Savings Clause requirements for water supply and

flood control performance levels. These changes are part of the final operational assumptions within the modeling completed for the CEPP recommended plan.

Independent of CEPP implementation, there is an expectation that revisions to the 2008 LORS will be needed following the implementation of other CERP projects and Herbert Hoover Dike infrastructure remediation. The USACE expects to operate under the 2008 LORS until there is a need for revisions due to the earlier of either of the following actions: (1) system-wide operating plan updates to accommodate CERP "Band 1" projects, or (2) completion of sufficient HHD remediation for reaches 1, 2 and 3 and associated culvert improvements. When HHD remediation is completed and the HHD DSAC Level 1 rating is lowered, higher maximum lake stages and increased frequency and duration of high lake stages may be possible to provide the additional storage capacity assumed with the CEPP Recommended Plan. The future Lake Okeechobee Regulation Schedule which may be developed in response to actions (1) and/or (2) is unknown at this time. It is anticipated that the need for modifications to the 2008 LORS will be initially triggered by non-CEPP actions and that these actions will occur earlier than implementation of CEPP. Therefore, the CEPP PIR, including the POM, will not be the mechanism to propose or conduct the required NEPA evaluation of modifications to the Lake Okeechobee Regulation Schedule. In balancing the multiple project purposes, USACE, will timely shift from the interim 2008 LORS to a new schedule with the intent to complete any necessary schedule modification or deviations concurrent with the completion of (1) or (2). However, depending on the ultimate outcome of these future Lake Okeechobee Regulation Schedule revisions, including the level of inherent operational flexibility provided with these revisions, CEPP implementation may still require further Lake Okeechobee Regulation Schedule revisions to optimize system-wide performance and ensure compliance with Savings Clause requirements. CERP envisioned that changes to system operations may be required as groups of restoration components come on line and that updates to the system operating manual may be required at certain intervals of overall CERP implementation. The CEPP is composed of increments of project components that were identified in the CERP.

The hydrologic modeling conducted for all CEPP alternatives to optimize system-wide performance incorporated the current Regulation Schedule management bands of the 2008 LORS. The hydrologic modeling of the CEPP alternatives included proposed revisions to the 2008 LORS flow chart guidance of maximum allowable discharges, which are dependent on the following criteria:

- Class limits for Lake Okeechobee inflow and climate forecasts, including tributary hydrologic conditions, seasonal climate outlook, and multi-seasonal climate outlook
- Stage level, as delineated by the Regulation Schedule management bands
- Stage trends (whether water levels are receding or ascending)

Most of the 2008 LORS refinements applied in the CEPP modeling lie within the bounds of the operational limits and flexibility available in the current 2008 LORS, with the exception of the adjustments made to the class limits for the Lake Okeechobee inflow and climate forecasts. Under some hydrologic conditions, the class limit adjustments made to the Lake Okeechobee inflow and climate forecasts reduced the magnitude of allowable discharges from the Lake, thereby resulting in storage of additional water in the Lake in order to optimize system-wide performance and ensure compliance with Savings Clause requirements. However, these class limit changes represent a change in the flow chart guidance that extends beyond the inherent flexibility in the current 2008 LORS. As described in Section 4.9, the CEPP recommended plan operations also expand on the 2008 LORS backflow operations to Lake Okeechobee through the following operational changes: (1) backflow to Lake Okeechobee from the C-44 Canal is allowed when S-308 is not open for regulatory discharge and

the stage in Lake Okeechobee is below 14.5-feet NGVD (no seasonal variability); and (2) discharges from the IRL-S project C-44 Reservoir to the C-44 Canal are made when the stage in Lake Okeechobee is below the baseflow zone of the 2008 LORS schedule to provide an additional source of backflow water to Lake Okeechobee. Additional information and summary documentation of these assumptions can be found in Section A.8.3.2.3.3 of the CEPP PIR Engineering Appendix (Appendix A).

As a general guideline, the following figure, Figure 7-1, displays the Lake Okeechobee stage ranges assumed for the CEPP recommended plan hydrologic modeling in which a basic decision was made as to when to deliver water from the lake to either the STAs and/or the combined CEPP FEB in the Regional Simulation Model for Basins (RSMBN). The net result of utilizing these criteria is the revised seasonal distribution of southward flows, as shown in Figure 7-2. In addition, the frequency of harmful peak discharges into the estuaries would be reduced with these CEPP revisions.

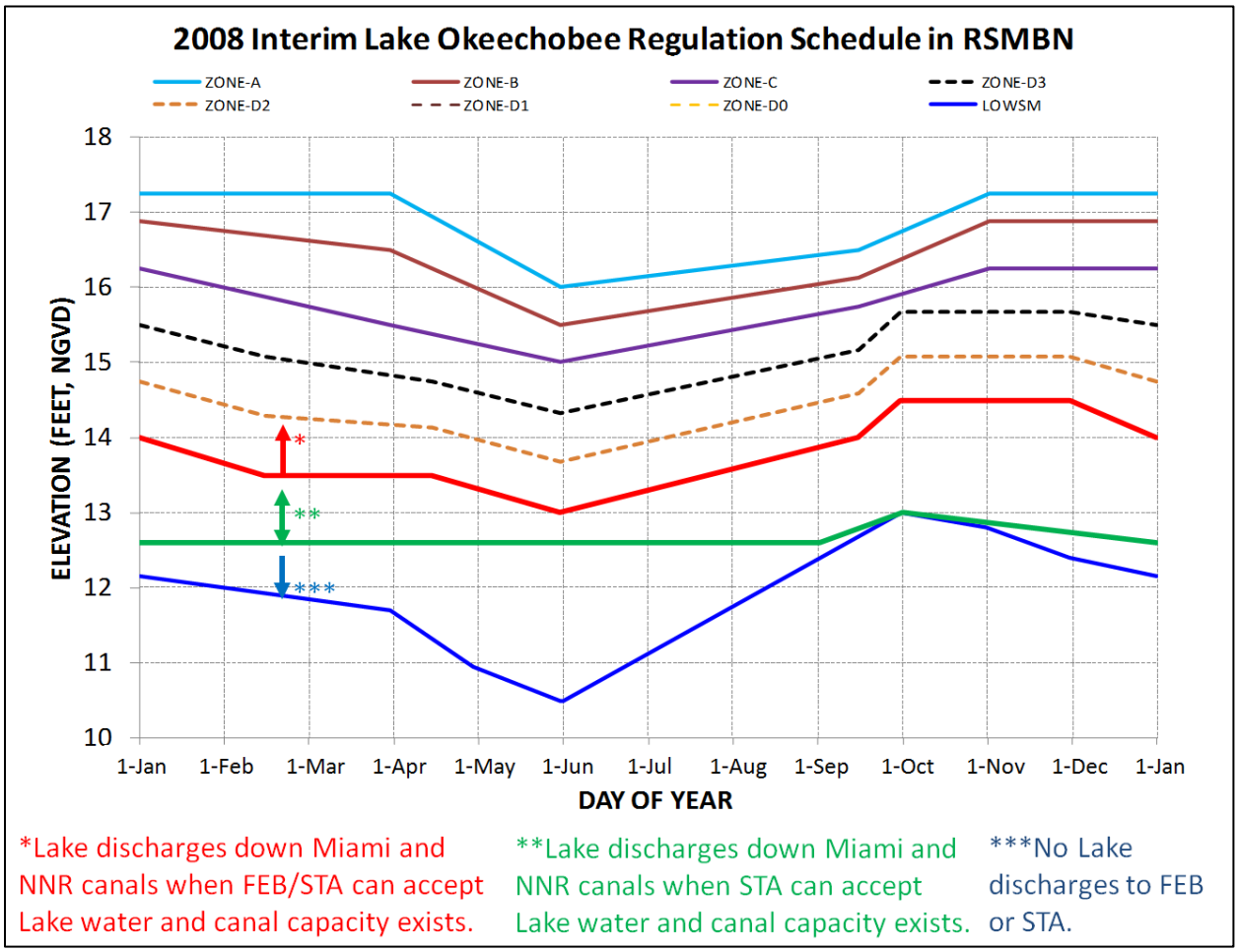

Figure 7-1 2008 Interim Lake Okeechobee Regulation Schedule in RSMBN

The proposed operational protocols for release of water from Lake Okeechobee provide for an increase in the dry season releases southward without significant increases in the wet season discharges when the WCA stages may be too high. The following figure of average annual monthly simulated releases southward, Figure 7-2, shows the considerable increase in the dry season releases southward without significant increases in wet season discharges.

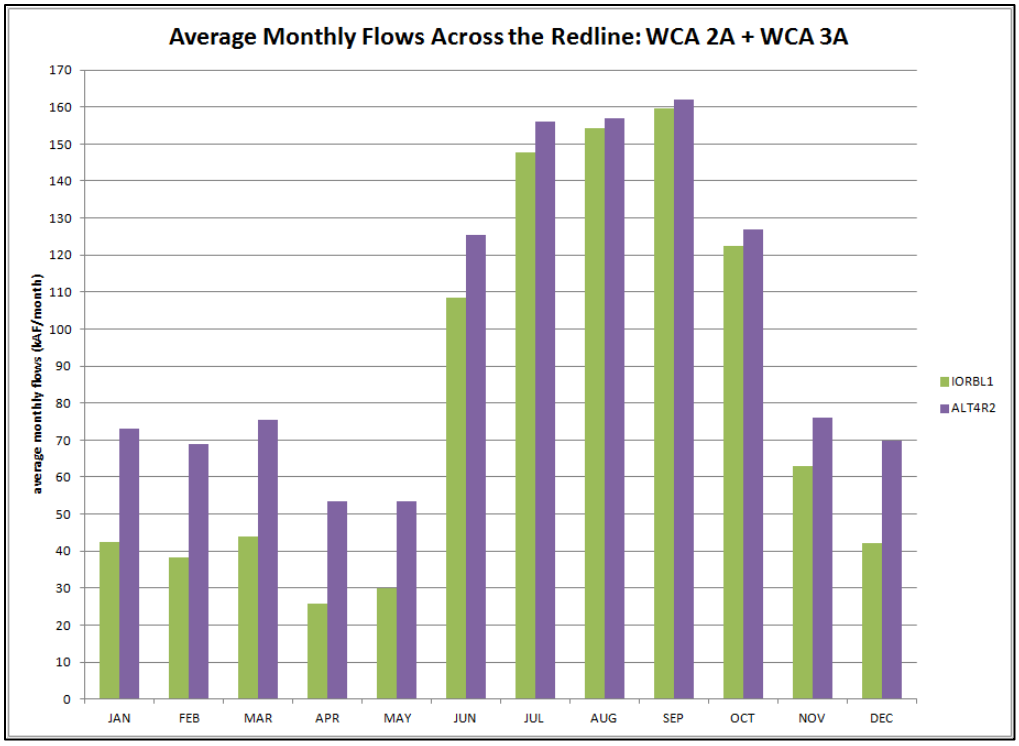

Figure 7-2 Average Monthly Flow Across the Redline: WCA 2A + WCA 3A

7.1.2 FEB Operations

The A-1 FEB is a component of the future without condition. Upon the A-2 FEB's completion, the A-2 FEB will be operated in conjunction with the A-1 FEB and STAs. After completion of the A-1 FEB prior to CEPP implementation, significant experience with the physical operational capabilities are expected to yield better guidelines for long-term operations. As additional design details are developed during the PED phase, the operational criteria for the A-2 FEB, including the integrated relationship with A-1 FEB operations, will become more refined. Based on the results of the initial optimization for the CEPP hydrologic modeling, the FEBs may be operated as follows:

- FEB accepts EAA runoff when the FEB depth is below 3.8 feet
- FEB accepts Lake Okeechobee water when the FEB depth is below 2.0 feet
- FEB continually discharges via gravity constrained by the ability of the emergent marsh to convey water to outflow works. (note that the discharge capability is a non-linear function with actual flow rates being significantly reduced as the depth of water in the FEB declines)
- FEB discharges discontinued when FEB depth is below 0.5 feet
- No supplemental water supply is provided to the FEB to prevent dryout

Initial operations of the FEBs would be closely monitored from the standpoint of levee and structural stability, especially during the initial filling operations. In addition, the quality of the water discharged from the FEBs would be monitored to ensure compatibility with the inflow assumptions and discharge requirements for both STA-3/4 and STA-2. Operational decisions on the amount of FEB discharges sent to STA-3/4 and STA-2 would consider the vegetative health of the receiving treatment cells as well as their maximum monthly and annual limitations. These decisions would consider the necessity for

protection of the combined FEB and the STAs from harmful over loadings, damaging flows, and detrimentally high water (combination of depth and duration).

7.1.3 WCA Operations

The current water management operations for the WCAs, ENP, and ENP-SDCS can be found in the corresponding 2012 WCAs, ENP, and ENP-SDCS Water Control Plan. Table 1, Table 2, and Table 3 collectively contain the current operating criteria for the existing structures and the current applicable WCA Interim Regulation Schedules, which were included in the modeling assumptions for the future without project condition. The information contained in the below tables represent this current information for the existing structures in each corresponding area WCA-3A, WCA-3B, and the SDCS. Proposed operating criteria for the proposed CEPP features are also listed in Table 4.

Table 1: Operating Criteria for Existing Structures Related to WCA-3A

Structure	Type	Design HW Stage (ft., NGVD)	Design TW Stage (ft., NGVD)	Optimum Stage (ft., NGVD)	Design Capacity (cfs)
S-8	Pump Station	12.0	16.5	10.0 - 12.5	4170
	Gated Box Culvert	12.0	11.9	10.0 - 12.5	500
S-9	Pump Station	4.0	14.4	3.0 - 4.0	2880
S-9A	Pump Station	3.0	10.5	3.0 - 4.0	500
S-11A	Gated Spillway	15.6	14.6	Reg. Sch. in WCA-2A	5570
S-11B	Gated Spillway	15.6	14.6	Reg. Sch. in WCA-2A	5570
S-11C	Gated Spillway	15.6	14.6	Reg. Sch. in WCA-3A	5570
S-12A	Gated Spillway	12.4	11.9	Reg. Sch. in WCA-3A	8000
S-12B	Gated Spillway	12.4	11.9	Reg. Sch. in WCA-3A	8000
S-12C	Gated Spillway	12.4	11.9	Reg. Sch. in WCA-3A	8000
S-12D	Gated Spillway	12.4	11.9	Reg. Sch. in WCA-3A	8000
S-140	Pump Station	10.5	14.6	10.5	1300
	Gated Box Culvert	10.5	10.3	10.5	300
S-142	Gated Culvert	11.0	9.0		500
S-150	Gated Culvert	11.0	10.0	Not used to control stage	1000
S-151	Gated Culvert	7.5	6.4	Reg. Sch. in WCA-3A	1105
S-333	Gated Spillway	7.5	7.0	Reg. Sch. in WCA-3A	1350
S-339	Gated Sheetpile Barrier Dam	11.0	10.8	HW = 11.0	1100
S-340	Gated Sheetpile Barrier Dam	9.3	9.1	HW = 9.3	1100
S-343A	Gated Culvert	9.5	9.3		195
S-343B	Gated Culvert	9.5	9.3	Reg. Sch. in WCA-3A	195
S-344	Gated Culvert	9.9	9.7	Reg. Sch. in WCA-3A	135
G-64	Gated Culvert				
G-123	Pump Station	20.0	12.0		400
G-155	Sheetpile Weir with Stoplogs	14.5	14.0		890

The preceding table presents the original "design discharge" values but may not reflect actual performance. For example, the performance in the field of the S-12s has been affected by vegetative resistance which limits their effective capacity.

Table 2: Operating Criteria for Existing Structures Related to WCA-3B

Structure	Type	Design HW Stage (ft., NGVD)	Design TW Stage (ft., NGVD)	Optimum Stage (ft., NGVD)	Design Capacity (cfs)
S-9XS	Culvert with Riser and Stoplogs			HW = 6.0	
S-30	Gated Culvert				560
S-31	Gated Culvert	6.0		Reg. Sch. in WCA-3B	700
S-32	Gated Culvert	2.5	1.6	HW = 2.0	
S-32A	Gated Culvert				
S-151	Gated Culvert	7.5	6.4	Reg. Sch. in WCA-3A	1105
S-335	Gated Spillway	5.0	4.8		525
S-337	Gated Culvert	5.5	5.2		605

Table 3: South Dade Conveyance System Design Flows and Stages

Location	Upstream or Downstream	Stage (ft., NGVD)	Design Capacity (cfs)
L-29 @ S-333		7.0	1350
L-29 @ S-334		5.0	1230
L-30 @ S-337		5.2	605
L-30 @ S-335	Upstream	5.0	525
	Downstream	4.8	525
L-30 @ L-29 or L-31N		4.7	500
L-31N @ US41		4.7	1585
L-31N @ C-1	Upstream	3.5	1490
	Downstream	3.5	1185
L-31N @ S-331	Upstream	3.0	1160
	Downstream	6.0	1160
L-31N @ C-102	Upstream	5.4	1115
	Downstream	5.4	855
L-31N @ C-103	Upstream	4.7	740
	Downstream	4.7	530
L-31N @ S-174	Upstream	4.6	485
	Downstream	3.1	210
L-31N @ S-176	Upstream	4.6	275
C-111 @ S-176	Downstream	3.0	275
C-111 @ C-113	Upstream	3.0	275
	Downstream	3.0	135
C-111 @ S-200		3.8	225
C-111 @ S-199		4.0	225
C-111 @ S-177	Upstream	3.0	135
	Downstream	2.0	135
C-111 @ C-111E	Upstream	2.0	97
	Downstream	2.0	97
C-111 @ S-18C	Upstream	2.0	75
	Downstream	1.4	75

Table 4: New Operating Criteria for Proposed and Existing Structures

Structure Number	Wet Season Open/Close (ft., NGVD)	Dry Season Open/Close (ft., NGVD)	Tailwater Limit (ft., NGVD)	Design Capacity (cfs)
S-356	6.0/5.5	6.0/5.8	9.7	1000
S-335	7.6/7.4	7.6/7.4		1170
S-338	5.7/5.5	5.6/5.5		305
G-211	6.0/5.7	5.8/5.5		1100
S-176	5.0/4.75	5.1/4.8		1100
S-357 (Pumps 1 & 2) S-357 (Pumps 3 & 4)	5.2/4.9 5.5/5.2	5.7/5.4 6.0/5.7		250 250
S-177	4.2/3.6	4.2/3.6		2900
S-18C	2.6/2.3	2.6/2.3		3200
S-197	ERTP	ERTP		6000
S-333	ERTP and RDO	ERTP and RDO	9.7	1350

Structure Number	Wet Season Open/Close (ft., NGVD)	Dry Season Open/Close (ft., NGVD)	Tailwater Limit (ft., NGVD)	Design Capacity (cfs)
S-333N	ERTP and RDO	ERTP and RDO	9.7	1150
S-355A	RDO	RDO	9.7	1000
S-355B	RDO	RDO	9.7	1000
S-631	RDO	RDO		500
S-632	RDO	RDO		500
S-633	RDO	RDO		500
S-12s	ERTP and RDO	ERTP and RDO		32000
S-355W	Open when TW is below 7.0		9.7	1230

7.1.4 WCA-2A Distribution and Conveyance Improvements

In addition to the construction and operation of the A-2 FEB, CEPP proposes several new structures to allow for the diversion of water from WCA-2A to WCA-3A via the L-5 and L-6 Canals and S-8. A control structure is proposed to be located at the western terminus of the L-6 Canal (S-620) which would allow for the discharge of up to 500 cfs into the (remnant) east L-5 Canal. The water would be conveyed to a new 500 cfs control structure along the L-5 Canal (S-622) and then west to S-8 for discharge into the northwest corner of WCA-3A. During the CEPP modeling of the final array of alternatives, it became clear that there was the potential to divert too much water away from WCA-2A, to the potential detriment of WCA-2B and the adjacent Lower East Coast areas. Therefore, for the recommended plan, the operations of the "L-6 Diversion" facilities were modeled using limiting constraints based upon a new CEPP Diversion Line concept for WCA-2A (Figure 7-3).

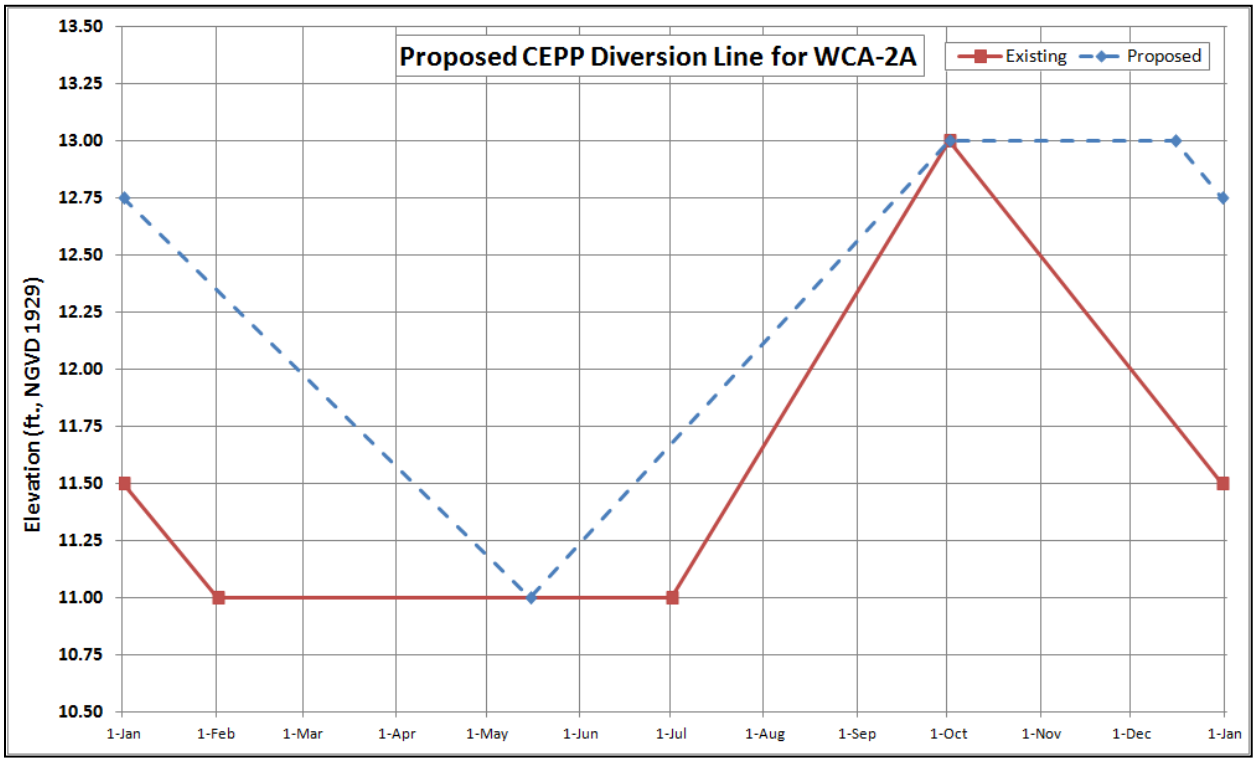

Figure 7-3 Proposed CEPP Diversion Line for WCA-2A

The distribution of outflows from STA-2 was modeled with the following criteria:

- When the WCA-2A stage (measured at either gage 2-17 or S-11B Headwater, per the existing WCA-2A Interim Regulation Schedule) is below the CEPP Diversion Line, the first 2,500 cfs is discharged into WCA-2A and then 20% of higher discharges, if applicable, are discharged toward WCA-3A via L-5 subject to conveyance limitations (up to 3,000 cfs);
- When the WCA-2A stage is above the CEPP Diversion Line, discharge 67% towards WCA-3A via L-5 subject to conveyance limitations.

It is recognized that a revised operation as proposed represents a departure from the existing operational methodology. Day-to-day operations of the system are mostly based on real-time monitoring of stages in canals and at key gauges, but not on determination of instantaneous flows, which are highly uncertain. Translation of the model assumptions to stage-based water management operations will need to consider the feasibility of the above-stated percentages. However, the proposed CEPP criteria were derived from a review of the model output which showed very favorable environmental conditions for both WCA-2A and WCA-2B, and is recommended for consideration for operational criteria under the CEPP initiative. L-6 Diversion operations will be addressed during CEPP implementation of PPA North. NEPA documentation will be updated, if applicable, as revisions are made to Water Control Plans and/or Project Operating Manuals associated with each PPA.

7.1.5 WCA-3A Distribution and Conveyance Improvements

In order to improve habitat conditions in the northwestern portion of WCA-3A, CEPP proposes to remove the western 2.9 miles of the L-4 Levee, install a 360 cfs pump station (S-630) at the terminus of the levee, and modify the Miami Canal downstream of S-8 with a control structure to divert 3,000 cfs into the L-4 Canal while allowing the remaining flow (approximately 1,000 cfs) to continue southward down a shortened Miami Canal. Approximately 14 miles of the Miami Canal would be backfilled between S-8 and I-75. The purpose of these system improvements is to re-distribute flows through the landscape of WCA-3A in order to re-hydrate portions, such as the northwest corner, that have been considerably drier than the habitat restoration goals for northwestern WCA-3A (See Figure 7-4).

Figure 7-4 WCA-3A Distribution and Conveyance Improvements

7.1.6 WCA-3B Distribution and Conveyance Improvements

Two 500 cfs gated structures (S-632 and S-633) would be installed in the L-67A Levee south of the intersection between L-67A and a new north-south levee, designated the Blue Shanty Levee. The Blue Shanty Levee would be an approximately 8.5 mile long north-south levee constructed from the L-67A Levee to the L-29 Levee. The Blue Shanty Levee would become the eastern boundary of a new flowway for water from WCA-3A to the L-29 Canal. In addition, approximately 8 miles of the L-67C Levee would be removed starting at Blue Shanty Levee and proceeding southwest to allow flow through the most of the WCA-3B flowway width. Approximately 4.3 miles of the L-29 Levee would be removed to allow flow out of the southern end of the proposed WCA-3B flowway area.

To provide the capacity for additional inflow into the portion of WCA-3B located east of the Blue Shanty Levee, a 500 cfs gated control structure (S-631) is proposed to be installed in the L-67A Levee north of the intersection of the Blue Shanty Levees intersection with the L-67A Levee. This structure would be located in the L-67A Levee northwest of the center of a 6,000-foot gap in the L-67C Levee (potentially created by expanding the existing 1,000 ft. long gap in L-67C).

CEPP includes the construction of a new step down/divide structure (S-355W) in the L-29 Canal at the southern terminus of the new Blue Shanty Levee, removal of the entire remaining 5.5 miles of the L-67 Extension Levee and backfilling of the adjacent canal, and the removal of the Old Tamiami Trail road from L-67 Extension to the ENP Tram Road. The purpose of these components is restoration of flow directions and quantities in the WCAs and ENP (See Figure 7-5).

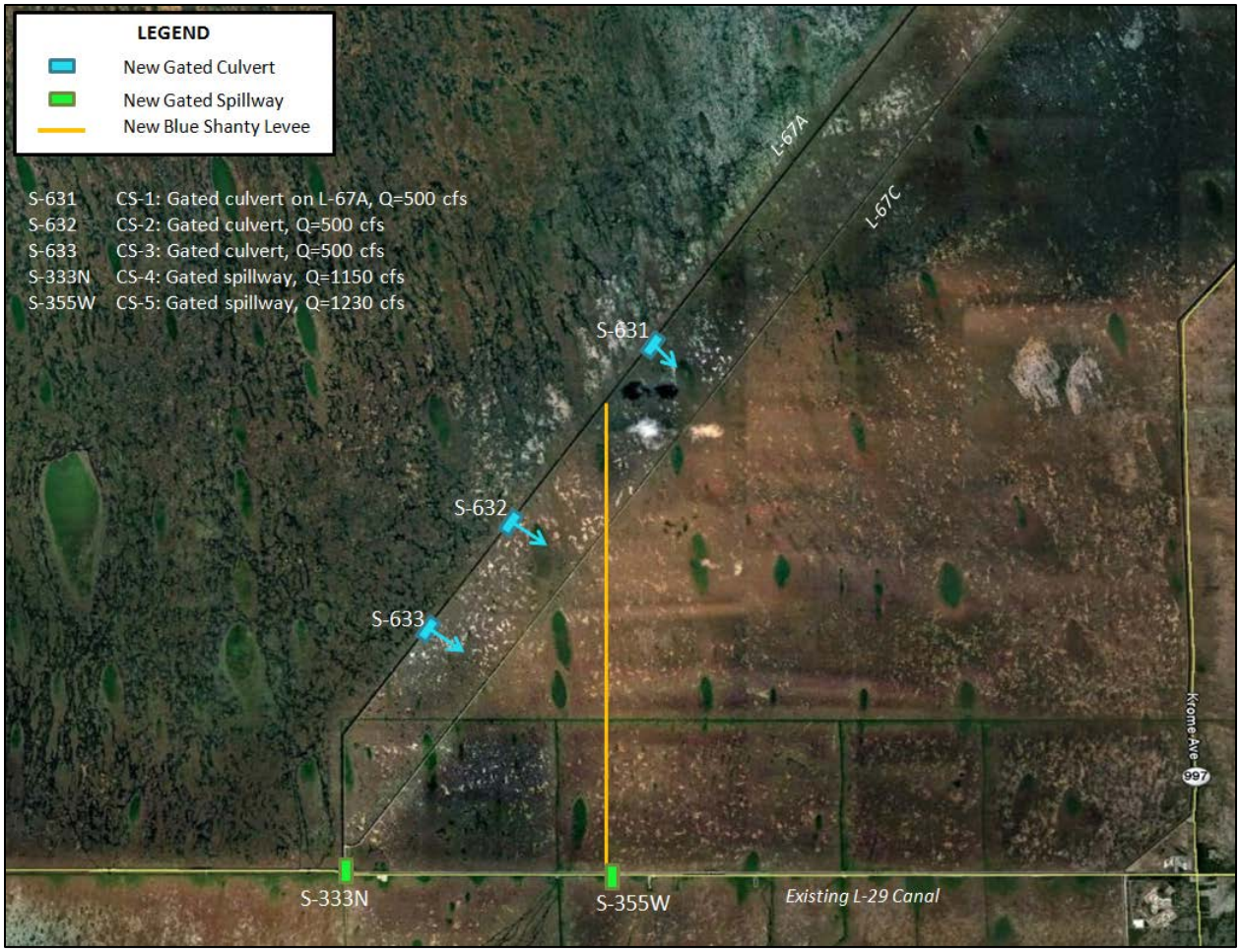

Figure 7-5 WCA-3B Distribution and Conveyance Improvements

7.1.7 Water Conservation Area 3 Operations

WCA-3A outflows are currently operated in accordance with the 2012 Water Conservation Areas, Everglades National Park, ENP-South Dade Conveyance System Water Control Plan. More specifically, WCA-3A outflows adhere to the Rainfall Plan for Everglades National Park (Rainfall Plan). Under CEPP, the Rainfall Plan would be revised but still be comprised of two distinct components: (1) a regulatory component operated in accordance with the 2012 WCA-3A Interim Regulation Schedule, and (2) an environmental rainfall component that consists of Rainfall Driven Operations (RDO).

The RDO is currently conceptual in nature and variables such as the target stages have not yet been developed. Unlike regulation schedule-based operations, the new RDO component would estimate inflows and outflows in response to weekly rainfall and Potential Evapotranspiration (PET), so that the weekly stage at target locations approach the corresponding weekly restoration targets (see Figure 7-6 for the WCA-3A target locations).

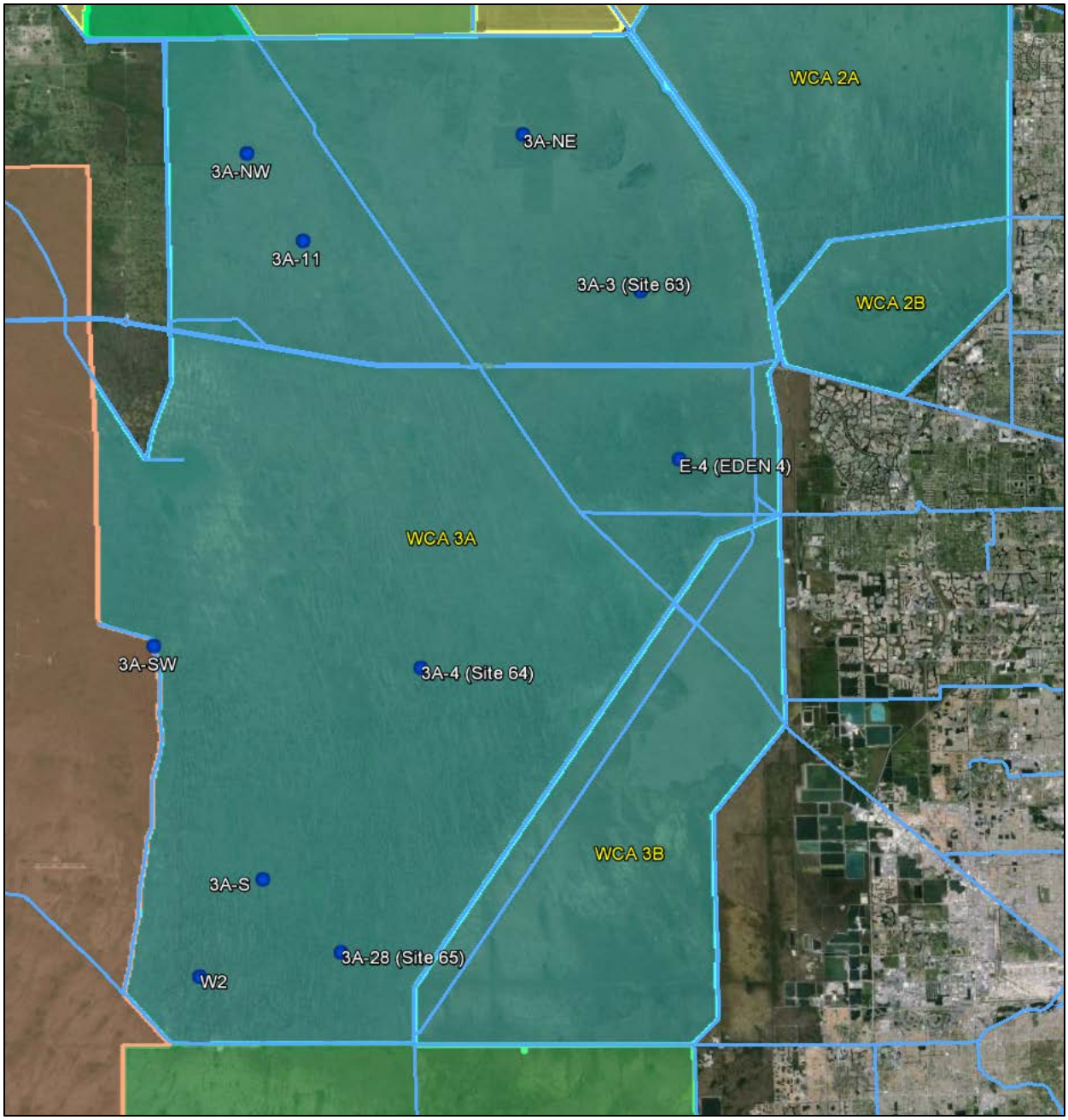

Figure 7-6 WCA-3A Restoration Target Locations

In addition to meeting these targets, the RDO aims at improved recession rates (measured in feet per week) in three range categories: excellent (0.03 to 0.06), acceptable (0 to 0.03 and 0.06 to 0.10) and unacceptable (> 0.10). The recession rate would be calculated as the difference between the current stage and the previous week's stage. The WCA-3A stage would be calculated as the average of three locations: 3A4, 3A28 and 3A3. The WCA-3A RDO would employ a mechanism that resists the stage going into Zone A of the WCA-3A Interim Regulation Schedule. As part of a system-wide optimization, the WCA-3A RDO would be constrained with the amount and timing of inflows upstream, and the restoration targets and constraints in WCA-3B and the ENP (these have not yet been developed for WCA-3B or ENP).

It is recognized that transitioning to RDO would likely be a lengthy and complex process for the USACE, but a necessary step to achieve the proposed restoration objectives within WCA-3A and ENP. The process for making this transition has not yet been developed, but it is envisioned for RDO to be phased in gradually as CEPP components become operational. RDO operations may also be considered by the USACE during future operational planning studies prior to CEPP, as appropriate. Initially, system operations would be conducted under the current Rainfall Plan, with modeling and testing of RDO to occur alongside the Rainfall Plan; development and limited testing of RDO modeling tools should be initiated prior to this operational testing period. When RDO has been developed and approved for use, the Corps will fully implement it.

Based on the modeling of the recommended plan, the flow targets for deliveries through WCA-3B would be distributed as 40% through S-631, 35% through S-632, and 25% through S-633. Discharges from WCA-3A would primarily be made through these structures and secondarily through the S-12 structures, depending upon operational constraints and the overall hydrologic conditions in ENP, WCA-3A and WCA-3B.

7.1.8 Everglades National Park Seepage Management

CEPP proposes to replace the 500 cfs temporary S-356 pump station with a permanent 1,000 cfs pump station and to install a 4.2 mile seepage cutoff wall along the L-31N Levee south of Tamiami Trail. The combined effect of the seepage barrier and the seepage return pump(s) such as S-356 should be able to concurrently handle the discharges from S-335 and the seepage into L-31N (from S-335 to G-211) without requiring discharges to tide through S-338 via the C-1 Canal. Consistent with the conclusions identified during the CEPP formulation and hydrologic modeling efforts, it is anticipated that these improvements can make a significant difference in the preservation of the seepage waters in and adjacent to ENP. In addition, during the years when additional water is delivered or carried over from the wet season, there is the opportunity to provide some additional water to the coastal wetland systems. This can be done by either releasing water directly to tide or using the available water to maintain the coastal canals higher but not above the top of the normal operating range for the conditions and time of year. Figure 7-7 shows the locations of the features along Tamiami Trail and L-31N.

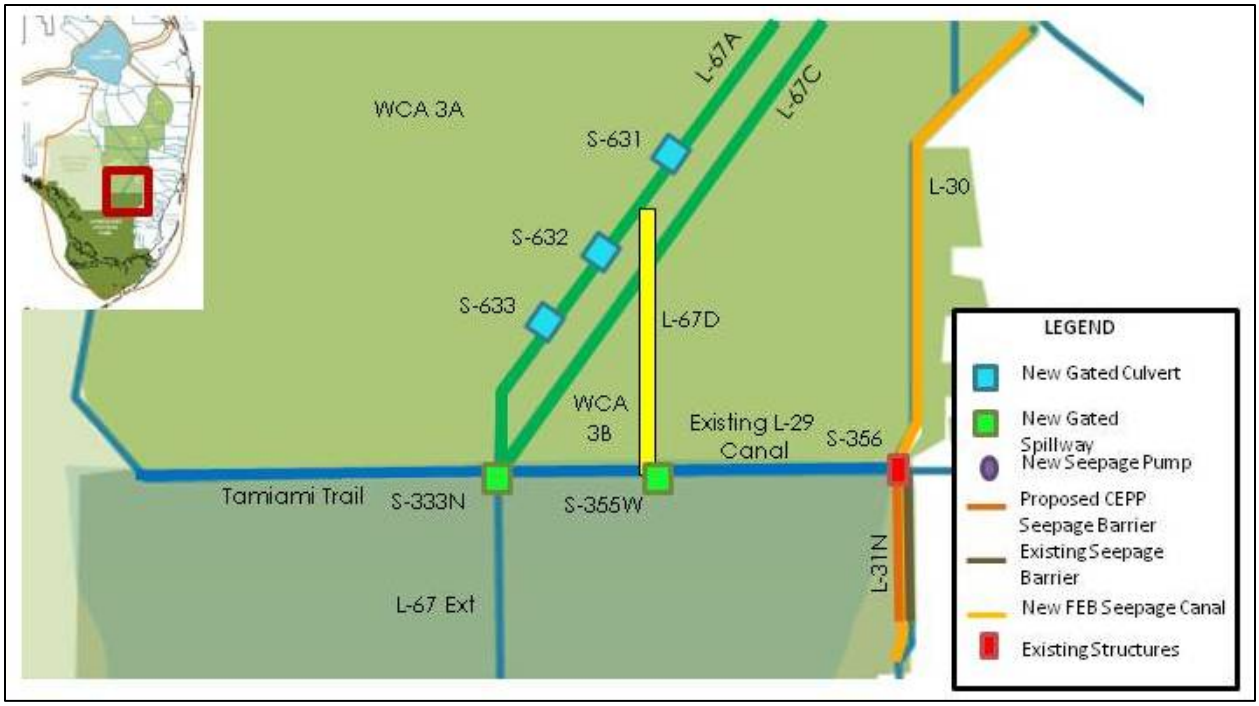

Figure 7-7 Lower WCA-3, Upper ENP, and L-31N

7.2 FLOOD DAMAGE REDUCTION

The revised operational protocols for southward releases from Lake Okeechobee to the FEBs and STAs will be designed to ensure that the stages and flows through the EAA do not reduce the level of flood control and operating details will be developed to ensure that water supply is not adversely affected. Since the SFWMD monitors on a real-time basis all hydrologic and hydraulic parameters within the EAA area, it is reasonable to expect that the existing levels of service for flood protection will be improved or unchanged with effective utilization of CEPP. Additional discussion of CEPP Savings Clause compliance is provided in Annex B of the CEPP PIR.

7.2.1 Normal and Emergency Operations

All criteria previously established for normal water management operations would continue under CEPP. Additional system components constructed as part of CEPP would use operational criteria contained in this document. Refinements to the DPOM will occur throughout the life of the project.

7.2.2 Hurricane or Tropical Storm Operations

All system components with primary flood control requirements would follow the pre-storm protocols for the C&SF System.

7.3 WATER QUALITY

Planning Letter 92-500 requires that all Federal facilities be managed, operated, and maintained to protect and enhance the quality of water and land resources through the conformance with applicable Federal, State, Interstate and local substantive standards.

The WQBEL is a numeric discharge limit applied to permitted discharges from EAA STAs, including STA-2 and STA-3/4, to assure that such discharges do not cause or contribute to exceedances of the 10 micrograms per liter (µg/L) TP criterion within the Everglades Protection Area. The WQBEL was

developed to allow for expected year-to-year variability in the STA discharge TP concentration, as observed at the marsh reference sites used to develop the TP criterion, while attaining the long-term TP criterion. The WQBEL must be met for existing flows prior to initiating additional flows as a result of CEPP. Furthermore, the WQBEL will also need to be met when operating the recommended CEPP project features.

Implementation of the recommended CEPP project features is likely to improve water column TP concentrations within most areas of WCA-3 primarily because of state owned water quality treatment features, additional storage from the A-2 FEB and redistribution of flows into the northwestern corner of WCA-3A. Over the long-term it is uncertain, but unlikely that the project will adversely affect WCA-3 however there may be temporally and spatially limited impacts to TP conditions within the marsh until more consistent hydroperiods are established.

The Corps and its federal and state partners recognize that to achieve long-term hydrologic improvement, water quality may be impacted, particularly as measured by the current Consent Decree Appendix A compliance methodology. The limitation of predictive tools, uncertainties in the systems response and the lack of historic data that reflects the significantly altered flow and loading patterns contribute to this recognition. As a result, the Technical Oversight Committee (TOC) is reviewing applicability of the current Appendix A compliance methodology for a restored ecosystem. Notwithstanding the inability to confidently predict future SRS inflow concentrations, SRS TP concentrations are expected to improve relative to both the ECB and FWO conditions.

Given the magnitude of the hydrologic changes proposed in the recommended CEPP project features, this project presents minimal risk of future non-compliance with water quality criteria as discussed in Annex F Phosphorus Assessment for WCA-3 and ENP. With an extended implementation schedule and initial construction efforts that focus on features with positive water quality impacts there will be sufficient time to evaluate and address potential water quality concerns before the additional CEPP flows are delivered through the system. As the CEPP proceeds and data from individual project sequencing is gathered, these data are expected to feed back into the CEPP adaptive management plan. Integration of adaptive management/operations/monitoring into the CEPP will help provide reasonable assurance associated with water quality issues and uncertainties. Ideally, adaptive management will be applied iteratively throughout the sequence phasing of the CEPP to address issues early and allow for lessons learned to be applied for future phases. Commitment to adaptive management is key to moving this restoration project forward with the uncertainties associated with water quality.

An Adaptive Operations and Management Plan (AOMP) for the A-1 FEB that is required to be developed by SFWMD will likely provide information that is relevant to the future adaptive management/operations/monitoring of CEPP, and more specifically the combined FEB. The A-1 FEB AOMP will document the operational strategies to be implemented and evaluated during the Operational Testing and Monitoring Phase (OTMP) and will document all relevant monitoring that is needed to conduct an evaluation. The OTMP is intended to allow testing of a variety of sub-regional and project-specific A-1 FEB operational scenarios that are integrated with STA-2 and STA-3/4 operations.

7.4 WATER SUPPLY OPERATIONS

The operation of CEPP components will take into account the existing water supply criteria and would be developed to ensure that water supply is not adversely affected. Additional discussion of CEPP Savings Clause compliance is provided in Annex B of the CEPP PIR.

7.5 RECREATION

Additional recreational opportunities are a benefit of CEPP. There are abundant recreational facilities within the project area, both private and public; however, no specific water control regulations are required for this purpose. Water levels are not specifically managed for recreation, although levels may affect recreation facilities. For example, boat launching ramps, pleasure craft, sightseeing vessels, and bank and small boat fishing may all influenced by water levels. Regulations concerning USACE public use areas are contained in other publications.

7.6 FISH AND WILDLIFE

The design of CEPP components are such that hydrologic conditions would be established that significantly benefit fish and wildlife through improvements in the types and diversity of habitats, including estuaries.

8.0 NAVIGATION

There are no authorized project features for navigation within the WCAs. There is significant recreational boating in the WCAs and associated C&SF Project canals. The minimum stages for the conservation pools in the WCAs help reduce adverse impacts on recreational boating during drought periods.

9.0 OTHER

There is currently no further information for this section.

10.0 PRE-STORM/STORM OPERATIONS

The hurricane season is from 1 June through 30 November. In the event of a tropical depression(s), tropical storm(s), and/or hurricane(s) in the Atlantic/Caribbean Basin or Gulf of Mexico, the National Hurricane Center issues products including tropical cyclone public advisories, forecast advisories, forecast discussions, warnings and strike probability forecasts. The SFWMD meteorologists and the SFWMD Emergency Operations Center (EOC) also provide specific advisories for different regions of SFWMD. Pre-storm canal drawdowns may be initiated up to 72 hours in advance of a severe storm event based upon such forecasts, prevalent conditions within the project area, and/or emergency operations directive(s) by the SFWMD EOC. Any drawdowns would be consistent with SFWMD emergency operations procedures. Pre-storm drawdowns would be dependent on the severity of the storm, amount of predicted rainfall and antecedent moisture condition in the watershed.

11.0 CONSISTENCY WITH THE IDENTIFICATION OF WATER AND RESERVATIONS OR ALLOCATIONS FOR THE NATURAL SYSTEM

The Programmatic Regulations [Section 385.28(a)(6)(vi)] for CERP require that the operating manual be consistent with the reservation or allocation of water for the natural system made by the State (in accordance with section 601 of WRDA 2000). The operating criteria within this CEPP DPOM are consistent with the operating criteria used to identify the water available for the natural system during wet, average, and dry periods as described in the Project Assurances section of the PIR. The operating criteria contained in this DPOM will be in accordance with section 601 of WRDA 2000. The operating criteria may be further refined during detailed design and captured in the Preliminary POM phase. These refinements would also need to be consistent with any reservation or allocation of water for the

natural system. Additional discussion of the CEPP Assurances analyses is provided in Annex B of the CEPP PIR.

12.0 CONSISTENCY WITH SAVINGS CLAUSE AND STATE ASSURANCES PROVISION

In accordance with Water Resources Development Act (WRDA) 2000, CERP projects may not eliminate or transfer existing (as of December 2000) legal sources of water until a new source of water of comparable quantity and quality is available to replace the water lost as a result of project implementation. The implementation of CEPP would not preclude operation of the C&SF Project to deliver water from Lake Okeechobee to meet agricultural water supply needs or to the WCAs and ENP to meet environmental demands for water supply in those areas. Therefore, no additional sources of water need to be identified since Lake Okeechobee would continue to provide water to agricultural users and the WCAs and ENP. An explanation of the modeling performed and the results of the evaluation can be found in Section 5 of the PIR Main Report and Annex B.

CEPP is composed of features which can be grouped into implementation phases. The USACE and the SFWMD will undertake updated project assurances and Savings Clause analyses for the implementation phases that are selected to be included in a Project Partnership Agreement (PPA) or amendment thereto prior to entering into the PPA or PPA amendment. The USACE District Engineer will ensure that Project-Specific Assurances and Savings Clause requirements are met per PPA, per applicable policies and laws. NEPA documentation will be updated, if applicable, as revisions are made to Water Control Plans and/or Project Operating Manuals associated with each PPA. Compliance with the requirements of the Savings Clause will be maintained throughout the entirety of the CEPP implementation period.

13.0 DROUGHT CONTINGENCY PLAN

Drought contingency plans are regulated by ER 1110-2-1941. There is no drought contingency plan in place for the FEB. No additional water would be provided to the FEB to prevent dry-out conditions. There is no minimum water depth in the FEB.

The current drought contingency plan in place for the WCAs, ENP, and ENP-South Dade Conveyance System is located in the *C&SF Project Master Water Control Manual, Volume 4*, Appendix B.

14.0 FLOOD EMERGENCY ACTION PLAN

At this time, a Flood Emergency Action Plan has yet to be determined.

15.0 DEVIATION FROM NORMAL OPERATING CRITERIA

The USACE District Commander is occasionally requested by the non-Federal sponsor to approve deviations from normal operating criteria. Prior approval for a deviation is required from USACE-South Atlantic Division (SAD) except as noted in Section 15.1 below. Deviation requests usually fall into the following categories:

15.1 EMERGENCIES

Examples of emergencies that may result in a need to deviate from normal operating criteria include: drowning and other accidents; failure of the operation facilities; chemical spills; treatment plant failures; and other temporary pollution problems. Water control actions necessary to abate the problem should

be implemented immediately unless such action would create equal or worse conditions. SAD must be informed of the problem and the emergency operating changes as soon as practicable. In addition, the non-Federal sponsor, the State of Florida (FDEP and SFWMD), should be informed.

15.2 UNPLANNED MINOR DEVIATIONS

There are unplanned instances that create a temporary need for minor deviations from the normal operating criteria, although these deviations are not considered emergencies. Construction accounts for the major portion of these incidents requiring minor deviations. Examples of activities that may require short-term deviations include construction of utility stream/canal crossings and bridge work. Deviations are also sometimes necessary to carry out maintenance and inspection of facilities. Requests for changes in release rates generally involve time periods ranging from a few hours to a few days. Each request should be analyzed on its own merits. In evaluating the proposed deviation, consideration must be given to upstream watershed conditions, potential flood threat, existing conditions of the reservoir/storage area, and alternative measures that can be taken. In the interest of maintaining good public relations, requests for minor deviations are generally granted, providing that these deviations will not have adverse effects on the ability of the project (or projects) to achieve the authorized purposes. Approval for these minor deviations normally will be obtained from USACE SAD by telephone. Written confirmation explaining the deviation and the cause will be furnished to the SAD water control manager. In addition, the non-Federal sponsor, the State of Florida (FDEP and SFWMD), should be informed.

15.3 PLANNED DEVIATIONS

Each circumstance should be analyzed on its own merits. Sufficient data on flood potential, lake and watershed conditions, possible alternative measures, benefits to be expected, and probable effects on other authorized and useful purposes, together with the USACE district recommendation, will be presented by memorandum, facsimile, or electronic mail to the USACE-SAD for review and approval. In addition, the non-Federal sponsor, the State of Florida (FDEP and SFWMD), should be consulted as part of the process of receiving approval from SAD for the deviation.

16.0 SEEPAGE CONTROL

16.1 A-2 FEB SEEPAGE CONTROL

The total linear length of seepage canal around the FEB area is approximately 14 miles, around the northern, eastern, and western perimeter of the A-2 FEB. This length includes the conservative assumption that the A-1 FEB western perimeter levee will not be integrated into the A-2 FEB design. A seepage return pump (S-626) with a capacity of 500 cfs would be required to deliver seepage back into the C-625W FEB outflow canal (See Figure 3-8 for map detailing the above information).

16.2 SEEPAGE BARRIER SOUTH OF TAMIAMI TRAIL

A 4.2 mile long, 35 foot deep seepage barrier wall has been identified as a necessary component to mitigate for seepage effects. It would be constructed along the L-31N Levee, just south of Tamiami Trail.

17.0 INITIAL FLOW EQUALIZATION BASIN FILLING PLAN

At this time, detailed information on the FEB initial filling plan has yet to be determined. This plan would be developed as part of the operational testing and monitoring phase.

18.0 NON-TYPICAL OPERATIONS FOR FLOW EQUALIZATION BASIN PERFORMANCE

There are no unforeseen non-typical operations that have been identified in the PIR Phase. This section would be updated in the future if necessary, as non-typical operations may apply during periods of extreme drought or rainfall. During drought conditions, for example, it may be necessary to pump water more often at lower rates or to release water more slowly from the A-2 FEB.

19.0 WATER CONTROL DATA ACQUISITION SYSTEM PLAN (WCDASP)

This WCDASP discusses data acquisition essential to the water control management function. This would be a subset of the Water Control Data System (WCDS) specific to CERP.

Some of the pump stations and gates located within the project area will be equipped with automation components. All of the automation components which are to be operated and maintained by the SFWMD will conform to SFWMD standards of water control data acquisition. Water control data acquisition for operation of the pump stations will be performed via a real time telemetry system known as Supervisory Control and Data Acquisition (SCADA). The communications for the pump stations will be through either microwave communication towers or through SFWMD's Loggernet telemetry network.

During critical storm events such as tropical storms and hurricanes, the operation of the pump stations will follow the guidelines of SFWMD's Emergency Preparedness Manual - Suggested Hurricane Operating Procedures.

The stage recorders to be installed will be incorporated into the SFWMD real time data acquisition network. Stage data from these sites and flow data and pump on/off data will be accessible by the SFWMD and the Water Management Section, Jacksonville District, USACE via the present telemetry system and/or Geostationary Operational Environmental Satellite (GOES) telemetry and/or interagency data exchange procedures.

Stage alarms are monitored using the SCADA system in the SFWMD Operations Control Center (OCC) in West Palm Beach. Orders for major pump stations are issued as needed by the OCC based on anticipated rainfall and stage trends.

Stage, flow, and any precipitation data for the project will be maintained in SFWMD and USACE databases. The data from the SFWMD operated SCADA system such as stage, flow, and rainfall data will be available on a near real-time basis.

20.0 CONSISTENCY WITH THE ADAPTIVE MANAGEMENT PROGRAM AND PERIODIC CERP UPDATES

After initiation of long-term operations and maintenance of this project, the operating manual may be further modified based on operating criteria approved by the USACE and the SFWMD that results from CERP updates and/or recommendations from the adaptive assessment process as outlined in draft GM #6, Section 6.3.1.

21.0 INTERIM OPERATIONS DURING CONSTRUCTION

At this time, interim operations during construction cannot be determined.

22.0 STRUCTURE DESIGN DATA TABLES

This section will be updated to include the Structure Descriptions, after the structures have been further designed during the PED phase. The descriptions will include each structures respective location, purpose, and technical data.