TECHNICAL DOCUMENT SUPPORTING RULEMAKING TO PROTECT WATER MADE AVAILABLE BY THE LOXAHATCHEE RIVER WATERSHED RESTORATION PROJECT

Draft Report

April 2022

South Florida Water Management District

West Palm Beach, FL

EXECUTIVE SUMMARY

This technical document supports amending the South Florida Water Management District (SFWMD or District) consumptive use permitting criteria to protect water made available by the Loxahatchee River Watershed Restoration Project (LRWRP), a component of the Comprehensive Everglades Restoration Plan (CERP). CERP is the framework to restore the Greater Everglades ecosystem, and the LRWRP aims to improve the quantity, quality, timing, and distribution of water flows to the Northwest Fork of the Loxahatchee River. The LRWRP is also a component of the Northwest Fork of the Loxahatchee River minimum flow and minimum water level (MFL) recovery strategy [Subsection 40E-8.421(6), Florida Administrative Code].

The SFWMD will design and construct the LRWRP as the non-federal sponsor of the project. The United States Army Corps of Engineers (USACE) and SFWMD plan to execute a project partnership agreement by September 2022. Project design is scheduled to begin in 2022, with construction occurring between 2023 and 2029. The operational testing and monitoring periods are expected to end in 2031.

The need to protect water for CERP projects arises from the Water Resources Development Act of 2000 (Public Law 106-541) and Section 373.470(3)(c), Florida Statutes, which require the SFWMD to protect the increase in water for the natural system resulting from a CERP project. The SFWMD fulfills this requirement through the adoption of water reservations, consumptive use permitting criteria, or a combination of the two. Implementation of the LRWRP will not diminish water supplies for existing users, as required by Section 601(h)(5) of the Water Resources Development Act of 2000, titled "Savings Clause".

Specific rule development to protect water made available by the LRWRP involves amending the existing Lower East Coast Regional Water Availability restricted allocation area (RAA) criteria to expand the definition of North Palm Beach County/Loxahatchee River Watershed Waterbodies to include the project components identified in the LRWRP.

The rule development effort will also adopt new rules to protect the groundwater associated with the LRWRP aquifer storage and recovery (ASR) wells. The ASR wells are anticipated to be constructed along the western perimeter of the C-18W Reservoir. However, the final locations of the ASR wells have yet to be determined. To account for this contingency, a conservative distance of 1 mile from the perimeter of the reservoir is proposed to protect the project water stored via ASR wells.

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ACRONYMS, ABBREVIATIONS, AND UNITS OF MEASURE

ac-ft	acre-foot
APPZ	Avon Park permeable zone
ASR	aquifer storage and recovery
bls	below land surface
C&SF Project	Central and Southern Florida Flood Control Project
CERP	Comprehensive Everglades Restoration Plan
cfs	cubic feet per second
District	South Florida Water Management District
F.A.C.	Florida Administrative Code
F.S.	Florida Statutes
FAS	Floridan aquifer system
ft	foot
LRWRP	Loxahatchee River Watershed Restoration Project
MFL	minimum flow and minimum water level
mg/L	milligrams per liter
mgd	million gallons per day
NGVD29	National Geodetic Vertical Datum of 1929
PIR-EIS	Project Implementation Report and Environmental Impact Statement
PPA	project partnership agreement
RAA	restricted allocation area
RM	river mile
SAS	surficial aquifer system
SFWMD	South Florida Water Management District
UFA	Upper Floridan aquifer
USACE	United States Army Corps of Engineers
WRDA	Water Resources Development Act

1 INTRODUCTION

The South Florida Water Management District (SFWMD or District) is a regional government agency charged with safeguarding the water resources in 16 counties, from Orlando to the Florida Keys. With a population of approximately 9 million permanent residents, the District covers 17,930 square miles (31% of the state) and includes vast areas of urban development, agricultural lands, and conservation areas. The SFWMD is responsible for protecting water supplies and supporting water quality improvement in close collaboration with the Florida Department of Environmental Protection and the Florida Department of Agriculture and Consumer Services. The SFWMD also operates and maintains the Central and Southern Florida Flood Control Project (C&SF Project) system. One of the world's largest water management systems, the C&SF Project is an extensive network of canals, levees, water storage areas, pump stations, and other water control structures. The highly engineered system was built through one of the most diverse ecosystems in the world: the interconnected Greater Everglades ecosystem, which the SFWMD is working to restore and protect (SFWMD 2021a).

Located in Martin and Palm Beach counties, the Loxahatchee River is in the northern part of the Everglades ecosystem and flows into the Atlantic Ocean through the Jupiter Inlet. Approximately 7.6 miles of the river's Northwest Fork were designated as Florida's first Wild and Scenic River in 1985. Downstream segments of the Northwest Fork floodplain contain dense red mangrove forest, while the upper segment contains one of the last native cypress river swamps in southeastern Florida. Over the past century, downstream floodplain wetlands once dominated by swamp hardwoods and bald cypress have transitioned to mangrove-dominated swamp. This change in vegetation is believed to have occurred because of saltwater intrusion into freshwater areas of the river, caused primarily by human-induced alteration of the watershed and river. Wetland habitat in the watershed was drained or impacted by agricultural production, urban development, or flood control measures related to the C&SF Project. Hydrologic impacts led to a substantial reduction in the spatial extent and function of wetlands, which reduced freshwater flow to the river. The restoration and protection of the Loxahatchee River and its associated ecosystems have been the focus of several District projects, including the Loxahatchee River Watershed Restoration Project (LRWRP; **Section 1.5**), which is part of the Comprehensive Everglades Restoration Plan (CERP; **Section 1.4**).

1.1 Overview and Purpose

This technical document supports amending the existing Lower East Coast Regional Water Availability restricted allocation area (RAA) criteria [Subsection 3.2.1.E of the *Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District* (Applicant's Handbook); SFWMD 2021b] and adopting new rules to protect groundwater components of the LRWRP. The existing RAA boundaries for the North Palm Beach County/Loxahatchee River Watershed Waterbodies include most, but not all, areas needed to complete the LRWRP. This rulemaking would modify the existing RAA boundary to encompass all necessary surface water components identified in the Final Integrated Project Implementation Report and Environmental Impact Statement (PIR-EIS) for the LRWRP [United States Army Corps of Engineers (USACE) 2020]. Additionally, the LRWRP design includes four aquifer storage and recovery (ASR) wells associated with the C-18W Reservoir. Therefore, new RAA criteria are being developed to protect groundwater associated with those ASR wells (**Section 1.5.1**). This rulemaking effort fulfills the SFWMD's state and federal obligations to protect the water made available by the LRWRP (**Section 2.1.1**).

1.2 Identification of the Existing Restricted Allocation Area

In 2007, an RAA was established for the North Palm Beach County/Loxahatchee River Watershed Waterbodies [part of the Lower East Coast Regional Water Availability criteria, Subsection 3.2.1.E of the Applicant's Handbook (SFWMD 2021b)]. The RAA criteria were adopted to limit increasing demands on Loxahatchee River Watershed and Everglades waterbodies and, in part, to support construction of CERP projects. The existing RAA includes surface waterbodies, such as the City of West Palm Beach Water Catchment Area and Grassy Waters Preserve (collectively referred to as the Water Catchment Area in this document), Pal-Mar property, J.W. Corbett Wildlife Management Area, Loxahatchee Slough Natural Area, Pine Glades Natural Area, Loxahatchee River, Riverbend Park, Dupuis Reserve, Jonathan Dickinson State Park, Kitching Creek, Moonshine Creek, Cypress Creek, and Hobe Grove Ditch (**Figure 1-1**). The RAA also includes the integrated conveyance systems that are hydraulically connected to and receive water from the waterbodies, such as C&SF Project primary canals and the secondary and tertiary canals that receive water from those primary canals. Net increases in volume or changes in timing on a monthly basis of direct surface water and indirect groundwater withdrawals from the RAA are prohibited over that resulting from base condition uses permitted as of April 1, 2006. Under the existing rule, allocations over the base condition water use are only allowed through sources detailed in Subsection 3.2.1.E.5 of the Applicant's Handbook (SFWMD 2021b), such as certified project water, implementation of offsets, alternative water supply, terminated or reduced base condition water use that existed as of April 1, 2006, or available wet season water. The RAA is part of the MFL recovery strategy for the Northwest Fork of the Loxahatchee River.

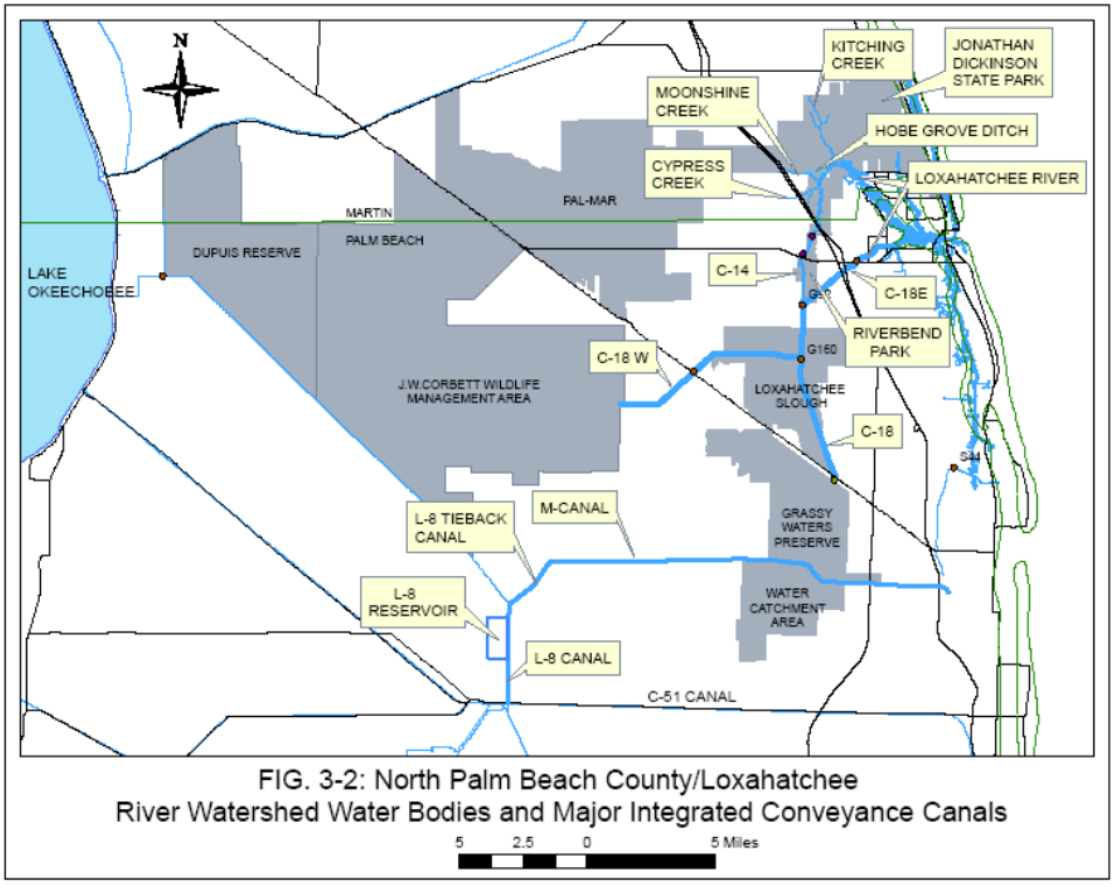

Figure 1-1. Current extent of the North Palm Beach County/Loxahatchee River Watershed Waterbodies and major integrated conveyance canals (From: SFWMD 2021b).

1.3 Northwest Fork of the Loxahatchee River MFL

MFL criteria are flows or levels at which water resources, or the ecology of the area, would experience significant harm from further withdrawals. Significant harm is defined in Subsection 40E-8.021(31), Florida Administrative Code (F.A.C.), as the temporary loss of water resource functions, which results from a change in surface water or groundwater hydrology, that takes more than 2 years to recover, but is considered less severe than serious harm. As of 2021, the SFWMD has adopted nine MFLs. Additional information about MFLs can be found in the *Support Document for the 2021-2024 Water Supply Plan Updates* (SFWMD 2021c) and at www.sfwmd.gov/mfls.

The Northwest Fork of the Loxahatchee River was designated as a Wild and Scenic River in 1985. A MFL was adopted for the Northwest Fork of the Loxahatchee River in 2003 to protect the remaining floodplain swamp community and downstream estuarine resources against significant harm [Subsection 40E-8.221(4), F.A.C.]. A MFL exceedance occurs when 1) flows at Lainhart Dam decline below 35 cubic feet per second (cfs) for more than 20 consecutive days; or 2) salinity, expressed as 20-day rolling average, is greater than 2 at river mile 9.2 (**Figure 1-2**). A MFL violation occurs when an exceedance occurs more than once in a 6-year period.

Pursuant to Section 373.0421, Florida Statutes (F.S.), recovery strategies [Subsection 40E-8.021(25), F.A.C.] must be adopted for waterbodies where MFLs currently are violated. The goal of a recovery strategy is to achieve the established MFL as soon as practicable. The Northwest Fork of the Loxahatchee River was not meeting the MFL criteria at the time of adoption. Therefore, an MFL recovery strategy [Subsection 40E-8.421(6), F.A.C., and Appendix C of the *2018 Lower East Coast Water Supply Plan Update* (SFWMD 2018)] was adopted simultaneously with the MFL adoption. As stated earlier, the RAA for the Lower East Coast Everglades Waterbodies and North Palm Beach County/Loxahatchee River Watershed Waterbodies is part of the MFL recovery strategy. The MFL criteria are anticipated to be met when the recovery strategy projects are completed and fully operational.

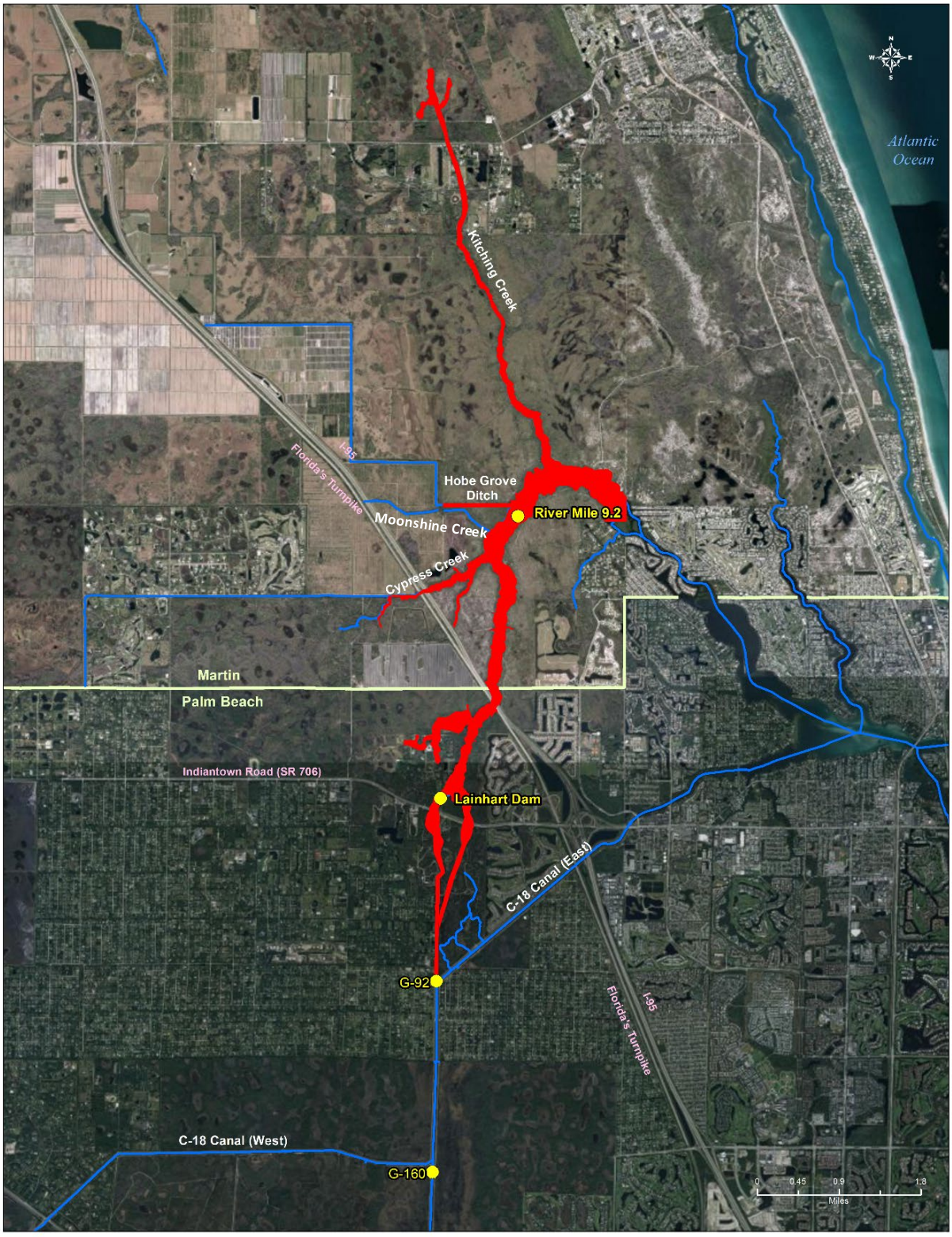

Figure 1-2. Northwest Fork of the Loxahatchee River MFL area (shown in red).

1.4 Comprehensive Everglades Restoration Plan

CERP is one of the largest environmental restoration programs, and it builds upon and complements other local, state, and federal initiatives to revitalize South Florida's ecosystem. The plan, submitted to Congress in 1999, comprises a series of projects designed to address four major characteristics of water flow: quantity, quality, timing, and distribution. Further information about CERP can be found at https://www.evergladesrestoration.gov.

Upon congressional authorization in 2000, the Federal Government and the State of Florida entered into a 50/50 partnership to restore, protect, and preserve water resources in central and southern Florida, including the Everglades. The USACE is the lead federal agency, and the SFWMD is the non-federal sponsor. A status summary of CERP is provided by the secretaries of the Army and the Interior in the jointly submitted Five-Year Report to Congress per the Water Resources Development Act (WRDA) of 2000, Section 601(l), and as required by the Programmatic Regulations for the Comprehensive Everglades Restoration Plan [33 C.F.R. § 385.40(d)(1)] (USACE and United States Department of the Interior 2020).

Legal protection of water for the natural system provided by CERP projects is required for the SFWMD and USACE to execute project partnership agreements (PPAs). The SFWMD protects water through the adoption of water reservations, consumptive use permitting criteria, or a combination of the two. The SFWMD's water reservation rules are found in Chapter 40E-10, F.A.C. Chapter 40E-2, F.A.C., contains the SFWMD's consumptive use permitting rules, including 1) regulatory components of an adopted MFL prevention or recovery strategy, 2) implementation criteria for water reservations, and 3) RAA criteria.

1.5 Loxahatchee River Watershed Restoration Project

One of 68 CERP projects and the focus of this document, the LRWRP aims to improve the quantity, quality, timing, and distribution of water flows to the Northwest Fork of the Loxahatchee River and restore hydrologic conditions and connectivity of wetlands and watersheds that form the historical headwaters of the river (USACE 2020). Project planning was completed with the signing of the Chief's Report in April 2020, which included the PIR-EIS completed in January 2020 (USACE 2020). The LRWRP was authorized by Congress in WRDA 2020. The PIR-EIS identified the authorized plan for meeting the objectives to capture, store, and treat surface water currently lost to tide and use that water to increase flows to the Northwest Fork of the Loxahatchee River to meet restoration goals of the river and the natural communities within the watershed. The LRWRP will achieve the intended hydrologic and ecologic restoration goals without impacting existing legal water users or reducing the level of service for flood protection. This fulfills WRDA 2000 and Section 373.470, F.S., Savings Clause requirements (**Section 5.3.1**).

The SFWMD is the lead agency responsible for the design and construction of the LRWRP. A PPA between the USACE and SFWMD is planned for execution by September 2022. Completion of the rule development process to protect water generated by the LRWRP is a condition precedent to executing the PPA. The 2021 CERP Integrated Delivery Schedule (USACE 2021) contains the implementation schedule for the project. Project design is scheduled to begin in 2022, with construction occurring between 2023 to 2029. The operational testing and monitoring periods are expected to end in 2031. Most of the real estate acquisition for the project is complete; however, some acquisition of land, canals, and easements in the northern portion of the project area remains.

1.5.1 Project Components and Authorized Plan

The project area encompasses approximately 481,920 acres of central and northern Palm Beach County and southern Martin County, including Jonathan Dickinson State Park, Dupuis Wildlife and Environmental Management Areas, J.W. Corbett Wildlife Management Area, the City of West Palm Beach Water Catchment Area, Loxahatchee Slough, and other natural areas (**Figure 1-3**). The LRWRP project area is bound by the C-44 Canal to the north, the C-51 Canal to the south, the L-8 Canal and Lake Okeechobee to the west, and the Loxahatchee River Estuary and Lake Worth Lagoon to the east. All of the Loxahatchee River watershed and limited portions of the St. Lucie River watershed are included in the project area.

Multiple restoration plan alternatives were modeled during the plan formulation and evaluation process, as described in the PIR-EIS (USACE 2020). Each alternative plan was evaluated according to the USACE's four "Principles and Guidelines" criteria: completeness, acceptability, efficiency, and effectiveness. Project benefits and planning level costs were calculated for each alternative plan, and analyses were completed to identify the alternative plans that maximized environmental benefits compared to costs. The evaluation and comparison of alternative plans led to the selection of Alternative 5R, the Authorized Plan, for the LRWRP.

The project components of the Authorized Plan are grouped into three flow-ways based on geographic area (**Figure 1-4**). Structural components of the Authorized Plan include a 9,500-acre-foot (ac-ft) reservoir, four ASR wells, a flow-through marsh, and new pump stations, canals, culverts, weirs, and ditch plugs. Structural components, along with other management measures and water control modifications, will increase volume and improve timing of water deliveries to the Northwest Fork of the Loxahatchee River while restoring hydrology and ecological connectivity in the surrounding natural areas and over-drained wetlands within the watershed. The Authorized Plan will achieve 91% of the dry season target restoration flows and 98% of the wet season restoration target flows to the Northwest Fork as measured at Lainhart Dam (USACE 2020). In addition, the Authorized Plan will restore a total of approximately 27,000 acres of disturbed wetlands (**Section 1.5.2**).

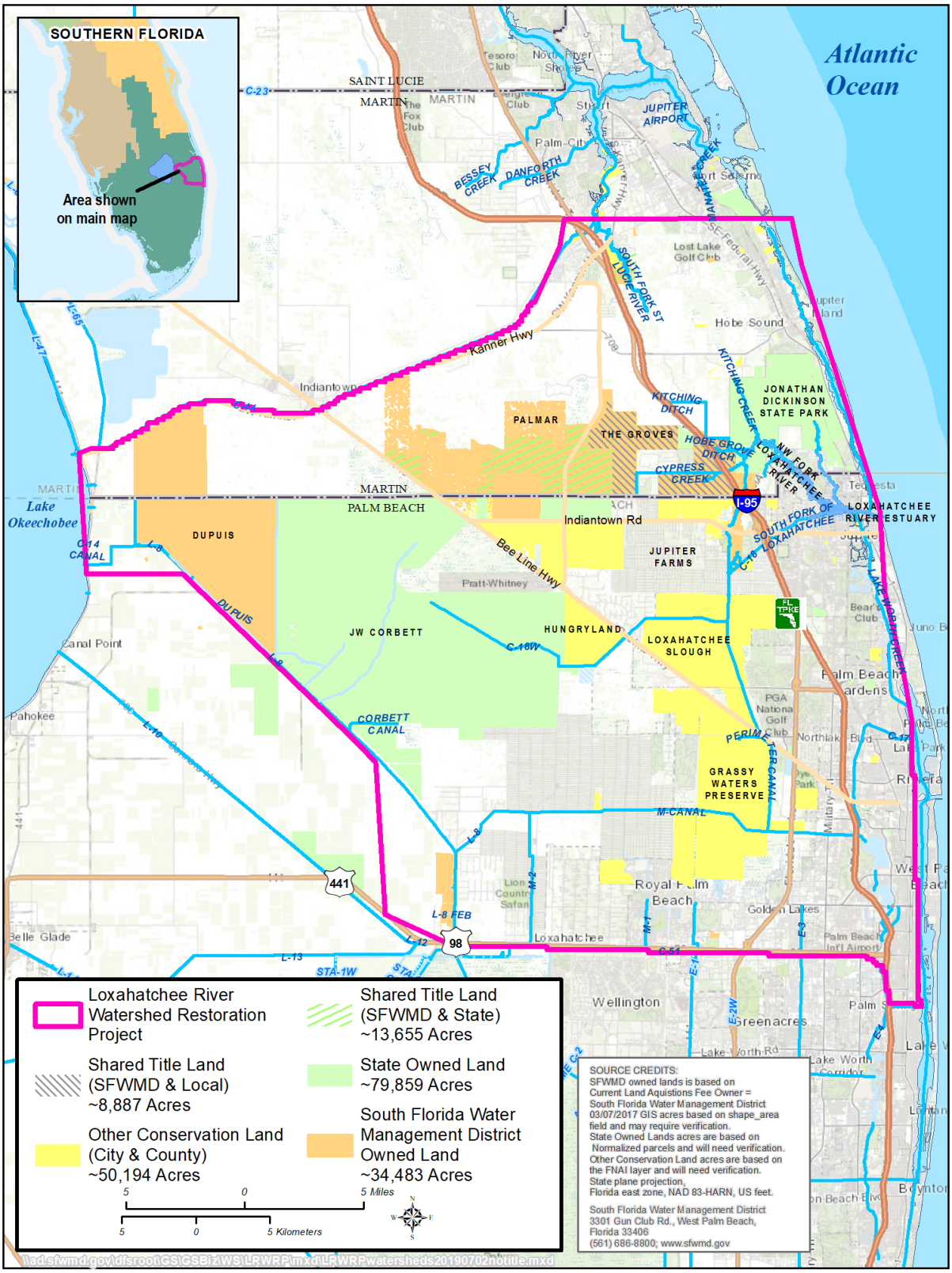

Figure 1-3. Project area for the Loxahatchee River Watershed Restoration Project (From: USACE 2020).

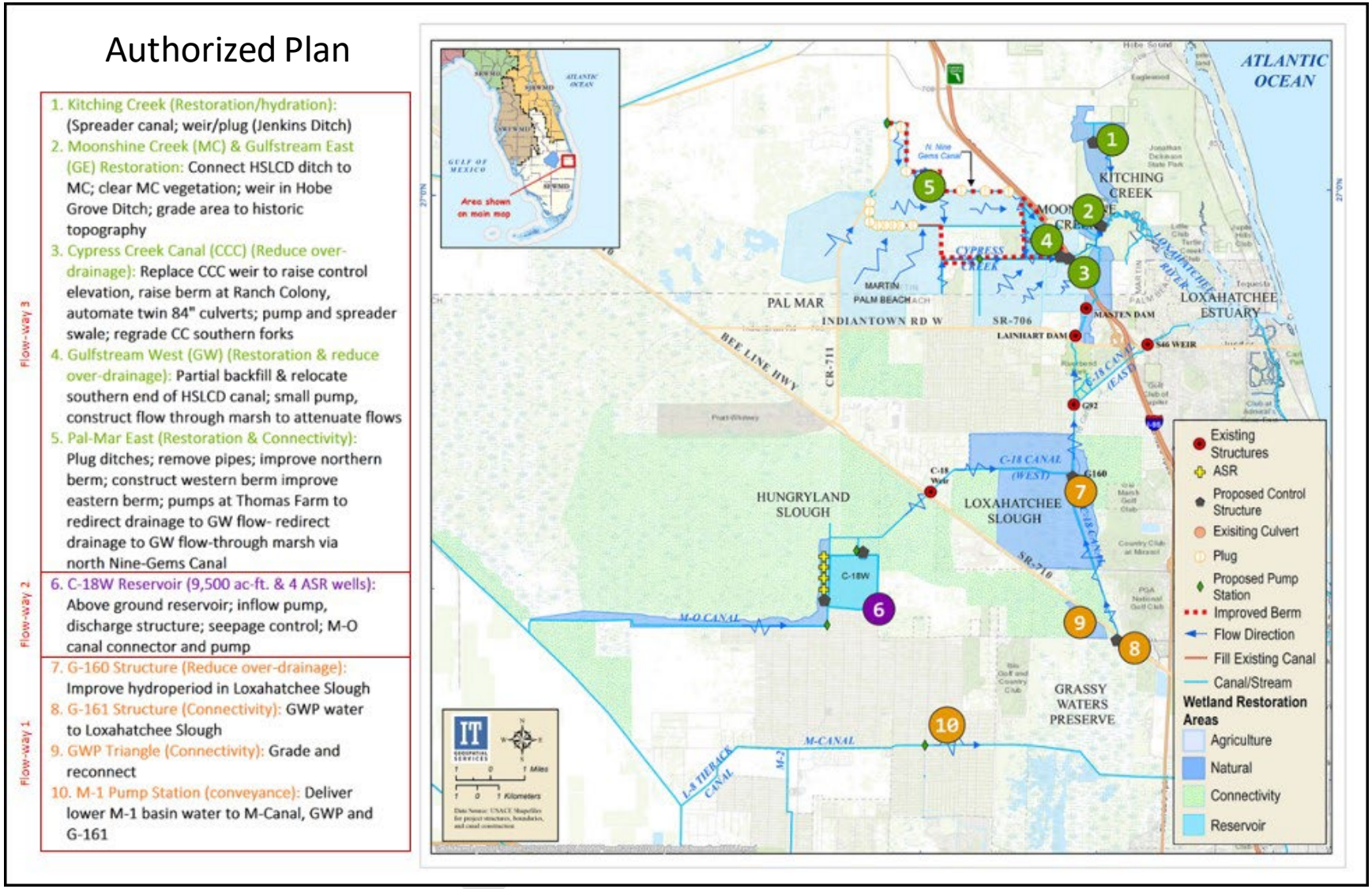

Figure 1-4. Project components and flow-ways of the Authorized Plan for the Loxahatchee River Watershed Restoration Project (From: USACE 2020).

Surface Water Components (Flow-ways 1, 2, and 3)

Flow-way 1 is in the southernmost portion of the LRWRP (**Figure 1-4**). Surface water from upstream basins within flow-way 1 will be routed toward the Northwest Fork via three primary canal conveyances: M-1 Canal, M-Canal, and C-18 Canal. The following provides an overview of the surface water components for flow-way 1, which are described in further detail in the PIR-EIS (USACE 2020).

- **M-1 Pump Station**: A new pump station (S-100) will be constructed along the M-1 Canal to deliver up to 75 cfs of water to the M-Canal when specific dry and wet season canal stages permit. Excess water deliveries from the Indian Trail Improvement District Lower M-1 Basin will supplement the City of West Palm Beach Water Catchment Area before the water is ultimately conveyed north to the Northwest Fork.
- **G-161 Structure**: The G-161 structure was constructed in 2007 concurrent with the LRWRP planning process to provide early and essential benefits to the Northwest Fork and its historical headwaters. Benefits include increased base flows to the river as well as hydrologic connectivity and improved hydroperiods for the City of West Palm Beach Water Catchment Area and Loxahatchee Slough. G-161 is the primary structure through which water flows from the City of West Palm Beach Water Catchment Area to the Northwest Fork. The structure is composed of two 60-inch culverts, with a total length of 240 feet (ft), and can discharge up to 150 cfs.
- **Grassy Waters Preserve (GWP) Triangle**: Although no structural surface water components are planned for the GWP Triangle, hydrologic restoration will be achieved through earthwork and construction of a shallow swale designed to improve hydrologic conditions within the property. Water discharged from the G-161 structure will be distributed across the shallow swale to promote hydrologic connectivity between the eastern and western portions of the property and to improve the hydroperiod of the area. Surface water will flow from the GWP Triangle to the C-18 Canal, then north toward the Northwest Fork through an existing culvert that passes under Beeline Highway.
- **G-160 Structure**: The G-160 structure, completed in 2004, provides the dual purpose of flood control and environmental restoration. Like the G-161 structure, G-160 was constructed concurrent with the LRWRP planning process to achieve early benefits to the Northwest Fork and its historical headwaters, including Loxahatchee Slough Natural Area. Benefits include enhanced delivery of restoration flows to the river while maintaining specific water levels for Loxahatchee Slough. The G-160 structure is a reinforced concrete spillway with two vertical lift gates; each spillway bay is 25 ft in length. The structure can discharge up to 2,000 cfs to maintain flood control capability.

Flow-way 2 is in the western and central portion of the LRWRP (**Figure 1-4**). The M-O and C-18W canals are the two primary canal conveyances for flow-way 2 (**Figure 1-5**). The main surface water component for flow-way 2 is the C-18W Reservoir, which is designed to capture, store, and release water to improve seasonal timing of water deliveries to the river. The following is an overview of the C-18W Reservoir and some of its supporting infrastructure; further details about flow-way 2 surface water components can be found in the PIR-EIS (USACE 2020).

- **C-18W Reservoir**: The C-18W Reservoir will be built on the former Mecca citrus grove property, covering approximately 1,600 acres (including the perimeter embankment) and storing 9,500 ac-ft of water. The reservoir embankment will be 20.5 ft high with a normal pool design depth of 7.5 ft. The reservoir will receive excess surface water from the adjacent C-18W Canal, J.W. Corbett Wildlife Management Area, and the upper basin of the Indian Trail Improvement District. A new connector canal (C-101W) will be constructed at the eastern terminus of the existing M-O Canal to deliver runoff from the Indian Trail Improvement District's upper basin to the C-18W Reservoir.

A 150-cfs pump station will be required to move water from the M-O Canal into the new C101-W connector canal. Flows from J.W. Corbett Wildlife Management Area will be conveyed under Seminole Pratt Whitney Road towards the seepage canal along the western portion of the C-18W Reservoir via three new gated 72-inch culverts (S-107). Seminole Pratt Whitney Road will be elevated to contain water within J.W. Corbett Wildlife Management Area during heavy rainfall events. A 175-cfs intake pump station S-106 will deliver excess water from J.W. Corbett Wildlife Management Area and the new C101-W connector canal to the western portion of the C-18W Reservoir. A second intake pump station with a 150-cfs capacity (S-101A) will deliver water from the C-18W Canal to the northern portion of the reservoir. This pump station will serve the main inflow/discharge canal for the reservoir (C-101N), which will be located between the C-18W Canal and the northern embankment of the C-18W Reservoir. The reservoir will be surrounded by a seepage collection canal and managed by a seepage control system.

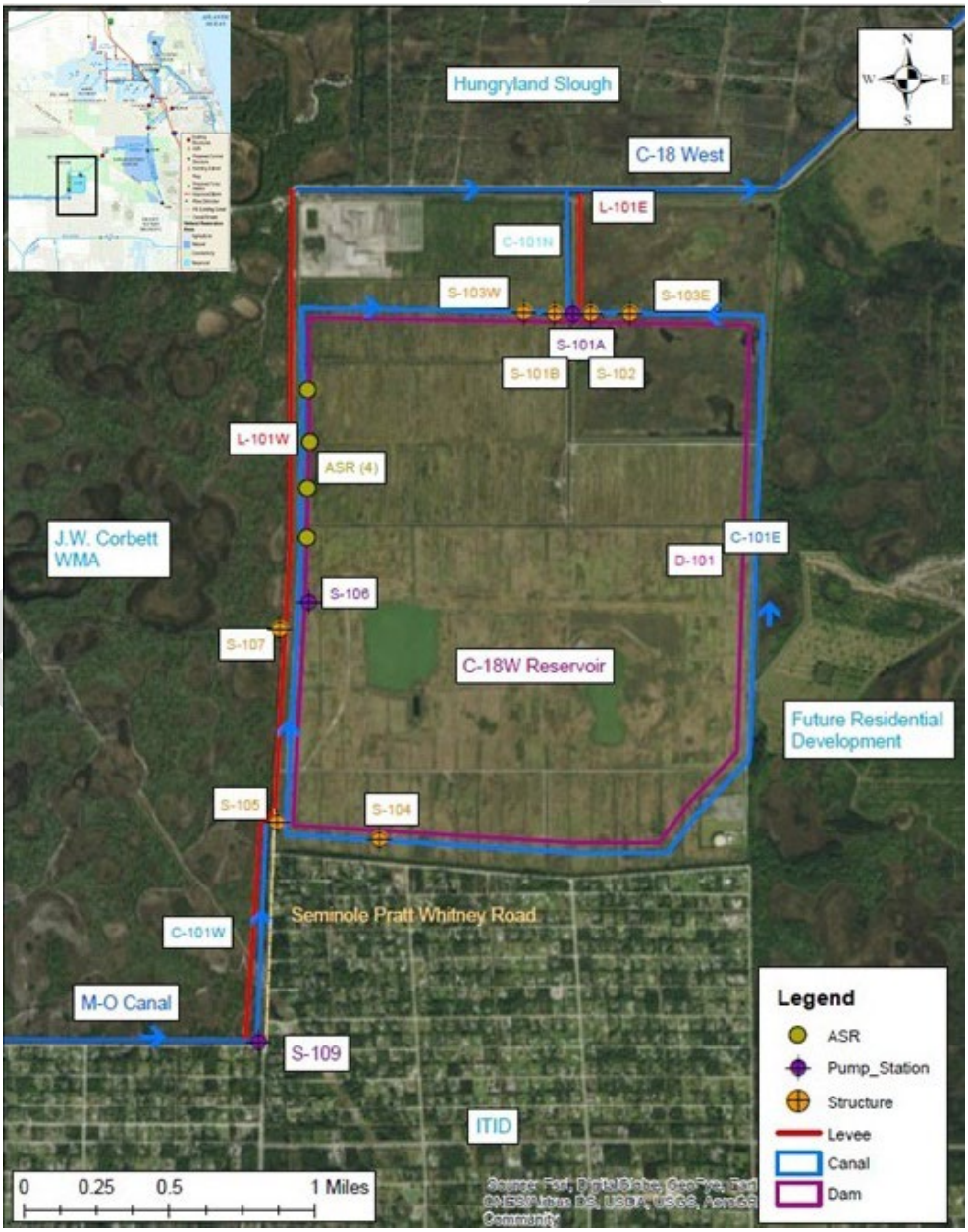

Figure 1-5. Flow-way 2 structures and flows (From: USACE 2020).

Flow-way 3 is in the northern portion of the LRWRP (**Figure 1-4**), crossing the Palm Beach-Martin county boundary. Flow-way 3 includes the Northwest Fork and its historical tributaries (Kitching Creek, Moonshine Creek, and Cypress Creek). Primary conveyance canals in flow-way 3 include Jenkins Ditch, Hobe Grove Ditch, Cypress Creek Canal/Ranch Colony Canal, C-18 Canal, Nine Gems canals, and various canals within the Hobe St. Lucie Conservatory District and South Indian River Water Control District service areas. The following is an overview of the surface water components for flow-way 3, which are described in further detail in the PIR-EIS (USACE 2020).

- **Pal-Mar East (Nine Gems)**: Interior drainage canals will be filled, and small drainage pipes and culverts will be removed to reduce drainage and restore hydrology to the property. Berm improvements (L-111) along the northern and eastern portion of the property will be required to retain onsite surface water. Additional discharge capacity for the property will be provided by three water control structures (S-114A, B, and C) discharging into a canal that runs along the southern property boundary, which ultimately discharges to the Cypress Creek Canal. An existing canal in the western and southwestern portion of Pal-Mar East will be partially plugged or backfilled to improve hydrologic connectivity between the Nine Gems and Culpepper tracts. This canal currently provides drainage to a farm west of the property and Seminole Pratt Whitney Road. This canal is proposed to be taken out of service and its water rerouted to an existing canal that runs along the northern boundary of Pal-Mar East. A new pump station, likely to be located on the farm property, and a new culvert installed under Seminole Pratt Whitney Road will be required to reroute surface water to the canal bordering the northern boundary of Pal-Mar East.
- **Cypress Creek Canal/Ranch Colony Canal**: Three existing water control structures (S-115A, B, and C) will be modified with telemetry controls to improve hydrologic conditions within the Culpepper tract of Pal-Mar East while reducing discharges into the Cypress Creek Canal. Berm improvements along the eastern boundary of the Culpepper tract and the Cypress Creek Canal will improve water flow and provide flood protection to adjacent residential developments. At the east end of the Cypress Creek Canal, a new water control structure (S-112) will be constructed to reduce over-drainage and improve water level management in the Cypress Creek Canal during the wet and dry seasons. The structure will be a telemetry-operated concrete spillway with two 16-ft wide bays. Perpendicular to the Cypress Creek Canal, a new 20-cfs pump station and spreader swale will be constructed parallel to Mack Dairy Road. The Mack Dairy spreader swale will extend roughly 4,900 ft south of the Cypress Creek Canal to improve sheetflow across the Cypress Creek Natural Area and restore historical flows to the Northwest Fork. The eastern forks of the historical Cypress Creek will be regraded to reduce flow velocities entering the river and restore/promote the growth of native vegetation.
- **Gulfstream West**: A shallow flow-through marsh will be constructed on the Gulfstream West property to restore wetlands, reduce over-drainage, and attenuate water flow. Existing drainage ditches within the property will be removed, and the site will be regraded with a slight southerly gradient to promote sheetflow across the constructed marsh. Water from the Hobe St. Lucie Conservatory District, Pal-Mar East, and the farm west of Pal-Mar East will be pumped into the northern end of the flow-through marsh via a new 150-cfs pump station (S-110). Water will be routed through the marsh by a series of collection ditches and spreader berms. A perimeter levee will be constructed to contain surface water, which will be controlled at an average depth of 3 ft. The discharge structure (S-111S) will consist of a notched weir with variable rates of flow depending on marsh depth. Discharges from the flow-through marsh will be downstream of the new Cypress Creek Canal structure (S-112).

- **Moonshine Creek and Gulfstream East**: Restoration of the Gulfstream East property involves earthwork to regrade the property to historical topography and backfill existing drainage ditches. This project component also includes Moonshine Creek and Hobe Grove Ditch restoration efforts, which involve creating a hydrologic connection between the two features by clearing and removing heavy vegetation and sedimentation. A new weir (S-117) will be constructed at the eastern end of Hobe Grove Ditch to increase surface water and groundwater levels within the ditch. Increased water elevations will promote additional flow to Moonshine Creek, which is a historical tributary to the Loxahatchee River.
- **Kitching Creek**: Kitching Creek restoration will occur within Jonathan Dickinson State Park. A new east-west spreader swale (C-116) will be constructed perpendicular to an interior ditch (Jenkins Ditch) located near the upstream portion of Kitching Creek. The spreader swale will redistribute water to the upstream portions of Kitching Creek. To facilitate dispersion across the spreader swale, a new gated culvert will be constructed in Jenkins Ditch upstream of Kitching Creek.

Aquifer Storage and Recovery Component

Four clustered ASR wells are planned to work in conjunction with the C-18W Reservoir to provide additional water storage capacity and operational flexibility to the reservoir system. The ASR wells will be installed in the Upper Floridan aquifer or Avon Park permeable zone and are anticipated to be capable of pumping 5 million gallons per day (mgd) for surface water storage and recovery (USACE 2020). The ASR wells will provide the C-18W Reservoir with additional water for deliveries to the Northwest Fork (via the C-18W Canal) to meet downstream restoration flows. Benefit calculations assumed 70% of the stored water in the ASR wells could be recovered (USACE 2020). The four ASR wells, and the associated water treatment facility, are planned for the western perimeter of the reservoir adjacent to Seminole Pratt Whitney Road and J.W. Corbett Wildlife Management Area; however, the final location of the facilities will be determined upon completion of the final design plans for the project. Installing the ASR wells along the western portion of the C-18W Reservoir will provide partial institutional control of the ASR groundwater "bubble" (i.e., water stored) due to its close proximity to public lands and a very low likelihood that any new or additional ASR wells would be installed by public water supply utilities or municipalities near this location in the future.

1.5.2 Benefits of the Loxahatchee River Watershed Restoration Project

The LRWRP will provide direct hydrologic and ecologic benefits to the Northwest Fork of the Loxahatchee River. The project will achieve 91% of the dry season target restoration flows and 98% of the wet season target restoration flows, as measured at Lainhart Dam (USACE 2020). Restoration of seasonal flows will improve salinity levels in the river and conserve freshwater habitat. Restored flows will help maintain the last remaining riverine cypress habitat in southeastern Florida, riverine tape grass habitat, oligohaline salinity zones that support juvenile sportfish, mesohaline salinity zones that support oysters, and specific riverine and estuarine conditions that support threatened Florida manatee and federally managed fish species (USACE 2020).

The LRWRP will restore approximately 27,000 acres of disturbed wetlands within the watershed: 17,000 acres of former wetlands that were improved for agriculture in the Pal-Mar natural area complex and 10,000 acres of existing disturbed wetlands in J.W. Corbett Wildlife Management Area, Loxahatchee Slough Natural Area, and Kitching Creek (USACE 2020). These 27,000 acres of restored wetlands will connect to 51,000 acres of other wetland communities in the area, resulting in a total of 78,000 acres of connected habitat (USACE 2020). Wetland restoration and habitat connectivity will benefit wetland and upland communities within the City of West Palm Beach Water Catchment Area, Jonathan Dickinson State Park, and the Pine Glades, Hungryland Slough, and Cypress Creek natural areas. Furthermore, wetland

restoration efforts will contribute to the recovery of threatened and endangered animal species, such as the snail kite and wood stork. The project will also improve native habitat for recreational species, such as white-tailed deer and ducks.

The LRWRP will provide recreational and economic opportunities to the local area, such as hunting, boating, fishing, and tourism. Construction of recreational facilities are included in the Authorized Plan, which will improve public access and connectivity to natural areas and regional trail systems, such as the Ocean to Lake Trail. Public use facilities will be constructed at Moonshine Creek, the Cypress Creek Natural Area, and the C-18W Reservoir. These facilities will include parking areas, boat/kayak launches, trailheads, bridges, a fishing platform, and dry vault toilets.

Implementation of the LRWRP will boost numerous ecosystem services throughout the Loxahatchee River watershed and downstream Loxahatchee River Estuary. Ecosystem services can be defined as the benefits human beings receive from resources and processes supplied by ecosystems (Murray et al. 2013). Some ecosystem services are material (e.g., food, timber, water), while others are derived from ecological processes (e.g., carbon sequestration). The LRWRP will benefit ecosystem services through ecological restoration efforts. The ecosystem services that are expected to improve as a result of the project include wildlife-associated activities in the form of wildlife photography, nature tours, and environmental education, which can facilitate mental health and wellbeing; ecological connectivity of landscapes; biodiversity and species composition; commercial and recreational fishing; outdoor recreational opportunities such as biking, hiking, and kayaking; water quality nutrient and sedimentation assimilation; and atmospheric carbon sequestration (USACE 2020).

The LRWRP will provide the aforementioned benefits to the watershed while meeting the requirements of the WRDA 2000 Savings Clause by maintaining current levels of service for flood protection and water supply to existing legal users within the project area.

2 BASIS FOR THE RESTRICTED ALLOCATION AREA RULES

2.1 Definition and Statutory Authority

Section 373.044, F.S., authorizes the governing board of a water management district to adopt rules to implement the various provisions of Chapter 373, F.S. Section 373.216, F.S., requires the water management districts to implement a consumptive use permitting program. The consumptive use permitting program is designed to protect water resources of the area from harm. *See* § 373.219(1), F.S. The District's consumptive use permitting rules include RAAs designed to address a specific water resource concern and protect the water resource from harm.

RAAs are defined geographic areas where use of specific water supply sources (e.g., lakes, rivers, wetlands, canals, aquifers) is restricted due to concerns regarding water availability or other water resource concerns. RAAs are adopted for a variety of reasons, including 1) where there is insufficient water to meet the projected needs of a region, 2) to protect water for natural systems and future restoration projects (e.g., CERP), or 3) as part of MFL recovery or prevention strategies. RAAs are listed in Section 3.2.1 of the Applicant's Handbook (SFWMD 2021b), which is incorporated by reference in Rule 40E-2.091, F.A.C. Requests for water allocations in these regions must comply with the region-specific criteria in addition to all other applicable criteria listed in the Applicant's Handbook.

As of 2021, six RAAs have been adopted for the following geographic areas within the District (**Figure 2-1**):

- C-23, C-24, and C-25 Canal System
- Floridan Aquifer Wells in Martin and St. Lucie Counties
- L-1, L-2, and L-3 Canal System
- Lake Istokpoga/Indian Prairie Canal System
- Lake Okeechobee Service Area
- Lower East Coast Everglades Waterbodies and Northern Palm Beach County/Loxahatchee River Watershed Waterbodies

In April 2006, the District's Governing Board authorized staff to initiate rule development on a Regional Water Availability Rule to limit increased dependence on the Everglades system and Loxahatchee River Watershed water bodies (SFWMD 2007, 2013). The rule was adopted in 2007, in part, to support construction of CERP projects. The rule limits allocations to conditions or withdrawals in the Lower East Coast Service Area and North Palm Beach County/Loxahatchee River Watershed, depending on the specific use class, that existed as of April 1, 2006, known as the "base condition water use." The rule only allows allocations over the "base condition water use" through alternative source development, implementation of offsets (e.g., recharge barriers, recharge trenches), or identification of terminated or reduced water uses that existed as of April 1, 2006. Wet season water can be allocated if the permit applicant demonstrates that such flows are not needed for restoration pursuant to CERP or the Northern Palm Beach County Comprehensive Water Management Plan.

RAA and water reservation rules function similarly and limit allocations. Taken together, these rules function to afford protection for water resources across significant portions of the District's water resources. In recognition of this, the SFWMD removed water reservations for the Loxahatchee River waterbodies from its 2013 priority lists (SFWMD 2013).

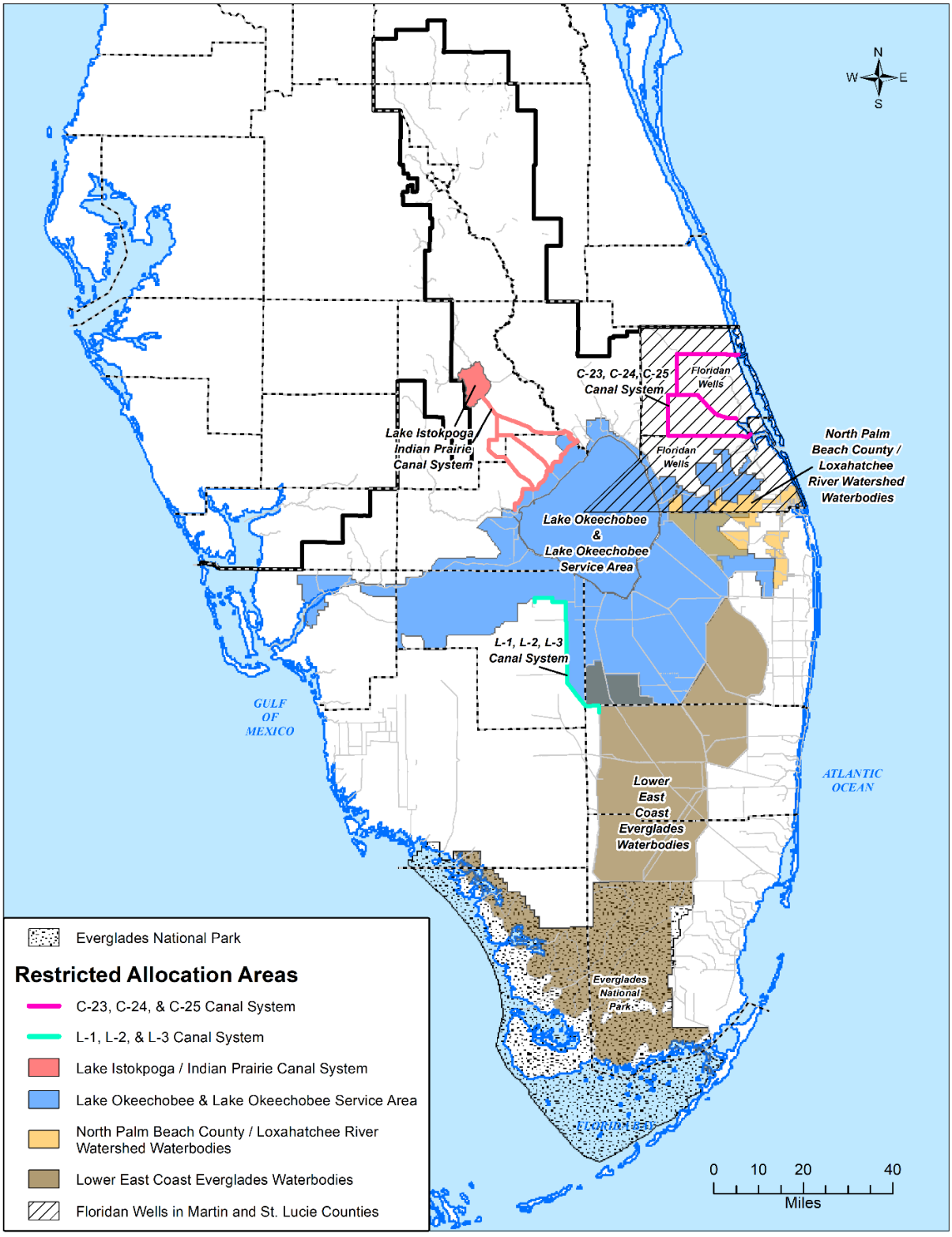

Figure 2-1. Existing restricted allocation area waterbodies within the South Florida Water Management District.

2.1.1 Protecting Water for CERP Projects

WRDA 2000 and Section 373.470(3)(c), F.S., require the SFWMD to allocate or reserve water for the natural system resulting from a CERP project before executing a cost-share agreement with the USACE to construct the project. The SFWMD fulfills this requirement by adopting water reservations, consumptive use permitting rules, or both. The USACE has previously verified that these mechanisms meet the federal requirements for several CERP projects. Together, these measures protect water resources across substantial portions of the District. Any water made available by a CERP project beyond that needed for the natural system may be certified by the District's Governing Board as available to be allocated for consumptive uses to meet the CERP goal of water made available for other water-related uses.

2.2 Rulemaking Process

General rulemaking requirements and procedures are described in Chapter 120, F.S. The general rulemaking process includes many steps (**Figure 2-2**). On December 9, 2021, the District's Governing Board authorized publication of a Notice of Rule Development for Rulemaking to Protect Water Made Available by the Loxahatchee River Watershed Restoration Project. The Notice of Rule Development was published in the Florida Administrative Register on December 21, 2021. Building on the analyses conducted for the PIR-EIS, this technical document and the proposed rules and revisions to applicable sections of the Applicant's Handbook (SFWMD 2021b) were drafted.

Two rule development workshops were held on January 25 and February 22, 2022, to gain public input on the rulemaking. Public comments received from stakeholders are provided in the **Appendix**. Draft revisions to applicable sections of the Applicant's Handbook (SFWMD 2021b) were completed. District staff sought authorization to publish a Notice of Proposed Rule from the District's Governing Board in April 2022. The rule development process has been open and transparent. District staff have encouraged stakeholder review and comment on the draft rules and technical document during the public rule development workshops and prior to the April 2022 Governing Board meeting.

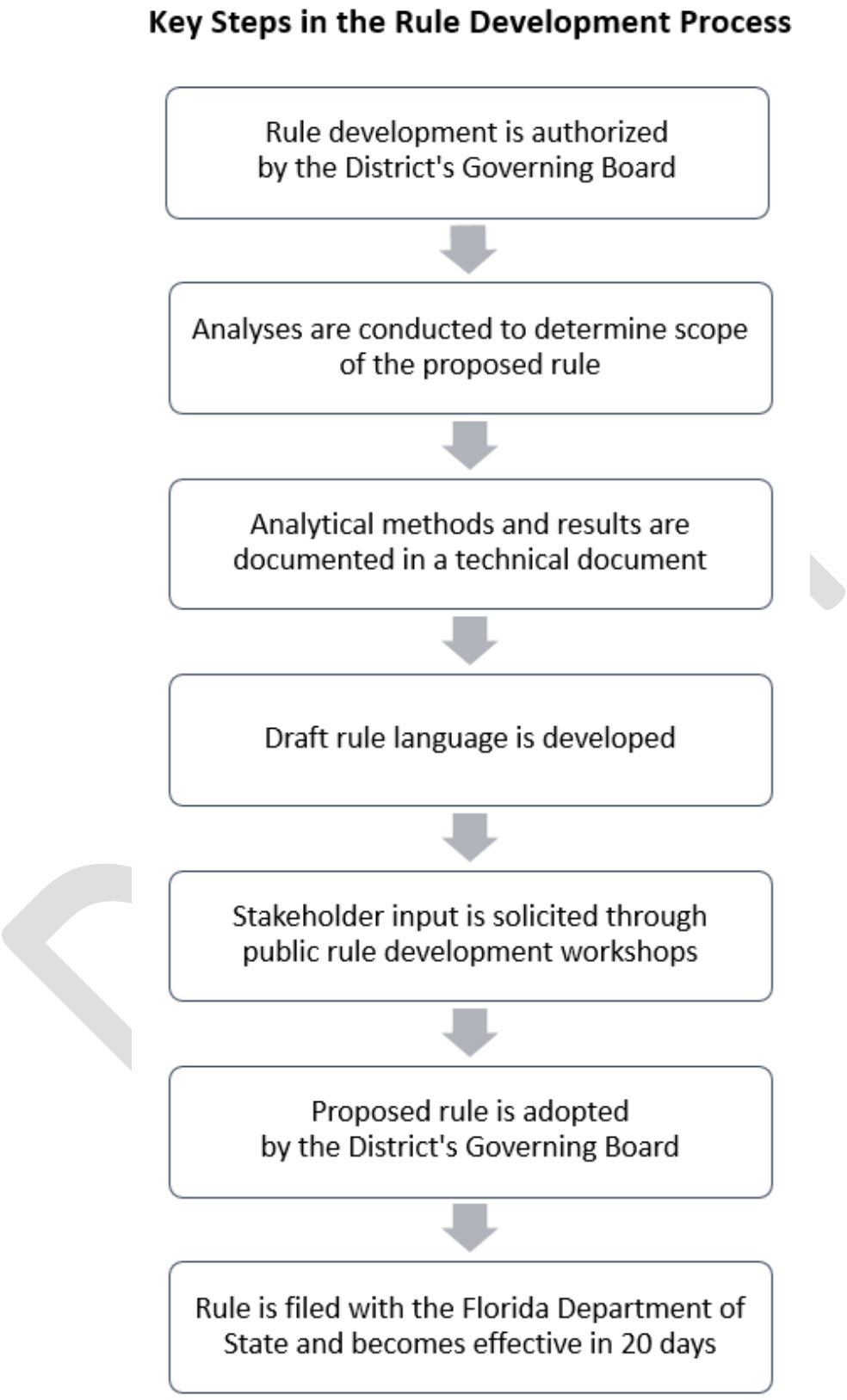

Figure 2-2. Key steps in the rule development process.

3 EXISTING CONDITION OF THE LOXAHATCHEE RIVER WATERSHED

3.1 Description of Watershed

3.1.1 Hydrology

The Loxahatchee River watershed historically spanned more than 216 square miles and primarily comprised pine flatwoods interspersed with cypress sloughs, hardwood swamps, marshes, and wet prairies (USACE 2020). The three forks of the Loxahatchee River—Northwest, North, and Southwest—discharge into the Loxahatchee River Estuary where freshwater from the river meets saltwater flowing in from the Atlantic Ocean through the Jupiter Inlet. The Loxahatchee River Estuary's central embayment is located at the confluence of the river's three forks. There are eight major subwatersheds (basins) within the Loxahatchee River watershed: Kitching Creek, Grove, Pal-Mar, Jupiter Farms, Historic Cypress Creek, Loxahatchee Estuary, C-18/Corbett, and L-8 (USACE 2020).

The Hungryland and Loxahatchee sloughs are located upstream and provide significant freshwater input to the Loxahatchee River, including the Northwest Fork. The C&SF Project, authorized by Congress in 1948 primarily for flood control, altered the hydrology of Hungryland Slough, Loxahatchee Slough, and Loxahatchee River by redirecting freshwater that naturally flowed out of the Northwest Fork to the Southwest Fork and then out to tide (McVoy et al. 2011). The primary canal conveyances constructed as part of the C&SF Project include the L-8 Canal, the east and west legs of the C-18 Canal, and the C-51 Canal, all of which impacted the hydrology of the watershed to varying degrees. Dry season flows to the Northwest Fork were limited by altered drainage patterns and lowered groundwater levels due to the construction of canals, levees, and supporting water control infrastructure. Other types of development activities that followed the C&SF Project, such as road construction and urbanization, further limited dry season flows to the Northwest Fork. The permanent opening and management of the Jupiter Inlet post 1947 allowed more saltwater entry to the Loxahatchee River estuary. The original C&SF Project resulted in changes to the watershed hydrology as the landscape was fragmented while the Loxahatchee River estuary has also experienced more Atlantic Ocean connectivity through Jupiter Inlet management.

Land development over the last century has altered the natural hydrology of the watershed, resulting in community-wide changes to aquatic vegetation (freshwater and estuarine), including productivity and function. Collectively, the hydrologic changes have promoted the upstream movement of saltwater. As a result, cypress and other freshwater vegetation intolerant of elevated salinity conditions have been replaced by mangroves and other estuarine plant communities. If freshwater dry season flows are not increased to improve riverine system resilience, the salinity cline will continue to extend farther upriver than under historical conditions, thereby converting more freshwater habitat to estuarine habitat. These effects are likely to be exacerbated by potential sea level rise effects (USACE 2020). Additionally, the hydrologic impacts have had repercussions throughout the food web (USACE 2020). Under the current hydrologic conditions, further reduction in habitat function is possible, resulting in a decrease in the abundance and diversity of fish and wildlife resources throughout the watershed.

3.1.2 Habitats

The land within the Loxahatchee River watershed can be grouped into three broad land use categories: natural areas, agricultural lands, and residential/commercial space. Approximately 63% of the watershed is natural area (USACE 2020). This includes eight major natural areas, as described in the PIR-EIS: Jonathan Dickinson State Park, the Northwest Fork, Loxahatchee River Estuary, Pal-Mar, J.W. Corbett Wildlife Management Area, Loxahatchee Slough Natural Area, City of West Palm Beach Water Catchment Area,

and Dupuis Wildlife and Environmental Area (USACE 2020). Other large tracts of publicly owned conservation lands within the watershed include the Pine Glades, Hungryland Slough, and Cypress Creek natural areas. The 10 major freshwater and saltwater habitats that make up the Loxahatchee River watershed are cypress swamp, pine uplands, scrub, freshwater marshes, hardwood hammock, mangrove swamp, seagrass beds, oyster reef and beds, estuary (lagoons and inlets), and coastal dunes (USACE 2020). Although the C&SF Project altered hydrology and fragmented the landscape into variously sized habitat patches, the watershed still supports diverse ecological communities that provide food, cover, and roosting and nesting habitats used by a wide range of wildlife.

3.1.3 Fish and Wildlife Resources

The fish and wildlife resources within the Loxahatchee River watershed comprise many taxonomic groups of aquatic macroinvertebrates, freshwater and saltwater fish, amphibians, reptiles, birds, and mammals. Because the Northwest Fork of the Loxahatchee River is a federally designated Wild and Scenic River, area-specific regulations affect t

he management of fish and wildlife resources.

Shellfish

The Loxahatchee River Estuary supports a variety of shellfish, including crabs, clams, shrimp, and oysters. Of commercial importance, the estuary is home to blue crabs and stone crabs. Oyster reefs within the estuary have been monitored for the past 30 years and shown decreased abundance due to flood control measures that have altered freshwater flows of the river (USACE 2020). South of the Loxahatchee River Estuary, the Lake Worth Lagoon was also impacted by the C&SF Project and has experienced changes in the magnitude and duration of saline conditions, which has prohibited the establishment of oyster communities.

Fish

Christensen (1965) identified more than 250 species of fish within the Loxahatchee River and Estuary. The abundance, distribution, and diversity of fish are affected by season, salinity, and habitat availability. The upstream area of the river is characterized by freshwater fish species, and the lower portion is characterized by marine and estuarine species. The freshwater marshes, creeks, and river reaches include many species of small and large fish. Small fish provide an important food source for wading birds, reptiles, and amphibians. Common small freshwater fish include the golden topminnow (*Fundulus chrysotus*), least killifish (*Heterandria formosa*), Florida flagfish (*Jordenella floridae*), golden shiner (*Notemigonus crysoleucas*), sailfin molly (*Poecilia latipinna*), bluefin killifish (*Lucania goodei*), oscar (*Astronotus ocellatus*), eastern mosquitofish (*Gambusia holbrookii*), and small sunfishes (*Lepomis* spp.) (USACE 2020). Larger freshwater fish occur in deeper ditches, canals, and the upper river reaches where tape grass (*Vallisneria americana*) occurs in widespread beds on the river bottom. This includes largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), redear sunfish (*Lepomis microlophus*), black crappie (*Pomoxis nigromaculatus*), yellow bullhead (*Ameiurus natalis*), white catfish (*Ameiurus catus*), bowfin (*Amia calva*), and tilapia (*Tilapia* spp.) (USACE 2020). Larger fish are prey for birds, alligators, and mammals and serve as a recreational and commercial fishery resource.

Seagrass and mangrove habitat within the estuarine and marine portions of the river provide important habitat and nursery grounds for many fish species. Common recreational and commercial fish species found within the estuarine and marine reaches of the Loxahatchee River include mutton snapper (*Lutjanus analis*), yellowtail snapper (*Ocyurus chrysurus*), lane snapper (*Lutjanus synagris*), yellowtail parrotfish (*Sparisoma rubripinne*), gag grouper (*Mycteroperca microlepis*), pinfish (*Lagodon rhomboids*), tarpon (*Megalops atlanticus*), common snook (*Centropomus undecimalus*), crevalle jack (*Cranx hippos*), spotted sea trout

(*Cynoscion nebulosus*), redfish (*Sciaenops ocellatus*), sheepshead (*Archosargus probatocephalus*), mullet (*Mugil* spp.), threadfin shad (*Dorosoma petenense*), and gizzard shad (*Dorosoma cepedianum*) (USACE 2020).

Amphibians and Reptiles

The freshwater wetland complex of the watershed supports a diverse assemblage of amphibians and reptiles. Amphibians are an important food source for wading birds, alligators, and larger predatory fish. Common amphibians include the greater siren (*Siren lacertina*), Everglades dwarf siren (*Pseudobranchus striatus*), two-toed amphiuma (*Amphiuma means*), pig frog (*Rana grylio*), southern leopard frog (*Rana sphenocephala*), Florida cricket frog (*Acris gryllus*), southern chorus frog (*Pseudacris nigrita*), squirrel tree frog (*Hyla squirela*), and green tree frog (*Hyla cinerea*) (USACE 2020). Common reptiles include the American alligator (*Alligator mississippiensis*), snapping turtle (*Chelydra serpentina*), striped mud turtle (*Kinosternon bauri*), mud turtle (*Kinosternon subrubrum*), cooter (*Chrysemys floridana*), Florida chicken turtle (*Deirochelys reticularia*), Florida softshell turtle (*Trionys ferox*), water snakes (*Nerodia* spp.), mud snake (*Francia abacura*), eastern ratsnake (*Pantherophis obsoletus*), and Florida cottonmouth (*Agkistrodon piscivorus*) (USACE 2020). Protected species such as the eastern indigo snake (*Drymarchon corais coupieri*), gopher tortoise (*Gopherus polyphemus*), and gopher frogs (*Lithobates capito*) are also present in the watershed.

Birds

Wading birds and marsh birds are frequently observed in depressional marshes and littoral zones of ditches, canals, and stormwater detention ponds within the watershed. Common wading birds include white ibis (*Eudocimus albus*), glossy ibis (*Plegadus falcenellus*), great egret (*Aredea albus*), snowy egret (*Egretta thula*), great blue heron (*Ardea herodias*), little blue heron (*Egretta caerulea*), tricolored heron (*Egretta tricolor*), green heron (*Butorides virescens*), cattle egret (*Bubulcus ibis*), black-crowned night heron (*Nycticorax nycticorax*), yellow-crowned night heron (*Nycticorax violacea*), roseate spoonbill (*Platalea ajaja*), and wood stork (*Mycteria americana*) (USACE 2020). Common marsh birds include the common gallinule (*Gallinula galeata*), purple gallinule (*Porphyrio martinicus*), least bittern (*Ixobrychus exilis*), limpkin (*Aramus guarauna*), king rail (*Rallus elegans*), and black rail (*Laterallus jamaicensis*).

Additional protected bird species found in the watershed include bald eagles (*Haliaeetus leucocephalus*), northern crested caracaras (*Caracara cheriway*), sandhill cranes (*Antigone canadensis*), and red-cockaded woodpeckers (*Picoides borealis*). The red-cockaded woodpecker has a small population in J.W. Corbett Wildlife Management Area, where it tends to nest in mature pine trees.

Mammals

A variety of mammal species are found throughout the Loxahatchee River watershed from the uplands to the estuary. The rice rat (*Oryzomys palustris natator*), round-tailed muskrat (*Neofiber alleni*), river otter (*Lontra canadensis*), marsh rabbit (*Sylvilagus palustris*), raccoon (*Procyon lotor*), bobcat (*Lynx rufus*), and white-tailed deer (*Odocoileus virginianus*) are common mammal species inhabiting the upland and wetland plant habitats. Other mammals with larger home ranges that may utilize habitat in the Loxahatchee River watershed include the black bear (*Ursus floridanus*) and the federally endangered Florida panther (*Puma concolor coryi*).

3.2 Description of Northwest Fork of the Loxahatchee River

The Northwest Fork of the Loxahatchee River naturally originates in the Loxahatchee and Hungryland sloughs, which are south and west of the river. The C&SF Project cut off these hydrologic connections to the Northwest Fork and diverted freshwater flow to the Southwest Fork and out to tide through construction of canals (e.g., C-18) and water control structures (e.g., G-92). Downstream from the Loxahatchee and Hungryland sloughs, the Northwest Fork also receives input from other major tributaries of the Loxahatchee River, such as Cypress Creek/Cypress Creek Canal, Hobe Grove Ditch, Moonshine Creek, Wilson Creek, and Kitching Creek. Three distinct reaches (riverine, lower tidal, and upper tidal) and four major forest community types (swamp, bottomland hardwood, hydric hammock, and upland) are found in the floodplain of the Northwest Fork. The following descriptions of the river reaches and dominant vegetative communities were summarized from the *Restoration Plan for the Northwest Fork of the Loxahatchee River* SFWMD (2006).

- The riverine reach of the Northwest Fork primarily consists of freshwater canopy forest that generally is unaffected by salinity. This area ranges from just north of the G-92 structure to river mile (RM) 9.5 (**Figure 3-1**). Vegetative communities in this reach are dominated by bald cypress (*Taxodium distichum*), pop ash (*Fraxinus caroliniana),* red maple (*Acer rubrum*), pond apple (*Annona glabra*), and water hickory (*Carya aquatica*).
- The upper tidal reach between RM 9.5 and RM 8.13 (**Figure 3-1**) consists of mixed freshwater/brackish canopy forest that has experienced some saltwater intrusion due to tidal influences and lack of freshwater flow during the dry season. Upper tidal reach communities are dominated by pond apple, red and white mangrove (*Rhizophora mangle* and *Laguncularia racemosa*), and cabbage palm (*Sabal palmetto*), with some communities of bald cypress located in the inner floodplain away from the riverbed.
- The lower tidal reach from approximately RM 8.13 to RM 5.5 (**Figure 3-1**) includes salt-tolerant species and is highly influenced by tides and salinity in the water and soils. The lower tidal reach is dominated by red and white mangrove.

Among other contributing factors—including widening and dredging of the Jupiter Inlet, groundwater drawdown in Jupiter and Tequesta, and sea level rise—decreased freshwater input to the Northwest Fork of the Loxahatchee River has led to an increase in upstream salinity, which has caused a decline in rare riverine cypress and an encroachment of mangroves. Restoration target flows developed in the *Restoration Plan for the Northwest Fork of the Loxahatchee River* (SFWMD 2006) identified dry season and wet season flows at Lainhart Dam (located between RM 14 and RM 15; **Figure 3-1**). The restoration target flows would provide preferred seasonal flows to the Northwest Fork and reduce saltwater intrusion in the tidal plain, while maintaining appropriate environmental conditions in the riverine floodplain for aquatic-dependent species, communities, and wildlife (USACE 2020). The target flows developed in 2006 were re-examined in 2012 using new flow, salinity, and biological monitoring data and were found to be valid. Those target flows were used to develop the LRWRP (USACE 2020). Salinity target zones or "envelopes" were also developed in 2006 for the four major salinity zones: freshwater, oligohaline, mesohaline, and polyhaline (SFWMD 2006). Ecological indicators such as tape grass, fish larvae and juveniles, oysters, and seagrass are monitored within each respective salinity zone to track the health, abundance, and distribution of native riverine and estuarine species.

Sea level rise is a concern for all coastal areas of South Florida. The PIR-EIS reported sea levels relative to the Loxahatchee River and Estuary could rise 0.4 to 2.4 ft over the next 50 years (USACE 2020). This rise in sea level could result in saltwater migration upstream in the Loxahatchee River. The additional freshwater flows resulting from the LRWRP may help mitigate this saltwater migration. Modeling was performed as part of the project and details can be found in the PIR-EIS (USACE 2020).

Figure 3-1. River mile designations for the Loxahatchee River (From: SFWMD 2006).

3.3 Geology and Hydrogeology of Aquifer Systems in the Vicinity of the C-18W Reservoir

The geological framework of South Florida has been studied by numerous investigators, including Miller (1990), Meyer (1989), and Reese and Richardson (2008). Most of the following is summarized from Reese and Richardson (2008), supplemented with more recent data. Florida is underlain by a thick sequence of carbonate and clastic sedimentary rocks ranging in age from Paleocene to recent. There are three principal hydrogeologic units present in the study area: the surficial aquifer system (SAS), intermediate confining unit, and Floridan aquifer system (FAS). In this area, the SAS consists of fine- to medium-grain quartz sand with varying amounts of silt, clay, and shell deposits. It is unconfined and produces small quantities of good to fair quality water. The intermediate confining unit generally consists of the fine-grained sediments of the Hawthorn Group. The Hawthorn Group generally acts as a regionally extensive confining unit overlying the FAS in southeastern Florida. In the area of the C18-W Reservoir, the Hawthorn Group is approximately 700 ft thick.

3.3.1 Floridan Aquifer System

The FAS consists of the Upper Floridan aquifer (UFA), middle confining unit, and Lower Floridan aquifer (Miller 1990). Reese and Richardson (2008) refined these units and provided a more consistent hydrogeologic framework using multiple methods for identifying hydrostratigraphic units, including lithologic and geophysical methods.

Generally located about 1,000 ft below land surface (bls), the UFA occurs at the base of the Hawthorn Group and includes the Suwannee Limestone and upper portions of the Avon Park Formation and Ocala Limestone. In the study area, it generally consists of several thin, highly permeable water-bearing zones interbedded with thicker zones of lower permeability. Because of good confinement above the UFA and artesian pressure within it, the top of the UFA is marked by a large increase in hydraulic head. Drilling characteristics, such as a lost-circulation zone, also help identify the top of the UFA. The thickness of the UFA varies between less than 100 ft in central Florida to more than 700 ft in some areas of southern Florida. The bottom of the UFA tends to be gradational in nature and its elevation is difficult to define precisely. The UFA is the target horizon for implementation of ASR at the C-18W Reservoir.

The middle confining unit is divided into three units: upper middle confining unit, Avon Park permeable zone (APPZ), and lower middle confining unit (Miller 1986). As stated above, the boundary between the UFA and middle confining unit is gradational and difficult to define precisely; therefore, the altitude of the top of the upper middle confining unit has a significant degree of variability. The thickness of the upper middle confining unit varies between less than 100 ft to more than 800 ft. The APPZ is a productive unit in the study area. The APPZ is present throughout most of South Florida, although it thins and may pinch out along the southeast coast of Florida and may be absent in portions of Collier and Monroe counties. In other portions of South Florida, it can be up to 500 ft thick. Permeability of the APPZ is mainly associated with fracturing. Transmissivity of the APPZ ranges from less than 100,000 ft^2/day in the southern portions of southern Florida to 1,600,000 ft^2/day in west-central Florida.

The Lower Floridan aquifer consists of a sequence of permeable zones separated by semi-confining units. The first permeable zone is somewhat contiguous throughout South Florida. It is located near the base of the Avon Park Formation at elevations between -1,400 and -2,600 ft National Geodetic Vertical Datum of 1929 (NGVD29). Its thickness ranges from near absent to more than 150 ft. Reported transmissivities range between 10,000 and 50,000 ft^2/day, with some localized higher values. Water quality within the first permeable zone is generally saline throughout South Florida. The first permeable zone is generally above the glauconitic limestone marker bed (**Figure 3-2**). Below the first permeable zone is a series of confining units with localized permeable zones in the upper portion of this deeper unit. The spatial extent of the thin permeable zones has not been fully mapped or identified in the deeper wells that penetrate this unit and would be difficult to treat as distinct hydrostratigraphic units. As a result, these lower confining units and the thin permeable zones within them are treated as a single semi-confining unit referred to as the Lower Floridan confining unit. Below the Lower Floridan confining unit is an extremely transmissive zone of cavernous and fractured dolomites and limestones of the Oldsmar Formation locally referred to as the Boulder Zone. The Boulder Zone occurs at elevations of approximately -2,100 to -3,500 ft NGVD29 and can be several hundred feet thick in some areas (Reese and Richardson 2008), with extremely high transmissivity values. The Boulder Zone represents the base of the FAS in South Florida as it is underlain by the massive impermeable anhydrite beds of the Cedar Keys Formation (**Figure 3-2**).

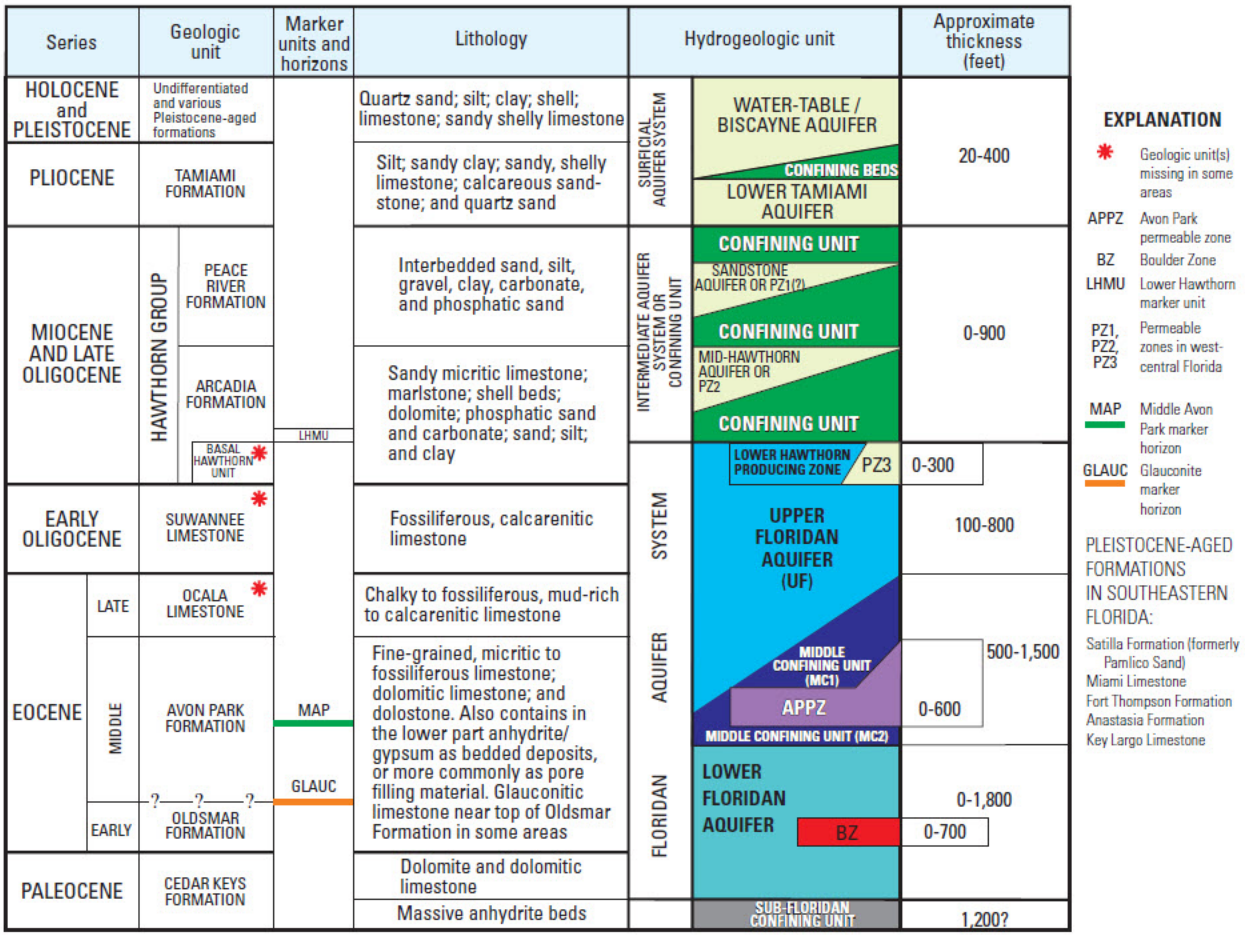

Figure 3-2. Generalized geologic and hydrogeologic framework of South Florida (From: Reese and Richardson 2008).

3.3.2 *Hydrogeology at Nearby FAS and Aquifer Storage and Recovery Wells*

There are several wells in Palm Beach County that provide information pertinent to the ASR well component of the C-18W Reservoir (**Figure 3-3**). The deep injection wells provide hydrostratigraphic and some water quality information, but generally do not provide information regarding aquifer characteristics in the UFA and APPZ. The FAS supply wells, ASR test wells, and SFWMD exploratory wells have more robust data sets that typically provide this information.

The hydrostratigraphic units most associated with water supply are the UFA and APPZ. Permeable zones within the upper portions of the Lower Floridan aquifer are too brackish to expect reasonable ASR recovery rates. For the UFA and APPZ, chloride and total dissolved solids (TDS) concentrations of 2,000 and 4,000 milligrams per liter (mg/L) are typical in Palm Beach County. The base of the underground source of drinking water, defined as the depth where ambient water quality is 10,000 mg/L total dissolved solids, is encountered between depths of 1,700 ft bls (Geraghty & Miller 1986, 1987) and 1,920 ft bls (PBF-15 at L-8 flow equalization basin; Anderson 2008). The transition to poorer water quality typically occurs over a short interval (approximately 100 ft) based on water quality samples obtained during reverse-air drilling at these sites.

Pratt & Whitney Injection Well: The closest wells to the C-18W Reservoir site that penetrate the entire FAS are located at the Pratt & Whitney deep injection well facility, approximately 4 miles north. The wells at this facility are completed within the Boulder Zone (approximately 3,000 ft bls). The Pratt & Whitney investigation revealed the top of the UFA occurs within the Suwannee Limestone at approximately 800 ft bls (CH2M HILL 1985). Additionally, there are deeper, permeable dolomitic portions of the aquifer that may also be available for storage.

Seacoast Injection Well: The stratigraphy at the Seacoast Utility Authority deep injection well system, 9 miles east of the C-18W Reservoir site, is similar to that at the Pratt & Whitney deep injection well facility. Investigation at this location showed there are several potential storage zones within the upper portions of the FAS, the uppermost of which is at 900 ft bls (CH2M HILL 1989).

C-18 Test ASR Well: In 1976, the Florida Department of Natural Resources constructed and tested an ASR system along the C-18 Canal, approximately 11 miles northeast of the C-18W Reservoir site (Palappert 1977). A 12-inch diameter test ASR well drilled within the UFA underwent four short test cycles at recharge rates of 3 mgd at relatively low pressures. During the fourth cycle, the system exhibited a recovery efficiency of 36% after recharging for only one month and a storage period of 120 days. Testing indicated the UFA would be conducive to future implementation of larger-capacity ASR wells at this site at rates of 5 mgd, with high recovery efficiency.

West Palm Beach ASR Well: The City of West Palm Beach is currently operating an ASR system approximately 11 miles southeast of the C-18W Reservoir site (CH2M HILL 1998). The ASR system is operating at recharge rates in excess of 7 mgd within the UFA and is currently conducting test cycles using filtered surface water. The City has obtained a water quality criteria exemption from the Florida Department of Environmental Protection that allows the ASR system to operate without a disinfection treatment process.

US Sugar ASR Test Well: In 1992, the United States Sugar Corporation constructed a test well system approximately 11 miles west of the C-18W Reservoir site. A 6-inch diameter test well, cased to the top of the FAS at a depth of 925 ft bls, was constructed with an open-hole extending to 1,690 ft bls. The well was hydraulically tested, and results indicated the UFA exhibited a transmissivity of 540,000 gallons/day/ft (Missimer & Associates, Inc. 1993). These attributes indicate a larger-diameter ASR well at this location could be pumped at a rate of 5 mgd, while exhibiting reasonable drawdowns and recharge pressures. Additionally, the water within the UFA exhibited chloride concentrations between 1,100 and 1,800 mg/L, which are similar to other ASR facilities in southern Florida that have had high recovery efficiencies.

Royal Palm Beach Injection Well: The stratigraphy at the Royal Palm Beach deep injection well, located 7 miles south of the C-18W Reservoir site, confirms that the UFA is present at a depth of 900 ft bls, and artesian limestone and dolomitic intervals are present to depths greater than 2,500 ft bls. A lost circulation zone at 950 ft bls indicates a permeable zone corresponding to the top of the UFA, with a total dissolved solids concentration of 4,000 mg/L. These findings indicate that multiple, vertically stacked zones may be available for high-capacity water recharge and storage in the area (CH2M HILL 1988).

L-8 Flow Equalization Basin Site (PBF-15): The SFWMD constructed a tri-zone monitor well to measure groundwater levels continuously in FAS permeable zones at the northeast corner of the L-8 flow equalization basin. Two permeable zones suitable for storage were identified between 890 and 1,100 ft bls. While drilling through this interval, numerous lost circulation zones were encountered, indicating highly fractured or otherwise permeable strata within the UFA that would be capable of accommodating high-capacity recharge and recovery rates (Anderson 2008).

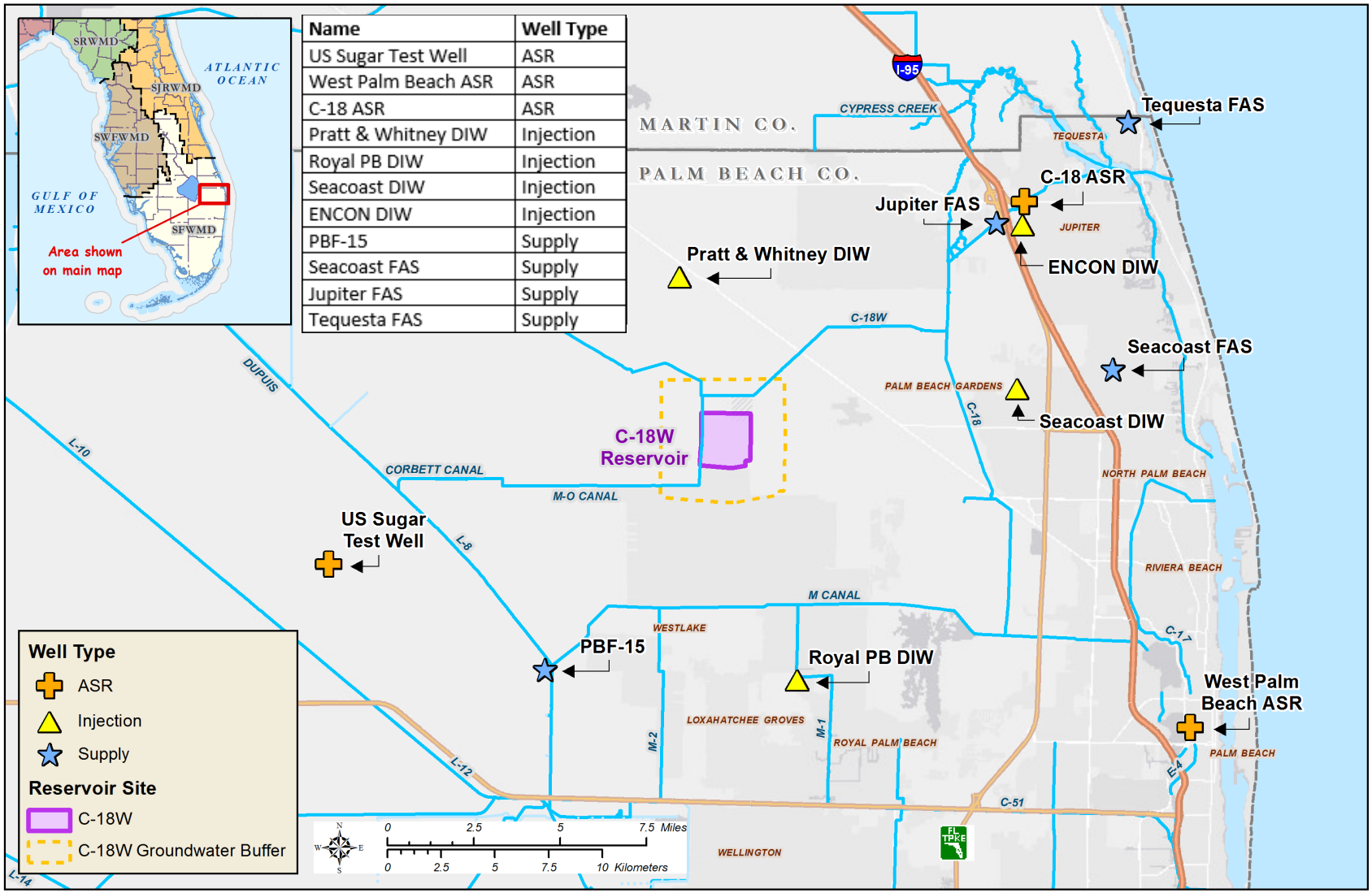

Figure 3-3. The C-18W Reservoir and nearby Floridan aquifer system wells/wellfields.

3.3.3 Conclusions

Review of hydrogeologic data in the vicinity of the C-18W Reservoir site was based on consultant reports and United States Geological Survey and SFWMD water resource investigations. Based on this review, it appears that subsurface conditions in the general depth range of the UFA and APPZ are suitable for ASR implementation. The UFA's hydrogeology, background water quality, aquifer characteristics, regional hydraulic gradient, and anticipated pumping rates are all within reasonable ranges associated with other successful ASR systems. There is no specific information in the area that precludes the C-18W Reservoir site from being considered for ASR.

4 IMPROVEMENTS TO HYDROLOGY, HABITATS, AND FISH AND WILDLIFE RESOURCES

4.1 Hydrology

One of the five planning objectives of the LRWRP is to restore wet and dry season flows to the Northwest Fork of the Loxahatchee River and the river's floodplain (USACE 2020). The Authorized Plan will improve the quantity, quality, timing, and distribution of freshwater flow to the Northwest Fork by achieving 91% of the dry season target restoration flows and 98% of the wet season target restoration flows as measured at Lainhart Dam (USACE 2020). To improve seasonal flows, freshwater currently lost to tide (via the Southwest Fork) will be captured and redirected to the Northwest Fork to meet restoration flows before being discharged into the Loxahatchee River Estuary. These improvements will be realized through the construction of structural project components, including a 9,500-ac-ft reservoir, four ASR wells, a flow-through marsh, pump stations, canals, and water control structures, in addition to management and operational modifications to existing water control infrastructure. Fewer high-discharge events (from the Northwest Fork) and low-flow days will improve salinity along the river, which will conserve the river's unique blend of freshwater and estuarine habitats. The LRWRP will also improve the timing and distribution of flows to the Northwest Fork's tributary creeks (Kitching Creek, Moonshine Creek, and Cypress Creek).

Beyond the Northwest Fork of the Loxahatchee River, the LRWRP will provide significant hydrologic improvements to wetlands through restoration of sheetflow and increased hydroperiods. Specific restoration actions include removal of berms, filling of ditches, connecting surface water and groundwater flows between natural areas, and moving water through spreader canals and natural flow-ways. Although hydrology to the watershed and Northwest Fork will be improved, the LRWRP will not fully restore hydrology to pre-drainage conditions (USACE 2020).

4.2 Habitats

The spatial extent and quality of wetland resources within the Loxahatchee River watershed have been impacted by drainage, conversion to agriculture, and urban development. The LRWRP proposes to restore approximately 27,000 acres of disturbed wetlands within the watershed: 17,000 acres of former wetlands that were improved for agriculture in the Pal-Mar natural area complex and 10,000 acres of existing disturbed wetlands in J.W. Corbett Wildlife Management Area, Loxahatchee Slough Natural Area, and Kitching Creek (USACE 2020). These 27,000 acres of restored wetlands will connect to 51,000 acres of other wetland communities in the area, resulting in a total of 78,000 acres of connected habitat (USACE 2020). Wetland restoration and habitat connectivity will benefit wetland and upland communities within the City of West Palm Beach Water Catchment Area, Jonathan Dickinson State Park, and the Pine Glades, Hungryland Slough, and Cypress Creek natural areas. Restoration and connectivity in these areas will result in habitat improvements for a mix of ridge and slough, pine flatwoods, wet prairie, cypress floodplain, cypress strand, dome swamps, depression marsh, and mesic and hydric hammock plant communities (USACE 2020). The LRWRP will also improve conditions for aquatic vegetation and seagrass communities through decreases in the number of high-discharge events and increases in dry season flows to the Northwest Fork and Loxahatchee River Estuary. While the spatial extent of natural plant communities will not be restored to their historical extents and proportions, the quality and quantity of vegetative communities will be greatly improved (USACE 2020).

4.3 Fish and Wildlife Resources

Alterations to historical drainage patterns and modifications to water management practices have impacted aquatic vegetation communities within the watershed, resulting in disrupted aquatic productivity and function throughout the food web (USACE 2020). The LRWRP will provide habitat improvements benefitting a wide range of fish and wildlife resources through implementation of project components that improve the timing, quantity, quality, and distribution of freshwater flow to the Loxahatchee River and Estuary. The project will also provide habitat connectivity between natural areas and patches of fragmented habitat as lands are committed to the project. This increase in the spatial extent of suitable habitats will provide additional foraging and nesting opportunities for fish and wildlife, including threatened and endangered species.

In the estuarine environment, oysters will benefit from the project as a result of fewer high-discharge events to the Loxahatchee River and Estuary. Commercially and recreationally important species of fish, such as snapper and grouper, will benefit from improved seagrass habitat and an increase in forage prey availability as the project re-establishes a more natural salinity regime to the river and downstream estuary. Increased freshwater flows to the river and estuary will improve habitat for other estuarine wildlife species such as manatees, sea turtles, and wading birds. In the freshwater environment, fish and wildlife will benefit from expansion of the riparian fringe due to implementation of project components that restore flow to the river and its historical tributaries. Restoration efforts for natural areas and hydrologically impacted lands throughout the project area will increase stages and hydroperiods of wetlands. Such wetland improvements will provide better habitats for crayfish and small fish, thus increasing prey and foraging opportunities for amphibians, reptiles, birds, and small mammals.

Currently degraded populations of listed species are expected to improve after the restoration and enhancement of suitable habitat. Nine federally listed species are either known to exist or potentially exist within the project area (USACE 2020). Those that would benefit from the LRWRP include the Florida manatee, Florida bonneted bat, snail kite, and wood stork. Twelve state-listed species are also potentially present in the project area (USACE 2020). Those that will benefit from the LRWRP include beach-nesting bird species (e.g., American oystercatcher, black skimmer, least tern), wading birds (e.g., reddish egret, little blue heron, roseate spoonbill, tricolored heron), and sandhill cranes. The LRWRP will contribute to the ongoing monitoring and management of threatened and endangered species, which will help maintain or enhance existing populations.

5 IDENTIFICATION OF WATER TO BE PROTECTED

The purpose of amending the Lower East Coast Regional Water Availability RAA rule to expand the boundaries of the North Palm Beach County/Loxahatchee River Watershed Waterbodies is to ensure water associated with the operation of the LRWRP is protected from consumptive use. Expansion of the RAA will protect surface waterbodies that deliver water to the Loxahatchee River or its tributaries. New rules are needed to protect the water stored in the UFA or APPZ via ASR wells included in the LRWRP's Authorized Plan.

5.1 Surface Water

The RAA for the Lower East Coast Everglades Waterbodies and North Palm Beach County/Loxahatchee River Watershed Waterbodies is a component of the MFL recovery strategy for the Northwest Fork of the Loxahatchee River, as set forth in Chapter 40E-8, F.A.C. The RAA helps implement the SFWMD's objective to ensure that water necessary for restoration of the Loxahatchee River watershed is not allocated for consumptive use upon permit renewal or modification under this rule. Any evaluation of water withdrawn from the North Palm Beach County/Loxahatchee River Watershed Waterbodies shall address the impacts of the proposed use on surface water and groundwater from: a) integrated conveyance systems hydraulically connected to the North Palm Beach County/Loxahatchee River Watershed Waterbodies and are tributary to or receive water from such waterbodies; and b) the North Palm Beach County/Loxahatchee River Watershed Waterbodies. Integrated conveyance systems hydraulically connected to the North Palm Beach County/Loxahatchee River Watershed Waterbodies include primary canals used for water supply, including, but not limited to, C&SF Project canals and secondary and tertiary canals that derive water from primary canals for supply purposes. Canals used strictly for drainage are not considered part of the North Palm Beach County/Loxahatchee River Watershed Waterbodies.

The LRWRP is a CERP project designed to restore the Loxahatchee River and meet part of the Northwest Fork of the Loxahatchee River MFL recovery strategy. As discussed previously, a condition of CERP projects is the legal protection of project water for the natural system prior to entering a cost-share agreement with the Federal Government. Most, but not all, areas included in the LRWRP are already within the existing definition of the North Palm Beach County/Loxahatchee River Watershed Waterbodies and, therefore, protected under the existing RAA. However, to fully protect the water needed for the LRWRP, the existing RAA needs to be amended to include the remaining project areas. **Figure 5-1** shows the proposed, expanded RAA boundaries for the North Palm Beach County/Loxahatchee River Watershed Waterbodies under the Lower East Coast Regional Water Availability rule. Additional maps depicting the North Palm Beach County/Loxahatchee River Watershed Waterbodies and the integrated conveyance systems hydraulically connected to the Waterbodies are available on the District's website at https://apps.sfwmd.gov/WAB/SFWMDMapping/index.html for use as design aids.

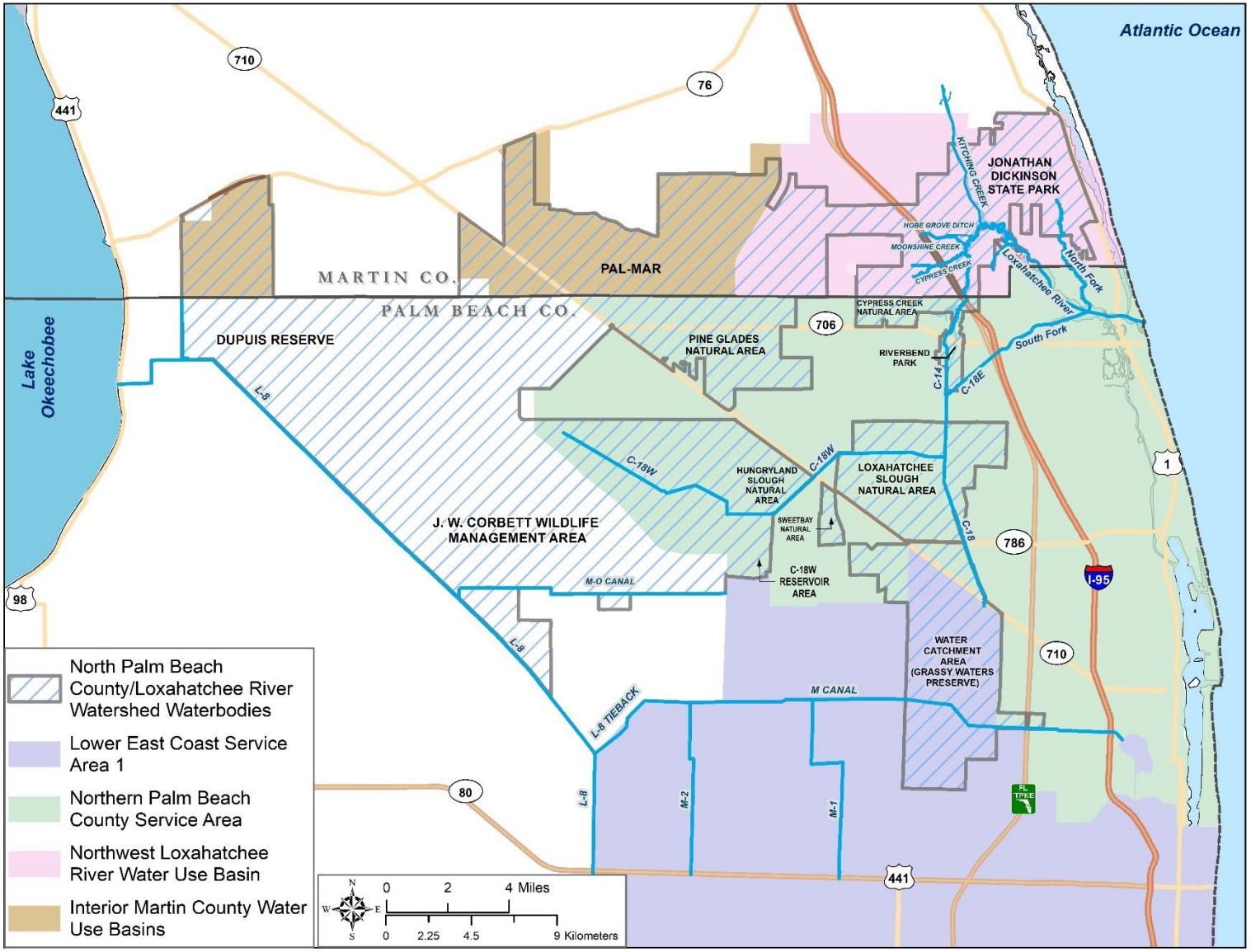

Figure 5-1. The proposed, expanded restricted allocation area boundaries for the North Palm Beach County/Loxahatchee River Watershed Waterbodies under the Lower East Coast Regional Water Availability rule.

5.2 Groundwater

5.2.1 Surficial Aquifer System

Under the existing Lower East Coast Regional Water Availability RAA rule, groundwater withdrawals from the unconfined surficial aquifer system (SAS), including the Biscayne aquifer, are limited to the extent that they induce seepage from the North Palm Beach County/Loxahatchee River Watershed Waterbodies above an established base condition ending on April 1, 2006, pursuant to Subsection 3.2.1.E.3 of the Applicant's Handbook (SFWMD 2021b). The rule only allows allocations over the base condition water use if additional impacts to the Everglades and Loxahatchee River watershed waterbodies are avoided through alternative water supplies, offsets, or reduced or terminated base condition water uses. Wet season water can be allocated if the permit applicant demonstrates that the flows are not needed for CERP projects. Consumptive use permits within Martin County will have a base condition ending on April 1, 2022, pursuant to Subsection 3.2.1.E.3 of the Applicant's Handbook (SFWMD 2021b).

5.2.2 Floridan Aquifer System

The LRWRP ASR component will store excess surface water in the UFA or APPZ via four ASR wells adjacent to the C-18W Reservoir, as described in the Authorized Plan. To protect the stored water, the SFWMD will implement a new RAA and modify the current criteria pertaining to existing legal users. The proposed rule will prohibit direct withdrawals from the UFA or APPZ, whichever is used as the storage horizon, within the RAA boundary identified in **Figure 5-2** to protect the groundwater buffer zone associated with the project's ASR wells. This RAA is narrowly defined to continue to encourage water users to utilize the FAS outside the boundary as an alternative water supply source. Consideration of withdrawals that induce seepage across the groundwater RAA boundary will be evaluated as described in Subsection 3.2.1.G of the Applicant's Handbook (SFWMD 2021b). Based on information from previous ASR investigations and modeling performed for the LRWRP, a 1-mile buffer from the boundaries of the C-18W Reservoir parcel was determined as the extent necessary to protect the project water stored via ASR (**Figure 5-2**).

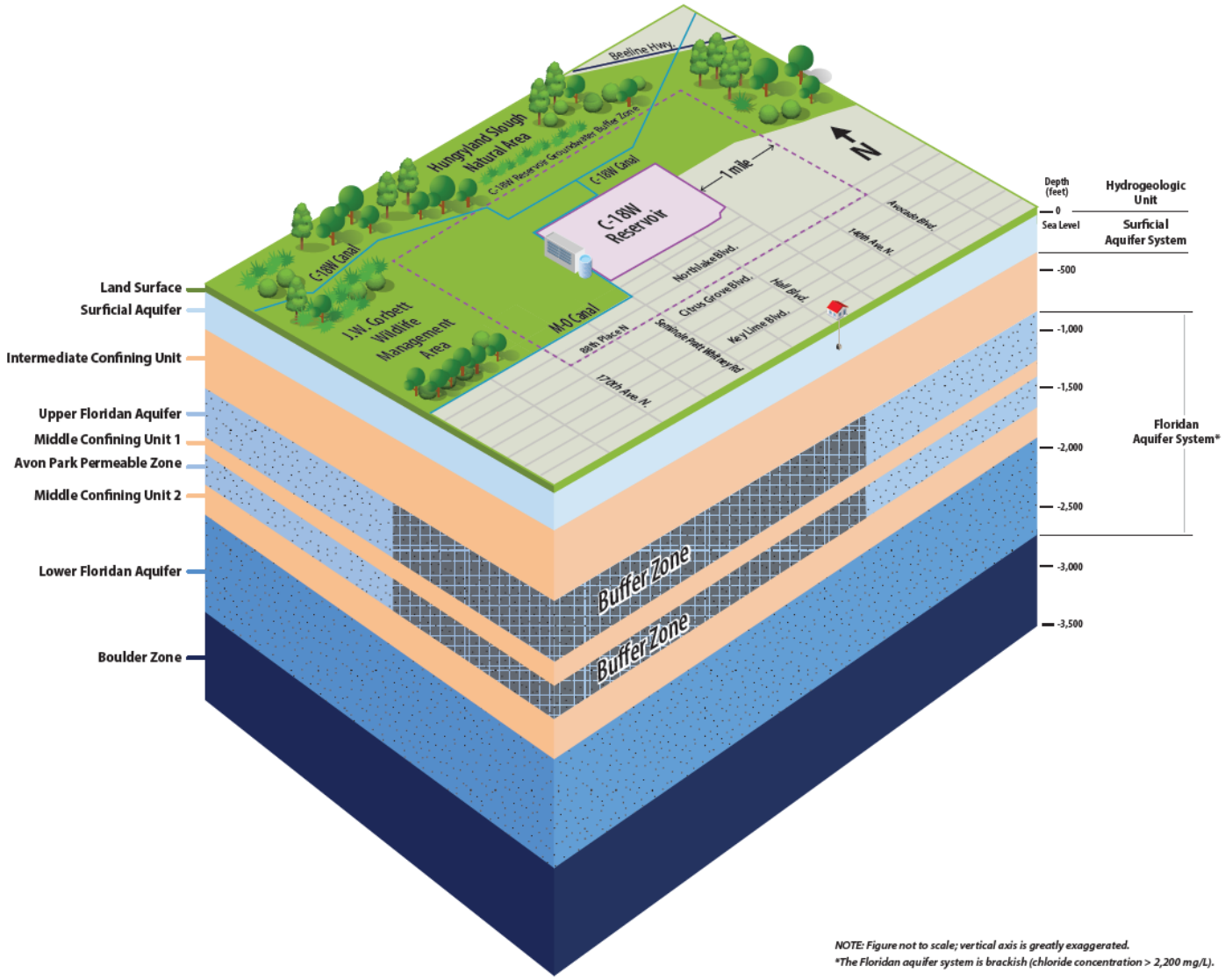

Figure 5-2. Graphic representation of the hydrogeology beneath the C-18W Reservoir (not to scale). The Upper Floridan aquifer (and possibly the Avon Park permeable zone) is anticipated to be utilized for storage and recovery of treated surface water beneath the C-18W Reservoir.

Groundwater Modeling of Aquifer Storage and Recovery at the C-18W Reservoir

During development of the LRWRP PIR-EIS, four ASR wells were simulated as part of the C-18W Reservoir operation. In the model, the minimum and maximum volumes of the ASR storage bubble were 8,700 and 30,000 ac-ft, respectively. Inflow and outflow capacities were limited to a combined flow rate of 30 cfs. The ASR system assumed a 70% recovery efficiency. Results from the Kissimmee River ASR Pilot Project system (nearly 100% recovery efficiency during each cycle over a 4-year testing period; SFWMD and USACE 2013) give some assurance that the 70% recovery efficiency assumed in the LRWRP model is conservative.

To achieve high recovery efficiencies, the brackish water in the storage zone must be displaced away from the ASR well, so a freshwater target storage volume (i.e., the bubble) can be established. To accomplish this, the initial recharge volumes/durations should be large and the recovery volumes purposefully limited. The operational model simulation assumed a minimum bubble volume of 8,700 ac-ft would always be maintained within the aquifer.

The ASR wells are anticipated to be constructed along the western perimeter of the C-18W Reservoir (**Figure 5-3**). Assuming a maximum bubble volume of 30,000 ac-ft, the radial extent of the bubble was estimated using a calculation developed by Warner and Lehr (1981) (**Figure 5-4**). The calculation assumed the storage zone was 200 ft thick, with an effective porosity of 20%, and used a dispersivity coefficient of 65 to account for mixing, diffusion, and dispersion within the storage zone. The radial edge of the bubble was estimated to extend 4,280 ft from the injection (recharge) point. The ASR well locations will be determined during preconstruction engineering and design and may be positioned at alternative locations adjacent to the reservoir. To account for this contingency, a conservative distance of 1 mile (5,290 ft) around the perimeter of the reservoir is proposed to protect the project water stored via ASR (**Figure 5-2**).

The effects of operating the ASR wells at the C-18W Reservoir were estimated using WinFlow groundwater modeling software. WinFlow is an interactive, analytical model that simulates two-dimensional steady--state and transient groundwater flow (in confined and unconfined aquifers) with wells, uniform recharge, circular recharge/discharge areas, and line sources or sinks. The model depicts the flow field using streamlines, particle traces, and water-level contours. The steady-state module simulates groundwater flow in a horizontal plane using analytical functions developed by Strack (1989). The transient module uses equations developed by Theis (1935) and Hantush and Jacob (1955) for confined and leaky aquifers, respectively.

The results of an exploratory/test well would provide the best data to derive site-specific aquifer hydraulic properties such as transmissivity, storativity, and leakance. These properties play a role in determining the effects of operating the ASR wells. Transmissivity is the rate at which water passes through a unit width of the aquifer under a unit hydraulic gradient. Storativity is a dimensionless measure of the volume of water discharged from an aquifer per unit area of the aquifer and per unit reduction in hydraulic head. For a confined aquifer, storativity results only from the rock and fluid compressibility and is typically very small ($\sim 10^{-4}$ to 10^{-5}). Leakance is the volume of water that flows through a unit area of a semi-confining layer separating two aquifers per unit head difference per unit time. At this time, an exploratory well has not been constructed at the project site. In the absence of measured values for these parameters, the reported values from nearby wells described in the previous section include transmissivities of 46,000 to 221,925 ft^2/day, storativity of 0.0004, and leakance 0.007 ft.

A WinFlow simulation at the C-18W Reservoir was conducted by using the Hantush-Jacob solution to assess the potential drawdown that could result from the four proposed ASR wells, each pumping at a rate of 5 mgd (3,500 gallons per minute). ASR wells were spaced 1,000 ft apart, as shown in the conceptual design plans (**Figure 5-3**). Aquifer parameters for the WinFlow model were estimated from review of

aquifer performance tests conducted at wells in proximity to the project site. A conservative approach to the analysis was conducted using a low range of transmissivity (74,866 ft^2/day) and leakance (0.0003 ft) and a porosity of 20% for the UFA. Pumping withdrawals from the four ASR wells were simulated for 90 days with no recharge. The resulting model 1-ft drawdown contour lines are shown in **Figure 5-5**. Model results indicate the 1-ft drawdown contour would extend to a maximum of approximately 1 mile beyond the western boundary of the reservoir. Based on this analysis, a 1-mile buffer around the C-18W Reservoir would be reasonable and not overly protective for operation of the ASR system.

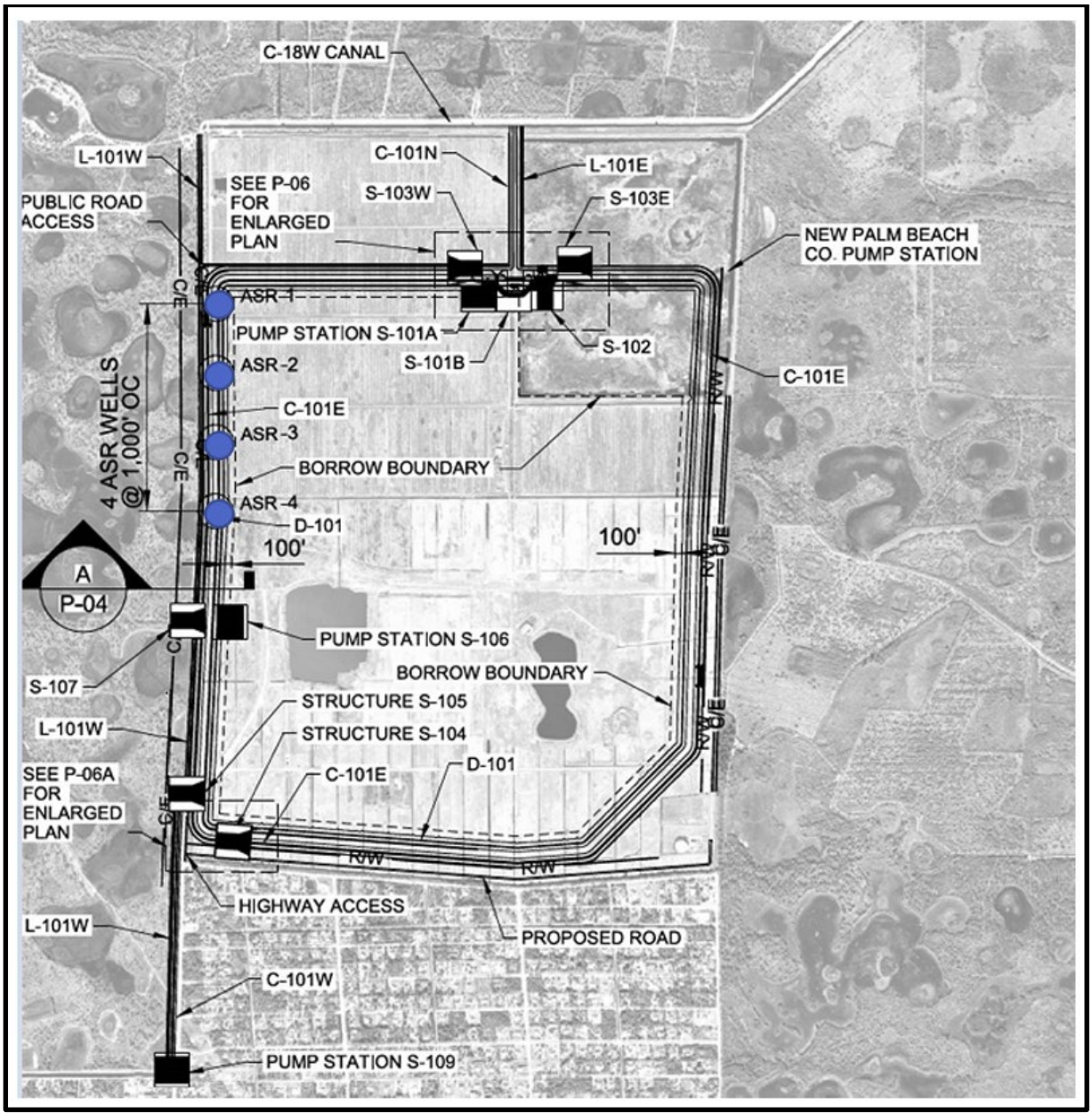

Figure 5-3. Conceptual design of the C-18W Reservoir and aquifer storage and recovery (ASR) wells (From: USACE 2020).

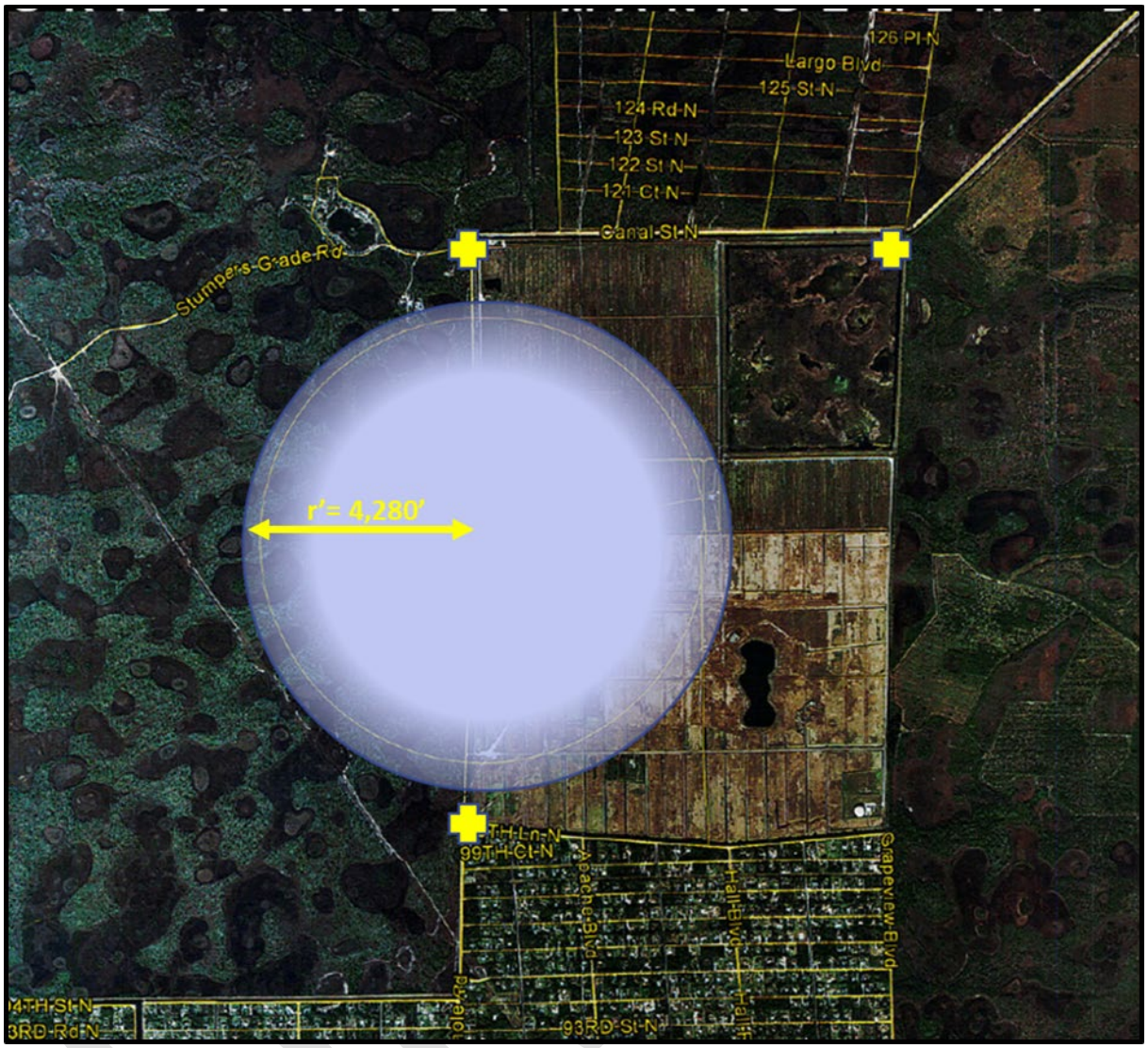

Figure 5-4. Estimated lateral extent of a 30,000-acre-foot groundwater bubble (light blue) in the upper portions of the Floridan aquifer system beneath the western border of the C-18W Reservoir parcel where four ASR wells are planned for construction. Yellow crosses are potential monitor well locations.

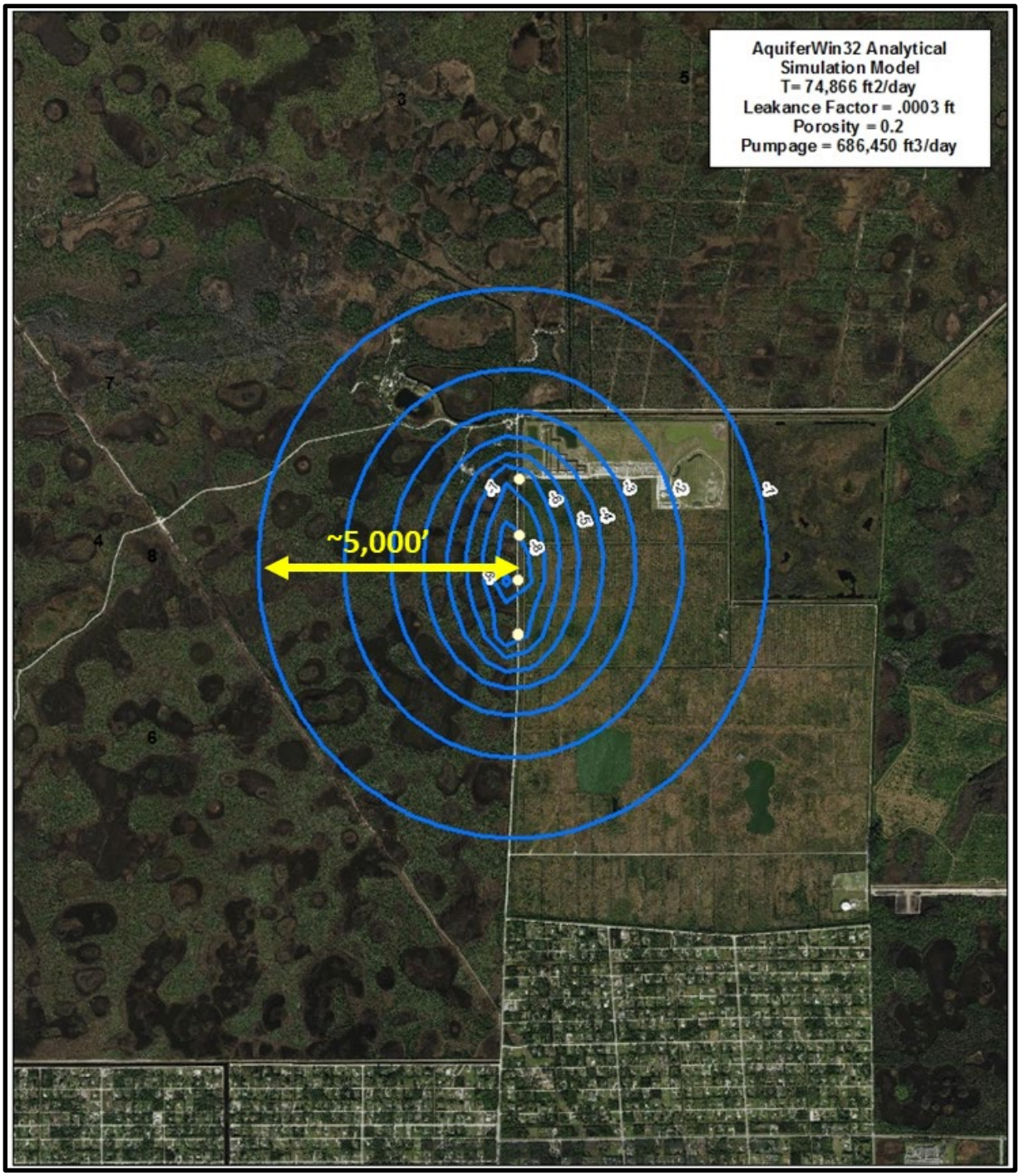

Figure 5-5. The estimated lateral extent of 1-foot drawdown contour lines in the upper portions of the Floridan aquifer system from simulated withdrawals from the four aquifer storage and recovery (ASR) wells for 90 days with no recharge.

5.3 Effects of the Amended and New Rules on Existing Legal Users

An existing legal use of water is defined as a water use authorized under a SFWMD water use permit or existing and exempt from permit requirements. The LRWRP maintains existing water supply performance for agricultural and municipal water users in the Lake Okeechobee Service Area (LOSA) and Northern Palm Beach County Service Area within the LRWRP project area.

Table 5-1 lists the active existing permitted users (as of October 31, 2021) in northern Palm Beach County and southern Martin County, from Lake Okeechobee to the west to the Atlantic Ocean to the east. The first and second columns of **Table 5-1** list the water use permit numbers and permittee names. The remaining columns show the water sources for each permit.

Implementation of the LRWRP will not diminish water supplies for existing users, as required by the Savings Clause. The Savings Clause analysis is listed in WRDA 2000 as a means to protect users of legal sources of water supply (and to protect the levels of service for flood protection) that were in place at the time of enactment. Specifically, Section 601(h)(5) of WRDA 2000, titled "Savings Clause," requires, in part, an analysis of each project's effects on legal sources of water that were in existence on the date of enactment of WRDA 2000. Existing legal sources provide water to permitted users, as shown in **Table 5-1** at the end of this chapter. For a full discussion on the LRWRP's compliance with the Savings Clause and Section 373.1501, F.S., see the PIR-EIS (USACE 2020).

5.3.1 Surface Water Use Permits

Wetlands and other surface waters require evaluation as described in Section 3.3 of the Applicant's Handbook (SFWMD 2021b). Section 3.3 establishes the standards and thresholds for protection of wetlands and other surface waters from harm pursuant to the condition for permit issuance in Rule 40E-2.301, F.A.C., including ensuring a water use shall not be harmful to the water resources of the area and is otherwise consistent with the overall objectives of the District. In addition, there are compatible land use requirements in Section 2.1.4 of the Applicant's Handbook that address applicable local government zoning regulations and comprehensive plans.

Existing water use permits were reviewed to determine the surface water withdrawal locations and volumes within the expanded North Palm Beach County/Loxahatchee River Watershed Waterbodies boundary. Permit selection included direct withdrawals of surface water from a regional waterbody. Of the existing permits (**Table 5-1**), 81 were identified as withdrawing from a surface waterbody within 0.5 miles of the expanded North Palm Beach County/Loxahatchee River Watershed Waterbodies area. Surface water withdrawals are used for multiple use classes (**Table 5-1**). Stakeholders can search for water use permits through the SFWMD's online maps (https://apps.sfwmd.gov/WAB/SFWMDMapping/index.html).

The waterbodies proposed to be added to the definition of North Palm Beach County/Loxahatchee River Watershed Waterbodies are located on publicly owned lands that have minimal potential for future water use permitting. Water needs for future uses will continue to be met by public water supply utilities, on-site surface water storage, domestic wells, and reclaimed water systems. In homeowners' associations and community development districts, a combination of on-site waterbodies, off-site waterbodies, the SAS, and reclaimed water are used for landscape and recreation irrigation and will remain available.

Any domestic self-supply water users can continue to use surface water as their source of water. Over time, potable water, reclaimed water, and wastewater utility service areas will expand into the unincorporated areas of Martin and Palm Beach counties. The Palm Beach County Water Utility Department projects 60% of the domestic self-supply population will eventually convert to public utility use. This population is

included in the *2018 Lower East Coast Water Supply Plan Update* (SFWMD 2018); therefore, it is considered an existing water use.

Most existing legal users in the region will not be affected by the amended Lower East Coast Regional Water Availability rule. Existing surface water use permits are complying with the Lower East Coast Regional Water Availability rule. Any existing legal user within the RAA seeking an increase in allocation will need to perform modeling to demonstrate the cone of depression from the increased withdrawal. If the 0.1-ft cone of depression reaches one of the defined North Palm Beach County/Loxahatchee River Watershed Waterbodies, the user will need to identify one of the sources in Subsection 3.2.1.E.5 to meet the difference between the base condition and the proposed increase. The user may incur additional costs related to the new source. If the user is located in area with plans for reclaimed water expansion, the user would experience increased water source costs regardless of the proposed RAA amendments.

5.3.2 Groundwater Use Permits

Surficial Aquifer System

Existing water use permits were reviewed to determine the withdrawal locations and volumes of groundwater from the SAS within the expanded North Palm Beach County/Loxahatchee River Watershed Waterbodies boundary. Permit selection included withdrawals of groundwater from the SAS that could cause drawdown in a protected surface waterbody. Of the existing permits (**Table 5-1**), 189 were identified as having at least one well completed in the SAS within the vicinity of the expanded North Palm Beach County/Loxahatchee River Watershed Waterbodies boundary. Groundwater withdrawals from the SAS are used for multiple use classes (**Table 5-1**). Existing SAS water use permits are complying with the Lower East Coast Regional Water Availability rule. Stakeholders can search for water use permits through the SFWMD's online maps (https://apps.sfwmd.gov/WAB/SFWMDMapping/index.html).

Many residential properties south of the C-18W Reservoir site have domestic SAS wells that are permitted by rule and are not required to submit consumptive use permit applications. The cone of depression from these wells is small, generally not extending beyond the property boundaries. The SAS and FAS are hydrogeologically separated by an intermediate confining unit that prevents cross-aquifer interference.

The C-18W Reservoir site is surrounded by natural areas, including J.W. Corbett Wildlife Management Area to the west and Hungryland Slough to the north. Further development of SAS wells in these natural areas is unlikely.

Floridan Aquifer System

Existing water use permits were reviewed to determine the withdrawal locations and volumes of groundwater from the FAS within 1 mile of the C-18W Reservoir site (**Figure 5-4**). Of the existing permits (**Table 5-1**), none were identified as having at least one well completed in the FAS within 1 mile of the C-18W Reservoir site. Groundwater withdrawals from the FAS are primarily used for public water supply by larger utilities such as the Town of Jupiter, Village of Tequesta, and Seacoast Utility Authority northeast of the C-18W Reservoir site (**Table 5-1**). Some utilities also use FAS water for blending with SAS withdrawals. For example, Palm Beach County Water Utility Department has proposed FAS/SAS blending in its recent permit modification (application 210924-3/permit 50-00135-W). Expanded use of brackish groundwater from the FAS for public water supply requires planning and wellfield management to prevent undesirable changes in water quality. In addition to public water supply, the FAS is used for some power generation activities in the vicinity of the project. The FPL West County Energy Center has three FAS wells that are used as needed for cooling water.

The SFWMD encourages water users to utilize the FAS as an alternative water supply source where possible. However, to protect the water stored in the UFA or APPZ via the project's ASR wells, the SFWMD will implement a new RAA rule and modify the criteria pertaining to existing legal users. There are no existing FAS users within the RAA boundary (i.e., within 1 mile of the C-18W Reservoir site). Any FAS users seeking to modify their consumptive use permit allocation will have to model the proposed use to determine if the cone of depression will intersect the groundwater buffer zone, as described in Subsection 3.2.1.G of the Applicant's Handbook (SFWMD 2021b).

The District's existing criteria requires water use permit applicants proposing a new FAS use to provide reasonable assurances that the proposed withdrawal of water, together with other exempt or permitted uses within the cone of influence of the proposed withdrawal, will not result in interference with existing legal uses, pursuant to Section 373.223(1)(b), F.S. In regard to the C-18W Reservoir ASR waters, future requested allocations shall not reduce the anticipated recovery efficiency of the ASR wells or create a cone of depression that intersects with the applicable groundwater buffer zone, as delineated in **Figure 5-2**. The groundwater buffer zone must be maintained to allow stored water to be recovered when needed for the benefit of the LRWRP. Any action causing the groundwater bubble to move away from the recovery zone or reducing the quality of recovered water would impact project water reserved for natural systems.

The proposed Applicant's Handbook rules for the FAS do not increase water use permitting fees or regulation (e.g., additional licensure, continuing education requirements). Water use permit applications from the FAS already require staff time and specialized knowledge (e.g., legal, technical). The current rules require existing and future FAS users to model proposed withdrawals to determine potential impacts to the FAS. *See* Section 3.1.2 of the Applicant's Handbook (SFWMD 2021b). Under the proposed rules, if the modeling results show a cone of depression intersecting the delineated zone in **Figure 5-2**, users/applicants will need to modify the proposed water allocation, which could include reducing the volume sought from the well or relocating the well.

Due to high costs of constructing an FAS well and the treatment needed to make the water potable, domestic wells typically are drilled into the SAS (100 to 120 ft bls maximum compared to approximately 1,000 ft bls to reach the UFA). As stated earlier, the SAS and FAS are hydrogeologically separated by an intermediate confining unit that prevents cross-aquifer interference. Therefore, the new proposed rule to protect water in the UFA or APPZ for the ASR wells at the C-18W Reservoir site is not likely to affect any domestic self-supply water users in the region. Additionally, domestic SAS wells will not affect the protected ASR water in the UFA or APPZ.

Table 5-1. Existing legal users and sources in the vicinity of the Loxahatchee River Watershed Restoration Project footprint. Note: primary source – 1°; secondary source – 2°; tertiary source – 3°.

Permit	Permittee Name	SFWMD Canal	On-site Lake	Other Off-site Surface Water	Surficial Aquifer System	Floridan Aquifer System	Public Water Supply Utility	Reclaimed Water
Martin County								
Agricultural								
43-00436-W	Armstrong Property	1°						
43-02552-W	Hobe Sound Farms		1°		2°			
43-00200-W	Jack Martin Farms/Shiloh Farms		1°		2°			
43-00045-W	Hobe Tree Farm				1°			
Diversion & Impoundment Secondary User								
43-02339-W	Harmony Ranch	1°						
43-02340-W	The Burg Farm	1°						
Diversion & Impoundment								
43-00087-W	Box Ranch of Martin County D & I	1°						
43-00057-W	Hobe St Lucie Conservancy District		2°	1°	3°			
Golf Course								
43-00138-W	Cypress Links Golf		1°		2°			
43-00221-W	Jonathans Landing at Old Trail		1°		2°			
43-00054-W	Jupiter Hills Club				1°			
43-00091-W	Riverbend Golf Club		1°		2°			
43-00140-W	Turtle Creek Club				1°			
Industrial								
43-00764-W	Girl Scout Camp Welaka				1°			
Landscape								
43-01726-W	Bridge Water Estates				1°			
43-01072-W	Coastal Waste & Recycling of Martin				1°			
43-02790-W	Corner Pine Ranch				1°			
43-01822-W	County Line Park				1°			
43-02228-W	Daystar Storage				1°			
43-00679-W	Florida Power & Light - Martin County				1°			
43-01696-W	Gille Residence		1°		2°			
43-02485-W	Hair Designer				1°			
43-01760-W	Hemingway Estates				1°			
43-01371-W	Hobe Sound Commerce Lot No 9				1°			
43-02045-W	Island Country Estates HOA Inc				1°			
43-01805-W	Jupiter Equestrian Estates				1°			
43-01995-W	Jupiter Hills		1°		2°			
43-00722-W	Jupiter Hills Homeowners Association		1°		2°			
43-01414-W	Lot 23 Ranch Colony - Landscape Irrigation		1°		2°			
43-02984-W	Martin County Fire Rescue Station 36				1°			
43-00877-W	Nichols Sanitation Inc (Hobe Sound Site)		1°		2°			
43-01633-W	North Passage HOA				1°			
43-01890-W	Old Cypress				1°			
43-02680-W	Old Trail Entrance Feature Landscape Irrigation				1°			
43-02042-W	Pennock Preserve				1°			
43-01905-W	Pennock Preserve PUD		1°		2°			
43-01179-W	Public Works Facility Irrigation Well				1°			
43-02410-W	Ranch Colony				1°			

Permit	Permittee Name	SFWMD Canal	On-site Lake	Other Off-site Surface Water	Surficial Aquifer System	Floridan Aquifer System	Public Water Supply Utility	Reclaimed Water
43-01763-W	Ranch Colony Lot 16				1°			
43-01744-W	Ranch Colony Property Owners Association				1°			
43-02199-W	River Ridge – New Well				1°			
43-01372-W	Sharma Residence Ranch Colony Lot 1				1°			
43-02921-W	T Asplundh Project				1°			
43-02686-W	Tennis Court Irrigation				1°			
43-00813-W	Tequesta Park				1°			
43-00603-W	The Little Club Condominium Association Incorporated		1°		2°			
43-01602-W	The Prado				1°			
43-01444-W	Tranquility				1°			
43-02803-W	Turtle Creek Common Areas				1°			
43-02679-W	Turtle Creek East				1°			
43-01994-W	Turtle Creek Village POA				1°			
43-01970-W	Waters Edge Property Owners Association Phase Two				1°			
43-01765-W	YZ Ranch		1°		2°			
Livestock								
43-02738-W	Armstrong Property				1°			
43-01599-W	Funny Farm		2°		1°			
43-02645-W	HB10E-004 - Cypress Creek				1°			
43-02378-W	Indiantown Property				1°			
43-01679-W	Kitchen Creek Ranch				1°			
43-02852-W	Mancils Cattle Grazing Lease				1°			
43-02919-W	Powerline Road				1°			
43-03067-W	SS Farms, LLC				1°			
Nursery								
43-02142-W	Alfred M Levy Nursery				1°			
43-02753-W	Jenkins Landscape		1°		2°			
43-02146-W	Toms Tropical Trees				1°			
Public Water Supply								
43-01982-W	Bridge Water Estates				1°			
43-01745-W	Equestrian Camp Sites				1°			
43-02971-W	Fernlea Nursery				1°			
43-02732-W	Hummingbird Substation				1°			
43-00782-W	Jonathan Dickinson State Park - Trapper Nelson & Stop Camp				1°			
43-02256-W	Oblivious Land LLC Private Helistop				1°			
43-02017-W	Old Trail at Jonathans Landing				1°			
43-00609-W	Payson Park Thoroughbred Training Center				1°			
43-00066-W	South Martin Regional Utility				1°	2°		
43-01284-W	St Lucie Mobile Home Village				1°			
43-02101-W	State Road No 9 I-95 Weigh-in Motion Station				1°			
43-00498-W	Tanah Keeta Scout Reservation				1°			

Permit	Permittee Name	SFWMD Canal	On-site Lake	Other Off-site Surface Water	Surficial Aquifer System	Floridan Aquifer System	Public Water Supply Utility	Reclaimed Water
Palm Beach County								
Agricultural								
50-04659-W	Moules Nursery		1°					
50-08980-W	Riverbend Park				1°			
Diversion & Impoundment								
50-00793-W	Lake Worth Drainage District	1°		2°				
50-01584-W	Town of Jupiter Recharge System	1°						
Golf Course								
50-00203-W	Breakers West Development		1°		2°			
50-00941-W	Eastpointe Country Club Irrigation System		1°		3°		2°	
50-02831-W	Golf & Racquet Club at Eastpointe		1°		3°		2°	
50-02120-W	Ibis Golf and Country Club		1°		2°			
50-01906-W	Iron Horse Lake Wells				1°			
50-01905-W	Ironhorse Country Club Irrigation		1°					
50-00537-W	Mayacoo Lakes Country Club		1°		2°			
50-01443-W	Old Marsh Golf Club		1°		2°			
50-00617-W	PGA National Golf Club and Sports Center		1°		2°			
50-00223-W	Tequesta Country Club		1°		2°			3°
50-07881-W	The Resort at Jupiter Country Club		1°					2°
Industrial								
50-01849-W	Jupiter Ready-Mix Concrete Plant				1°			
50-03722-W	Matheson Tri Gas West Palm Beach				1°			
50-05185-W	Pratt & Whitney, A Div. of Raytheon Tech Fire & Cooling	1°						
50-08888-W	Pratt & Whitney, A Div. of Raytheon Tech Aquifer Remediation				1°			
50-06015-W	Walgreens Distribution Center				1°			
Landscape								
50-07721-W	15835 Corp. Rd. L.L.C.				1°			
50-02446-W	Acreage Substations		2°	1°				
50-09412-W	Adult Quality Care				1°			
50-06316-W	All About Storage				1°			
50-08665-W	Alloy Cladding			1°				
50-05714-W	Alta Terrace-Phase Ii		1°					
50-02788-W	Amoco Food Mart				1°			
50-07042-W	Andros Isle				1°			
50-04149-W	Andros Isle Oakton Lakes		1°					
50-11742-W	Avenir Ph. 2 Spine Rd No. 2 Streetscape Common Irr.			1°				
50-11769-W	Avenir Pod-5			1°				
50-04494-W	Baywinds		1°		2°			
50-05628-W	Baywinds Rpd Pod F Lots 1-68		1°					
50-08880-W	Beacon Baptist Church		1°		2°			
50-11331-W	Bella Villaggio				1°			
50-05434-W	Bimini Twist Plaza				1°			
50-03597-W	Breakers Pointe Lake		1°					
50-09266-W	Breakers West Association				1°			
50-06192-W	Briggs Equipment				1°			
50-11905-W	Calvary Church of Jupiter				1°			

Permit	Permittee Name	SFWMD Canal	On-site Lake	Other Off-site Surface Water	Surficial Aquifer System	Floridan Aquifer System	Public Water Supply Utility	Reclaimed Water
50-02314-W	Caribbean Villas Apartments				1°			
50-05727-W	Chase Bank				1°			
50-04336-W	Church of God of Prophecy				1°			
50-06713-W	Cobblestone Village			1°				
50-05757-W	Costco Wholesale of West Palm Beach		1°		2°			
50-07883-W	Cvt Properties LLC			1°				
50-03735-W	Devonshire at PGA National		1°					
50-10422-W	Discovery Village at Palm Beach Gardens				1°			
50-05200-W	Donald Ross Land Owners Association				1°			
50-05618-W	Donald Ross Road Beautification				1°			
50-11301-W	Dunbar Woods		1°		2°			
50-08766-W	Dunkin Donuts				1°			
50-03282-W	Eastpointe Homeowners Association		1°		2°			
50-05598-W	Eckerd Drugs 31				1°			
50-03122-W	Elementary School E		1°					
50-11938-W	FPL Avenir Substation				1°			
50-06268-W	FAS Well Irrigation (Town of Jupiter)				1°			
50-08213-W	Fimco Manufacturing Inc				1°			
50-08830-W	First Park South Florida-Entry Irrigation				1°			
50-03288-W	Flagler Manor				1°			
50-05615-W	Florida Power and Light Ryder Substation			1°	2°			
50-08576-W	Fox Parcel 4c				1°			
50-08776-W	Foxhall Homeowners Association				1°			
50-06792-W	Golden Corral				1°			
50-10667-W	Gramercy Park				1°			
50-12022-W	Ground F X Equipment and Hauling				1°			
50-06060-W	Hamilton Bay Recreation Center				1°			
50-09892-W	Haverhill Affordable Housing L T D				1°			
50-11967-W	Homesafe				1°			
50-07966-W	Ibis Isle		1°					
50-07991-W	Ibis Lakes Homeowners Association Inc		1°					
50-09050-W	Ibis Property Owners Association		1°		2°			
50-01664-W	Irrigation (Pratt & Whitney, A Div. of Raytheon Tech Corp)		1°					
50-09403-W	Jupiter 7th Day Adventist Church		1°		2°			
50-07320-W	Jupiter Country Club		1°					2°
50-07348-W	Jupiter Country Club				1°			
50-10557-W	Jupiter/Palm Beach RV Motorcoach Resort		1°		2°			
50-02315-W	Landscape Irrigation for Administration Building				1°			
50-07093-W	Loxahatchee Reserve		1°					
50-07356-W	Mirasol Irrigation System		2°	1°			3°	
50-06863-W	New Frito-Lay DC				1°			
50-03139-W	North Palm Beach County Aviation Airport				1°			
50-05331-W	North River Plantation		1°		2°			
50-03247-W	Northlake Boulevard Landscape Improvements			1°				
50-09128-W	Oceanside Masonary				1°			

Permit	Permittee Name	SFWMD Canal	On-site Lake	Other Off-site Surface Water	Surficial Aquifer System	Floridan Aquifer System	Public Water Supply Utility	Reclaimed Water
50-06494-W	PDD BE Group Irrigation				1°			
50-07503-W	PM Group				1°			
50-06202-W	Palazzo Grande				1°			
50-06069-W	Palisades PUD		1°					
50-08788-W	Palm Beach County Fire Station No. 14				1°			
50-08991-W	Palm Beach Park of Commerce Lot 35G				1°			
50-11899-W	Palm Beach Park of Commerce Parcel 7				1°			
50-12117-W	Palm Coast Sales				1°			
50-11954-W	Park of Commerce - Building 26				1°			
50-11935-W	Park of Commerce - Project Energy				1°			
50-06257-W	Parkwood Estates PUD				1°			
50-07161-W	Portosol		1°					
50-08943-W	Portosol Okeechobee Blvd Median				1°			
50-08873-W	Precision Contracting Services				1°			
50-06373-W	Premier Park of Commerce		1°					
50-11281-W	Project Beach Ball		2°	1°				
50-04161-W	Publix Shoppes At Ibis 651				1°			
50-02238-W	R and M Management Co LLC				1°			
50-06405-W	Riverside Oaks				1°			
50-03425-W	Riverwalk		1°		2°			
50-03454-W	Royal Palm Beach High School				1°			
50-09166-W	S & K Sales Office				1°			
50-06254-W	Shirley Investment Properties				1°			
50-10724-W	Shoppes At Andros Isle Publix No 0653				1°			
50-10187-W	Sierra Square Irrigation Well				1°			
50-10916-W	Sikorsky D F C		1°					
50-09162-W	Sikorsky Sloped Landing Area		1°					
50-09162-W	Sikorsky Sloped Landing Area		1°					
50-11672-W	Sisson				1°			
50-10703-W	Sonoma Isles		1°					
50-05642-W	South Florida Donuts				1°			
50-09600-W	SR 704 Okeechobee Blvd Beautification				1°			
50-10261-W	State Road 7 - Irrigation Conversion				1°			
50-06518-W	Suntrust Bank at Baywinds Commercial				1°			
50-06300-W	Super Target at Royal Palm Beach		1°					
50-06223-W	T.M. Russell Inc				1°			
50-06947-W	Tangelo Substation				1°			
50-07757-W	TDSI West Palm		1°					
50-09902-W	The Big Green Egg Building				1°			
50-04642-W	The Reserve at Ibis			1°				
50-10578-W	Thousand Pines				1°			
50-05847-W	Tribute Boats				1°			
50-05442-W	Village Shoppes LLC				1°			
50-07504-W	Walgreens Distribution Center				1°			
50-06496-W	West Palm Commerce Park		1°					
50-05706-W	West Palm Commerce Park and Haverhill Commerce Park		1°		2°			
50-06889-W	Western Repump				1°			

Permit	Permittee Name	SFWMD Canal	On-site Lake	Other Off-site Surface Water	Surficial Aquifer System	Floridan Aquifer System	Public Water Supply Utility	Reclaimed Water
Livestock								
50-09293-W	Riverbend Park- Equestrian				1°			
50-09781-W	Rocky Pines Rd				1°			
Nursery								
50-08594-W	Hammock Tropical Garden			1°				
50-11658-W	Ibis Nursery				1°			
50-04449-W	Lidonni Nursery and Landscape		1°		1°			
50-09747-W	Terracon Nursery Tree Farm				1°			
50-08340-W	The Bushel Stop				1°			
Public Water Supply								
50-09534-W	Bushel Stop				1°			
50-02825-W	Church 12265 Indiantown Rd Jupiter Farms		1°		2°			
50-00615-W	City of West Palm Beach Public Utilities	3°		1°		2°		
50-02654-W	Everglades Youth Camp				1°			
50-09243-W	Firestation 14				1°			
50-10610-W	Jupiter/Palm Beach RV Motorcoach Resort				1°			
50-06546-W	Palm Beach County Research Park Temp Construction				1°			
50-11198-W	Palm Beach County Shooting Sports Park				1°			
50-00135-W	Palm Beach County Water Utilities Department				1°			
50-00460-W	Riviera Beach Public Water Supply				1°			
50-07662-W	Sandhill Crane Access Park				1°			
50-00365-W	Seacoast Utility Authority				1°	2°		
50-05234-W	Storage Facility at J W Corbett Preserve				1°			
50-00010-W	Town of Jupiter Water Utilities				2°	1°		
50-00030-W	Town of Mangonia Park				1°			
50-00046-W	Village of Tequesta - Public Water Supply				2°	1°		

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APPENDIX: PUBLIC COMMENT LETTERS RECEIVED

WEST PALM BEACH

Public Utilities

February 7, 2022
VIA EMAIL
nkraft@sfwmd.gov

Natalie Kraft
South Florida Water Management District

RE: Loxahatchee River Watershed Restoration Project Protection Rulemaking Comments on Rule Development Workshop #1

Dear Ms. Kraft,

Please accept this letter as the City of West Palm Beach's (City) comments on the South Florida Water Management District's (District) recent January 25, 2022, workshop regarding rulemaking in support of the Comprehensive Everglades Restoration Plan (CERP) Loxahatchee River Watershed Restoration Project (LRWRP).

The City has been a long-time supporter of the restoration of the Loxahatchee River. In addition, the City owns and manages Grassy Waters Preserve (Grassy Waters), a 23-square mile aquatic ecosystem comprising the southern half of the historical Loxahatchee Slough. Grassy Waters is also one of the major named natural areas evaluated in the LRWRP study area, and is integral to several key components of LRWRP, including improvement of the connection between Grassy Waters and the Loxahatchee River through the G-161 Structure, hydrologic restoration of the Grassy Waters Preserve Triangle, and the M-1 pump station. The City also devotes significant resources to the preservation of Grassy Waters Preserve and relies on it as a primary surface water supply source for its citizens.

As discussed at the District's recent workshop regarding the LRWRP rulemaking, the purpose of the rulemaking is to adopt rules that allow the District to meet its obligations as the local sponsor for LRWRP by implementing new water use permitting requirements that assure that water necessary for restoration of the Loxahatchee River Watershed is not allocated to consumptive uses. The City fully supports rulemaking that allows the LRWRP to move forward and to assure that water supplies are not improperly diverted from the project. However, it is important that any rules adopted by the District are consistent with the purpose of the LRWRP, are based on sound science, and do not create unintended consequences for water users located within and outside the North Palm Beach County/Loxahatchee River Watershed Waterbodies.

I. Definition of North Palm Beach County/Loxahatchee River Watershed Waterbodies

The proposed rule revisions presented at the workshop contained a revision to the existing definition of "North Palm Beach County/Loxahatchee River Watershed Waterbodies" in Section

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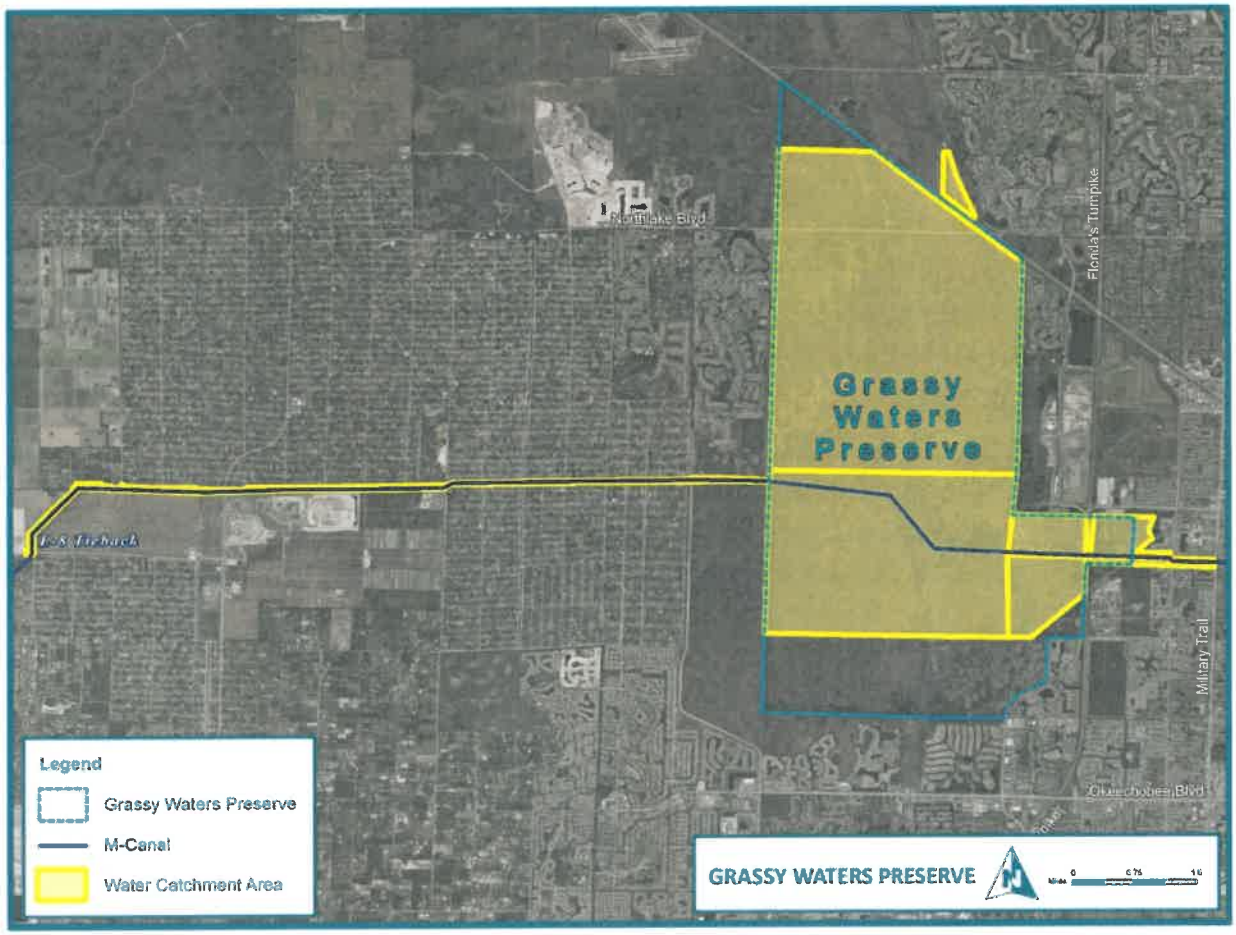
561.822.2200

1.1 of the District's Applicant's Handbook for Water Use Permit Applications (AH). It appears that the intent of this revision is to add new areas to the definition of "North Palm Beach County/Loxahatchee River Watershed Waterbodies" to include additional areas addressed in the LRWRP components and subject those areas to the applicable Restricted Allocation Area requirements of AH Section 3.2.1.E. There is also a corresponding revision to AH Figure 3-2 reflecting the changes to the definition.

However, in addition to adding Hungryland Slough, Pine Glades, and the C-18W Reservoir to the definition, the language presented at the workshop also proposes to strike "Grassy Waters Preserve" from the definition, and apparently replace it with the term "City of West Palm Beach Water Catchment Area." The City strongly objects to the striking of "Grassy Waters Preserve" from the definition of "North Palm Beach County/Loxahatchee River Watershed Waterbodies."

Though Grassy Waters Preserve and the City of West Palm Beach Water Catchment Area are often used synonymously, their boundaries are not coterminous, and have significant distinctions. The "West Palm Beach Water Catchment Area" is an area defined by Special Act, in Chapter 67-2169, Laws of Florida, as amended. As shown on the map below, it includes the entirety of the M-Canal extending west from Grassy Waters Preserve to the L-8 Tieback, and



excludes significant contiguous portions of Grassy Waters Preserve, including part of the Grassy Waters Preserve triangle area, north of Northlake Boulevard.

Therefore, as a preliminary matter, changing the definition in Section 1.1 of the AH to reference the City of West Palm Beach Water Catchment Area rather than Grassy Waters Preserve only serves to create confusion and conflict with existing definitions adopted by the Florida Legislature, without providing any benefit with regard to the LRWRP.

Additionally, use of the term "Water Catchment Area" in place of Grassy Waters Preserve creates an ambiguity with regards to the LRWRP. Most significantly, the January 2020 LRWRP Final Integrated Project Implementation Report and Environmental Impact Statement (PIR & EIS) does not refer to the area in question as the "City of West Palm Beach Water Catchment Area" but instead consistently and repeatedly refers to the area as "Grassy Waters Preserve."

Several of the numerous examples of the LRWRP PIR & EIS identifying the area in question as Grassy Waters are reproduced below:

Executive Summary, p. xviii:

THE RECOMMENDED PLAN

The Recommended Plan, Alternative 5R (**Figure ES-2**), consists of the following components:

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

Table 1-2 Description of the LRWPR Natural Area:

Grassy Waters Preserve	**The southern half of the historical Loxahatchee Slough has been impounded to form the Grassy Waters Preserve (GWP). The GWP is a managed wetland ecosystem, approximately 12,800 acres (20 square miles), which is owned and operated by the City of West Palm Beach. GWP serves as a surface water catchment, groundwater recharge and storage system for public water supply. GWP is also known as the West Palm Beach Water Catchment Area. The City's management of the GWP as an element of the water supply system has protected and sustained most of this system in a high quality wetland condition. The wetlands within this catchment area include wet prairies (sawgrass and spikerush), sloughs and cypress and other tree islands configured in a remarkably natural mosaic.**

1.7.1 LRWRP Planning Objectives:

4. Restore connections between J. W. Corbett WMA, Pal-Mar/Cypress Creek basin, Loxahatchee Slough, Grassy Waters Preserve and Loxahatchee River to improve hydrology, sheetflow, hydroperiods, natural storage, and vegetation communities.

2.5.1 Structures G-160 and G161 in the C-18 Canal

> The SFWMD recognized that G-160 and G-161 water control structures were necessary to provide connectivity between the river and its historic headwaters and essential to deliver necessary dry season restorative flows to the NWFLR. In parallel with the earlier CERP study for North Palm Beach County Part 1 (NPBC-Part 1), the SFWMD moved ahead with the design and construction of G-160 and G-161. G-160 was constructed in 2004 and G-161 was constructed in 2007. These structures provide early and necessary benefits to the Loxahatchee Slough and the Loxahatchee River, while allowing delivery of additional water from and maintaining a more rainfall driven hydroperiod within the Grassy Waters Preserve (GWP).

In fact, in the LRWRP PIR & EIS, three of the LRWRP components themselves are defined in reference to Grassy Waters Preserve:

Table 3-2. LRWRP components.

Flow-way	Component Name	Description and Purpose
1	G-160	Structure in canal, to restore hydroperiod in Loxahatchee Slough
1	G-161	Release Grassy Waters Preserve (GWP) water to Loxahatchee Slough
1	GWP triangle	Remove topographic barriers (berms) to improve connectivity
1	ITID water to M Canal to GWP	Pump station within ITID to send ITID Lower M-1 Basin water from M-1 Canal to M Canal, then east to GWP and north to C-18 Canal and Loxahatchee Slough

Nowhere in the LRWRP PIR & EIS is the area in question referred to as the City of West Palm Beach Water Catchment Area. Given that the entire purpose of the District's LRWRP rulemaking is the implementation of the LRWRP as described in the PIR & EIC, striking "Grassy Waters Preserve" from the applicable AH definition creates a significant conflict with the LRWRP.

For example, the proposed revision to Figure 3-2 of the AH, which relabels the area as "City of West Palm Beach Water Catchment Area," would be in direct conflict with Figure 1-3 of the PIR & EIS, which identifies the same area as "Grassy Waters Preserve":

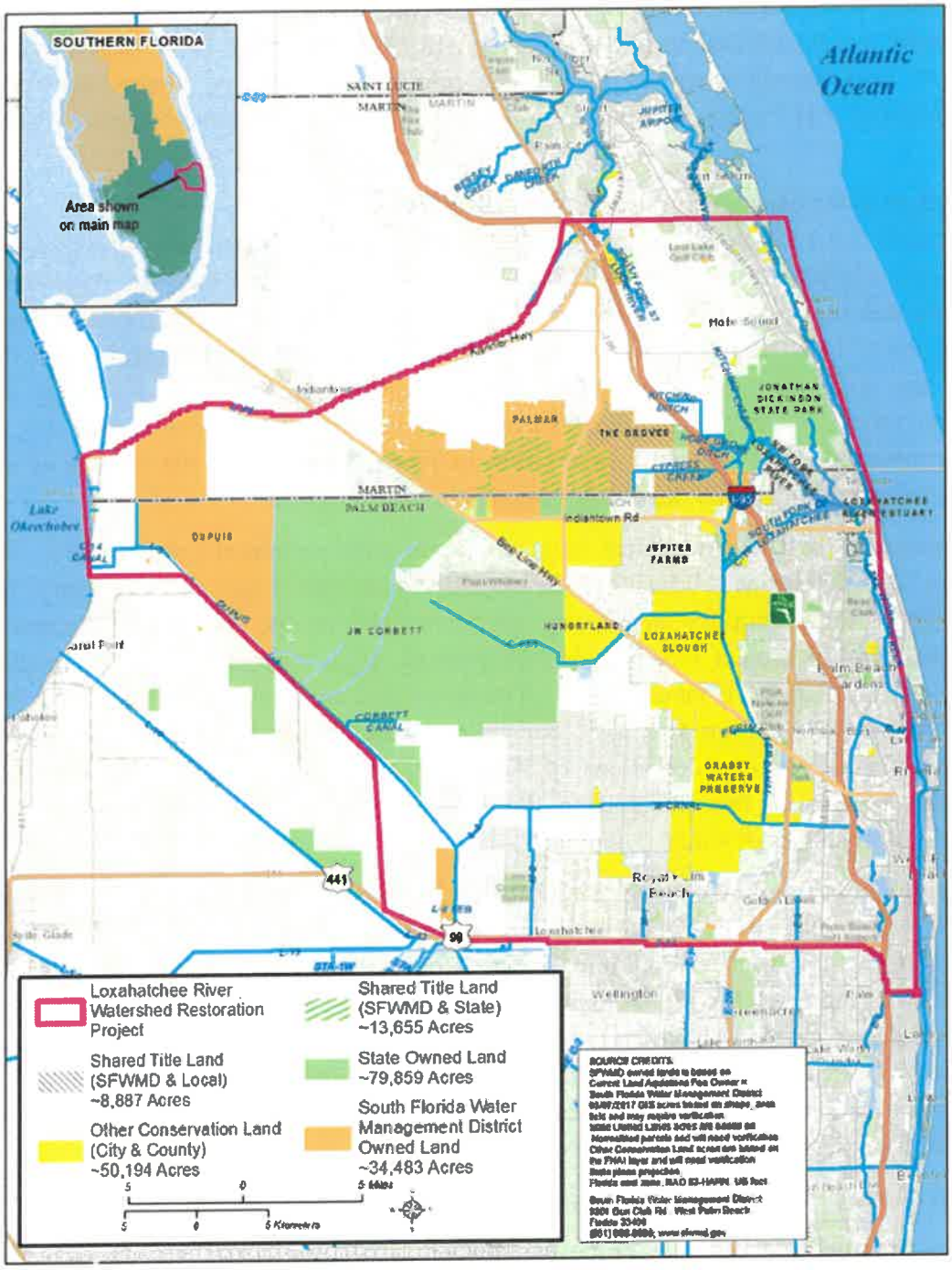


Figure 1-3. Natural lands ownership in the LRWRP study area.

In sum, not only is the use of the term "City of West Palm Beach Water Catchment Area" inconsistent with the area and definition of that term in Florida law, it also creates a significant conflict with the usage of the term "Grassy Waters Preserve" in the PIR & EIS, contradicting the essential purpose of this rulemaking effort, the implementation of the LRWRP. The proposed

definition of "North Palm Beach County/Loxahatchee River Watershed Waterbodies" in AH Section 1.1 should not be revised to add a reference to "City of West Palm Beach Water Catchment Area" and should maintain its current reference to Grassy Waters Preserve. Additionally, proposed AH Figure 3-2 should be revised to likewise reference Grassy Waters Preserve.

II. Proposed Aquifer Storage and Recovery (ASR) Requirements

New AH Subsection 3.2.1.G. would impose new restrictions on the allocation of groundwater stored in the upper Floridan aquifer system (FAS) beneath the C-18W Reservoir. Applicants must demonstrate that the requested allocation will not withdraw from the portion of the upper FAS underlying the C-18W Reservoir and delineated buffer zone. In order to comply with the new provision, the applicant may demonstrate compliance through either demonstrating the allocation will not interfere with the C-18 W Reservoir ASR wells as described in Section 3.7, or by showing the allocation will not result in a 1-foot or more drawdown to the portion of the upper FAS that underlies the C-18W Reservoir groundwater buffer zone.

The City is concerned with the technical basis for these new proposed criteria. First, the limitations were not determined based on site-specific data that would be necessary for protection in the Floridan aquifer system as acknowledged in the Technical Document Supporting Rulemaking to Protect Water Made Available by the Loxahatchee River Watershed Restoration Project (Draft Report, January 2022). The protection analysis is only based on a 90-day period of withdrawals, similar to a basic consumptive use permit impact analysis, which does not account for the unique operations of ASR and the complexities of the area. For example, the analysis does not take into account the ASR bubble's long-term effects on existing or proposed consumptive uses of water.

The presentation given at the public meeting on January 25, explained the use of the East Coast Floridan Model, which is a three-dimensional, density dependent, calibrated, peer reviewed model, and important tool used for multiple Water Supply Plans. However, the East Coast Floridan Model was not used for the preparation of the analysis described in the Technical Document and does not appear to have been considered in the draft rule. Appropriate technical evaluations should be completed in order to evaluate the appropriate level of restriction necessary to assure protection of water necessary for restoration of the Loxahatchee River Watershed, without imposing arbitrary restrictions on water users.

III. New Interference with Legal Use Requirement

The City is also concerned regarding the proposed addition of AH Subsection 3.7.2.E. First, this amendment appears to exceed the scope of this rulemaking, which is to protect water made available by the LRWRP. At the workshop, staff explained that was being done through the existing AH Subsection 3.2.1.E and the new Subsection 3.2.1.G. The proposed change to AH Subsection 3.7.2.E is not restricted to the North Palm Beach County/Loxahatchee River Watershed Waterbodies and would apply District-wide.

Second this change creates a conflict between the new AH subsection 3.2.1.G. While the delineated area defined in Subsection 3.2.1.G makes attempts to define a numeric drawdown harm standard (Subsection 3.2.1.G.2 of the Applicant's Handbook), Subsection 3.7.2.E creates a completely different standard. Instead, it would define interference as a use that changes or accelerates flow velocity or direction, or changes the concentration of total dissolved solids (TDS). As written, essentially any new or changed water use would be considered an interference with an existing legal ASR use, since "any" change in flow or TDS (increase or decrease) is defined as interference. Read literally, this restriction would make all water uses an interference with an existing ASR system. Thus, it would supersede the requirements in subsection 3.2.1.G.

If a new district-wide ASR interference standard is something the District wishes to adopt, it should be done through a separate rulemaking where the implications of this change District-wide can be evaluated. Including this proposed change in the current rulemaking will suppress public participation and input, as most water users outside the North Palm Beach County/Loxahatchee River Watershed Waterbodies will likely not pay attention to this rulemaking, thinking that it will not affect their interests.

Thank you for your consideration of these comments. We look forward to continuing to work with District staff regarding these and other important issues.

Sincerely,

Darrel Graziani
Assistant Director of Public Utilities
City of West Palm Beach

cc: Armando Fana, Assistant City Administrator, City of West Palm Beach
Kimberly Rothenburg, City Attorney, City of West Palm Beach

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February 7, 2022

Natalie Kraft
Lead Scientist, Applied Sciences Bureau
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33406

Dear Ms. Kraft,

Subject: Palm Beach County Comments on Rulemaking to Protect Water Made Available by the Loxahatchee River Watershed Restoration Project

Palm Beach County (County) supports South Florida Water Management District (SFWMD or District) efforts to advance Comprehensive Everglades Restoration Plan (CERP) projects within the County. More specifically, the County supports the District's ongoing rulemaking effort related to implementing the Loxahatchee River Watershed Restoration Project (LRWRP) and its associated forward momentum. This letter is intended to communicate the County's initial concerns and other comments to SFWMD based on the County's review of the proposed rule, published in the Florida Administrative Register on December 21, 2021, revisions to the Applicant's Handbook for Water Use Permit Applications (Applicant's Handbook), released January 12, 2022, the Draft Technical Document Supporting Rulemaking to Protect Water Made Available by the Loxahatchee River Watershed Restoration Project (Technical Document), dated January 2022, and the County's participation in Rule Development Workshop #1, held virtually on January 25, 2022.

Overall, the County has some key concerns and would like a clear understanding of the proposed rule's potential impacts on the County's natural areas, future water resources projects, and existing and future legal uses of water. In addition to the comments provided herein, Attachment 1 is the Applicant's Handbook with detailed County comments and Attachment 2 is the Technical Document with detailed County comments. Attachment 3 is a map of the SFWMD-proposed North Palm Beach County/Loxahatchee River Watershed Water Body boundaries along with boundaries of County Natural Areas that is intended to assist in communicating the inconsistencies in the above-referenced documents described below.

The County is an integral partner and stakeholder in the joint state-federal process to restore and protect the Loxahatchee River watershed. The County, in collaboration with state and local partners, has invested well over $400 million to acquire, restore and manage over 30,700 acres of land within the watershed. The County recognizes the District's obligation to allocate or reserve water related to this CERP project and the desire of SFWMD to move quickly with this rulemaking effort in advance of negotiating and executing a Project Partnership Agreement with the United States Army Corps of Engineers (USACE) later this year. However, public engagement activities and the quality of final rule language should not be sacrificed to meet arbitrary administrative deadlines and therefore the County urges the District to allocate sufficient time for this rulemaking effort.

Below are the County's observations, suggestions and questions compiled to date on the subject rulemaking effort:

1. The County seeks a better understanding regarding why the District chose to meet its statutory obligations to allocate or reserve water made available by LRWRP by expanding the Lower East Coast Everglades Waterbodies and Northern Palm Beach County/Loxahatchee River Watershed Waterbodies Restricted Allocation Area instead of implementing a water reservation. This decision seems to deviate from the District's previous practice of implementing a water reservation to meet its statutory requirements for other CERP projects, even when the area was already subject to a restricted allocation area. During Rule Development Workshop #1, District staff stated that duplicative rulemaking concerns and Governor DeSantis' Executive Order 19-12 influenced the District's current position. As such, the County requests additional information on this SFWMD decision because the stated concerns and Executive Order 19-12 existed during the District's prior rulemaking efforts in 2020 (e.g. Everglades Agricultural Area Reservoir) and yet the District chose to enact water reservations.

2. Section 1.1 (Definitions) of the Applicant's Handbook needs substantial revisions. First, some of the terms are "short-hand" and not the proper nor legal names of the identified areas/waterbodies. For example, the County owns and the County's Environmental Resources Management Department manages Loxahatchee Slough Natural Area, Hungryland Slough Natural Area, and Pine Glades Natural Area, not the Loxahatchee Slough, Hungryland Slough, and Pine Glades. Additionally, the reliance on the proposed Figure 3-2 within the Applicant's Handbook leads to significant confusion because the proposed Figure 3-2 is vague and inaccurately labeled. To highlight this confusion, the purple-shaded area immediately southeast of the Hungryland Slough Natural Area label and east of the C-18W Reservoir Area appears to incorporate portions of a privately-owned development and County's Sweetbay Natural Area, both of which are not labeled in proposed Figure 3.2 or defined in Section 1.1. In addition, the County's Cypress Creek and Pine Glades Natural Areas are not labeled on proposed Figure 3.2. The County suggests the District reevaluate the proposed definition and Figure 3-2 and revise both accordingly. Any revisions to the proposed definition and Figure 3-2 should also be included in the Technical Document.

3. Additional terms within the Applicant's Handbook are also unclear, undefined, or unnecessary. As presented, the proposed rule addresses impacts to the proposed use of

surface water and groundwater from integrated conveyance systems that are hydraulically connected to the defined waterbodies and the waterbodies themselves. The proposed rule identifies "integrated conveyance systems" as primary canals as well as secondary and tertiary canals that derive water from the defined waterbodies. Because proposed Figure 3-2 is the basis for these defined waterbodies, the confusion noted above leads to more confusion on what waterbodies are included as part of the "integrated conveyance systems". The District's reference to the "Central and Southern Florida Project Canals" provides little assistance because this term is not defined within the proposed rule nor within the larger definition section of the Applicant's Handbook. The County suggests the District provide additional clarity on these terms. Additionally, the County suggests removal of "Acceler8 projects" and including a definition for "State Water Quality Standards" within the final rule as the first term is likely unnecessary and the second is undefined.

4. The County requests additional discussion on how the proposed rule may affect the surrounding natural areas. The Technical Document recognizes "[a]pproximately 63% of the watershed is natural area" and at least one County natural area, the Loxahatchee Slough Natural Area, is identified as one of the "eight major natural areas" within the Loxahatchee River watershed. The County would like clarification on how the proposed rule language's expanded restrictions on consumptive uses will impact the surface water, groundwater, and the potential for excess or "available wet season water" within the watershed and specifically the County's natural areas. As stated above, the County, in collaboration with state and local partners, has invested over $400 million in the acquisition, restoration and management of its natural areas and is concerned that the proposed rule could negatively impact these efforts. This concern is highlighted by the Technical Document's failure to discuss any potential impacts to the Florida Fish and Wildlife Conservation Commission's J.W. Corbett Wildlife Management Area (Corbett WMA) or the County's Hungryland Slough Natural Area. As identified in Figures 5-4 and 5-5 of the Technical Document, LRWRP's modeled Aquifer Storage and Recovery (ASR) wells will create a 1-foot drawdown of groundwater. This drawdown will impact both the Corbett WMA and Hungryland Slough Natural Area, however, there is no discussion or analysis within the Technical Document on this point. The current unknowns created by the proposed rule language could lead to significant ramifications to the County's natural areas. Please provide further discussion on the potential impacts of the proposed ASR wells and confirm the proposed rule language will not adversely affect the hydrology of these natural areas.

5. The County hopes to further understand the interplay between the proposed rule language and potential for excess or "available wet season water." The USACE's LRWRP Final Integrated Project Implementation Report and Environmental Impact Statement (PIR/EIS) identifies that water for LRWRP needs to be protected in 5 locations; one of those locations is flows from Indian Trial Improvement District (ITID) to the C-18W Reservoir. The M-0 Canal seems to be identified within proposed Figure 3-2 in the Applicant's Handbook to meet this requirement. Because the proposed rule expands a restricted allocation area, the finalized rule language will apply when evaluating consumptive uses. The County seeks a better understanding on the consequences of the proposed rule, when applied in conjunction with the rest of the Applicant's Handbook Section 3.2.1.E's current criteria. Applicant's Handbook Section

3.2.1.E.5 identifies that an applicant can identify "available wet season water" (i.e. excess water) and obtain allocations for the same under the conditions listed in Section 3.2.1.E.6. The County would like to understand what surface water and groundwater flows are restricted and how these restrictions may marry with the "available wet season water" that could be allocated to future consumptive uses and users. The County is currently evaluating the feasibility of implementing water storage projects to capture and store excess water from this area that is currently discharged in an undesirable manner to the Lake Worth Lagoon Estuary. Such projects may capture flows from the M-0 Canal and other ITID canals. Without additional clarity from the District, the proposed rule could hinder the County's ability to initiate a water storage project within the watershed.

6. The County also seeks clarification on the groundwater restrictions within the proposed rule. This is the first time the District is required to protect or restrict groundwater for ASR wells included as part of a CERP project. Recognizing the precedential nature of this rule language, the County has concerns with the proposed rule, as written. The District's reliance on proposed Figure 3-4 within the Applicant's Handbook to define not only the lands for the C-18W Reservoir, but also the associated buffer zone, is vague and confusing. First, the County recommends the District add a definition for the C-18W Reservoir. Additionally, terms and restrictions within proposed Section G of the Applicant's Handbook are inconsistent. For example, the Section G of the Applicant's Handbook discusses an "associated buffer zone", but Figure 3-4 includes a red dashed box labeled as the "Groundwater Protection Area Perimeter." Further, the proposed language in the second paragraph of Section G states "[t]he applicant shall provide reasonable assurance that the requested allocation will not withdraw from the portion of the upper F[loridan] A[quifer] S[ystem] underlying the C-18W Reservoir and associated buffer zone…", however, a later paragraph appears to allow groundwater allocations that "…will not result in 1-foot or more of drawdown…" from the exact same area. Additional definitions should be included and these inconsistencies should be rectified before the rule is finalized.

7. The County requests further discussion in the Technical Document regarding the methodologies used to determine the 1-foot drawdown and the groundwater bubble for the ASR wells. The Technical Document simply concludes that a "1-mile buffer from the boundaries of the C-18W Reservoir parcel was determined as the area necessary to protect the project water stored via ASR" and this conclusion seems to be the basis for the proposed rule's new groundwater restrictions. Additional analysis within the Technical Document will be helpful for stakeholders.

8. Based on the County's review of the SFWMD documents provided to date, additional time is needed for public comment, stakeholder engagement, and to allow the District to revise the proposed rule language within the rulemaking schedule. The District's public comment period ending February 7, 2022 should be an initial comment period. Additional public comment periods are needed as well as sufficient time for discussion between stakeholders and the District. Additional time will go a long way to address not only the County's current questions and initial concerns but also allow time for improvements to the proposed rule language before it is finalized. In addition, the District should present the proposed rule language to

the Loxahatchee River Management Coordinating Council (LRMCC) and solicit its feedback in accordance with the LRMCC's enacting legislation which empowers the LRMCC to "review, make recommendations… and render non-binding advisory opinions to the board [SFWMD] and the department [FDEP]."[1]

The County will continue to monitor and actively engage in this rule development process and looks forward to participating in the upcoming Rule Development Workshop #2 scheduled for February 22, 2022.

Sincerely,

Jeremy McBryan, PE, CFM
County Water Resources Manager

Attachments (3)

cc: Lawrence Glenn, South Florida Water Management District
Sky Notestein, South Florida Water Management District
Jennifer Brown, South Florida Water Management District
Simon Sunderland, South Florida Water Management District
Jay Steinle, South Florida Water Management District
Patrick Rutter, Assistant County Administrator, Palm Beach County
Todd Bonlarron, Assistant County Administrator, Palm Beach County
Deborah Drum, Director, Environmental Resources Management, Palm Beach County
Michael W. Jones, Chief Assistant County Attorney
Scott A. Stone, Assistant County Attorney
Laura S. Olympio, Manson Bolves Donaldson Varn
Sheryl G. Wood, Manson Bolves Donaldson Varn

[1] *See* Laws of Florida 83-358 §5(3)(o).

Attachment 1

Applicant's Handbook for Water Use Permit Applications with Detailed Comments from Palm Beach County

APPLICANT'S HANDBOOK FOR WATER USE PERMIT APPLICATIONS

replace with "Loxahatchee Slough Natural Area"

add comma and delete the word "and"

add Cypress Creek Natural Area

1.1 Definitions

Additional definitions can be found in Chapter 373, F.S., and Chapters 40E-3, 40E-8, and 62-40, F.A.C.

North Palm Beach County /Loxahatchee River Watershed Waterbodies - as used in Subsection 3.2.1.E, is defined as the surface and groundwater from the City of West Palm Beach ~~Grassy Waters Preserve,~~ Water Catchment Area, Pal-Mar ~~and~~ J.W. Corbett Wildlife Management Area, Loxahatchee Slough, Loxahatchee River, Riverbend Park, Dupuis Reserve, Jonathan Dickenson State Park, Kitching Creek, Moonshine Creek, Cypress Creek, ~~and~~ Hobe Grove Ditch, Hungryland Slough, Pine Glades, and the C-18W Reservoir, as depicted in Figure 3-2.

replace with "Hungryland Slough Natural Area"

replace with "Pine Glades Natural Area"

3.2 Source Specific Criteria

3.2.1 Restricted Allocation Areas

Due to concerns regarding water availability, the following geographic areas are restricted with regard to the utilization of specific water supply sources. These areas and sources include the following:

Figure 3.1 identifies the area as the North Palm Beach County Service Area. Since Martin County is included, perhaps the "Loxahatchee River Service Area" would be a better term.

Should the title be amended to add the words "and Northern Palm Beach County" (or as amended)?

E. Lower East Coast Regional Water Availability

In addition to all other applicable consumptive use statutory and rule provisions, the following restrictions shall apply when allocating water by permit for water use withdrawals within the Northern Palm Beach County Service Area and Lower East Coast Service Areas 1, 2 or 3.

should this be "and" instead of "or"?

Subsection 3.2.1.E is a component of recovery strategies for MFLs for the Everglades and the Northwest Fork of the Loxahatchee River, as set forth in Chapter 40E-8, F.A.C., and assists in implementing the objective of the District to ensure that water necessary for Everglades restoration and restoration of the Loxahatchee River Watershed is not allocated for consumptive use upon permit renewal or modification under this rule.

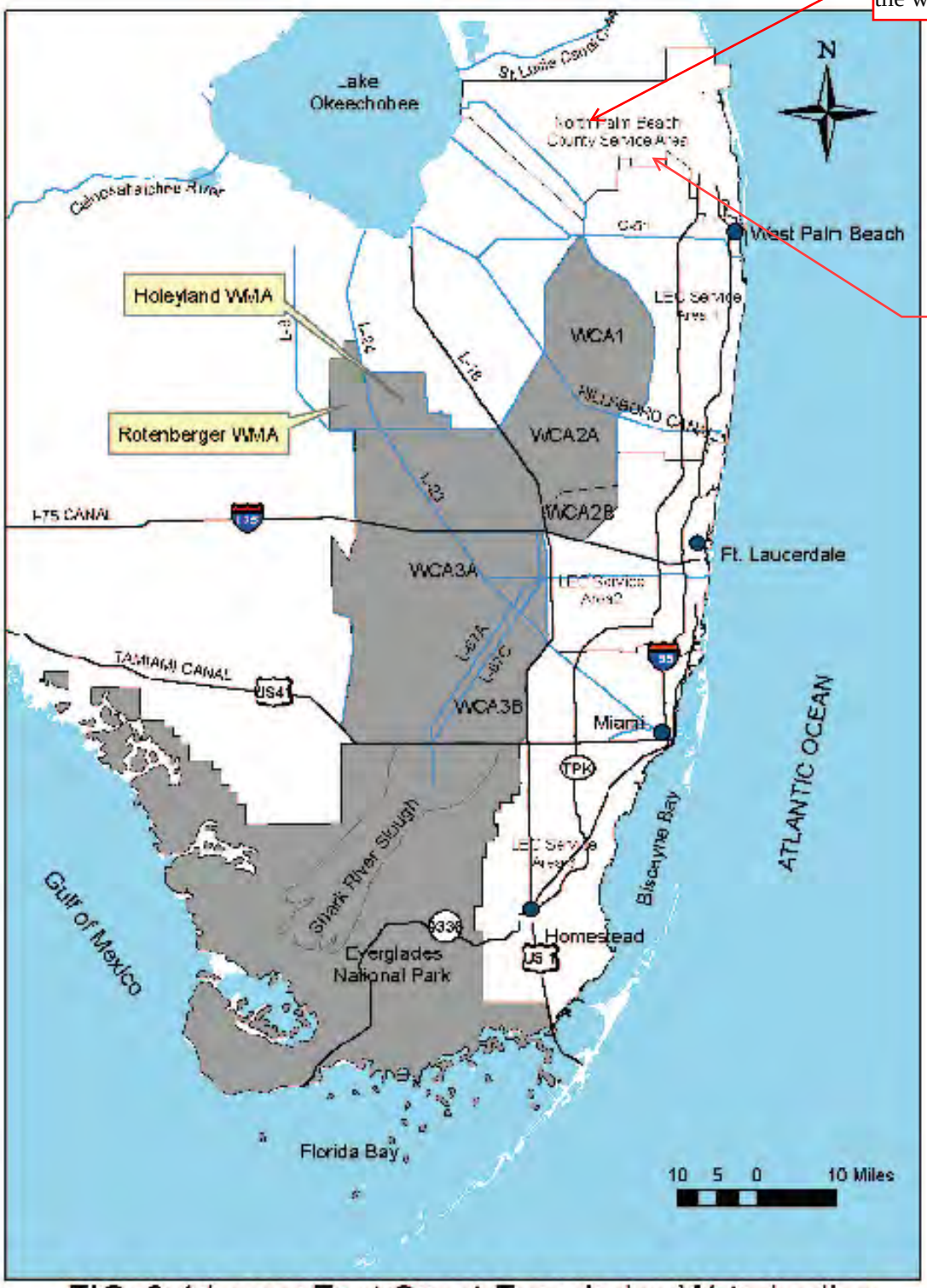
1. - 2. No Change.

The evaluation of water withdrawn from Waterbodies under this section shall address the impacts of the proposed use on surface water and groundwater from: a) integrated conveyance systems that are hydraulically connected to the subject Waterbodies and are tributary to or receive water from such Waterbodies; and b) the Waterbodies. Integrated conveyance systems that are hydraulically connected to the subject Waterbodies include primary canals used for water supply including, but not limited to, the Central and Southern Florida Project Canals, and secondary and tertiary canals that derive water from primary canals.

3. - 7. No Change.

Where are these defined? (I could not find a definition in the full version of the Handbook.)

Subsection 3.2.1.E uses the word "Northern".



It is very difficult to determine which lands make up the " North Palm Beach County Service Area." Please make sure it includes all of the areas listed in Section 1.1 as revised.

The labels are very difficult to read on this map.

FIG. 3-1:Lower East Coast Everglades Waterbodies and Major Integrated Conveyance Canals

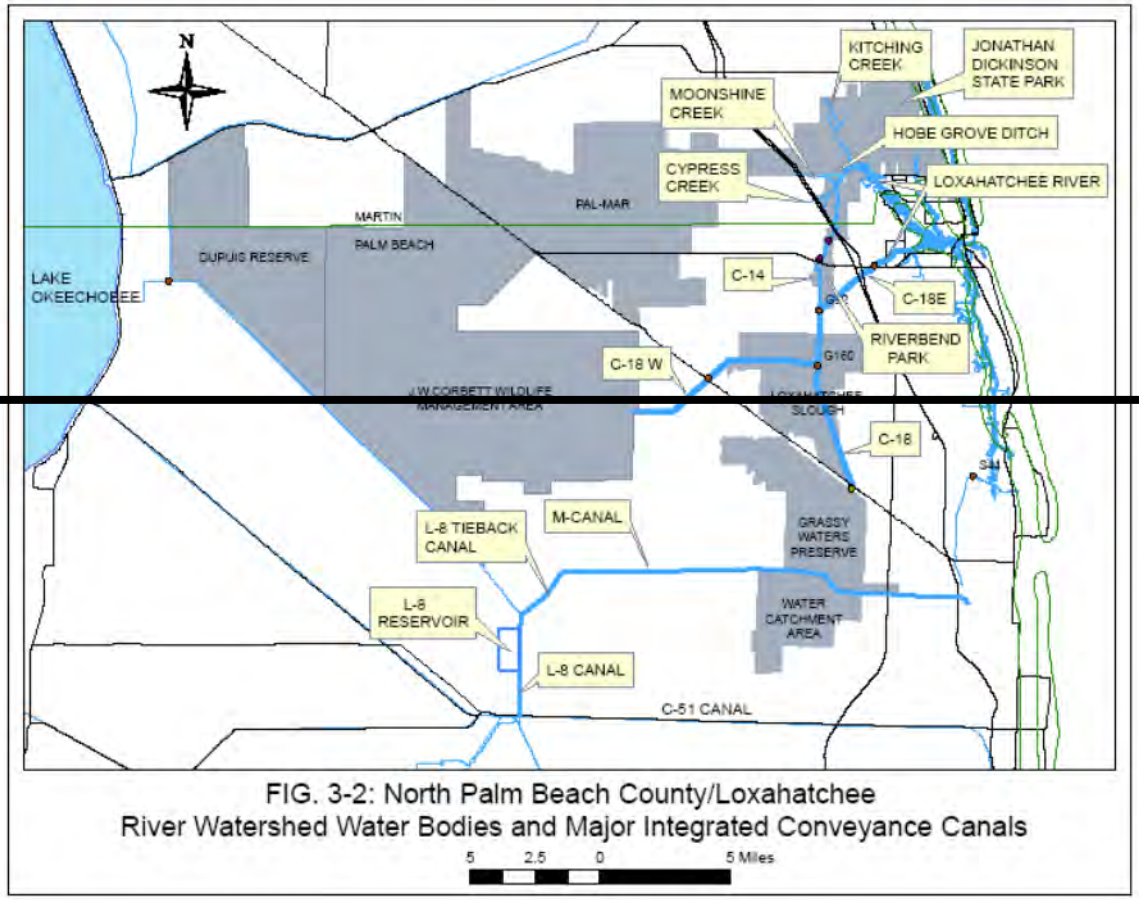


FIG. 3-2: North Palm Beach County/Loxahatchee River Watershed Water Bodies and Major Integrated Conveyance Canals

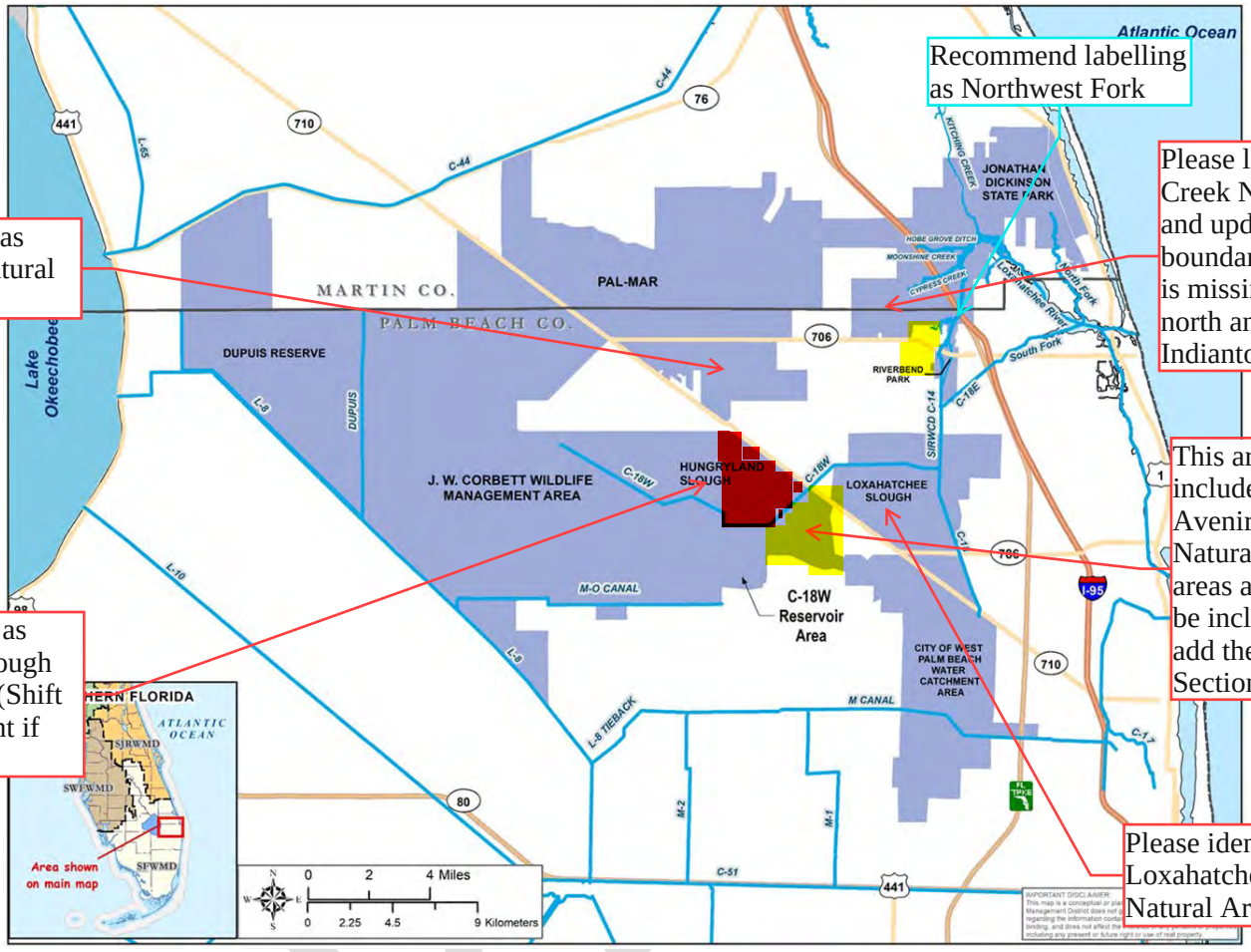


Figure 3-2. North Palm Beach County/Loxahatchee River Watershed Water Bodies and Major Integrated Conveyance Canals.

G. Aquifer Storage and Recovery Systems Utilizing the Upper Floridan Aquifer System

The following restrictions shall apply when allocating groundwater stored in the upper Floridan aquifer system (upper FAS) beneath the C-18W Reservoir, as depicted in Figure 3-4. This subsection assists in implementing the District's objective of ensuring that water necessary for the restoration of the Loxahatchee River Watershed is not allocated to consumptive use upon permit issuance, renewal, or modification under these criteria.

This text says "will not withdraw", however, subsection 2 below allows up to 1 foot of water to be removed from the upper FAS for non-river restoration purposes.

The applicant shall provide reasonable assurance that the requested allocation will not withdraw from the portion of the upper FAS underlying the C-18W Reservoir and associated buffer zone delineated in Figure 3-4. This demonstration is provided when the following criteria, pursuant to the impact evaluation provisions in Subsection 3.1.2, are met:

1. The requested allocation will not interfere with the C-18 W Reservoir ASR wells as described in Section 3.7, below; or,
2. The requested allocation will not result in 1-foot or more of drawdown to the portion of the upper FAS that underlies the C-18W Reservoir groundwater buffer zone delineated in Figure 3-4.

For existing legal users of the upper FAS as of [rule effective date] whose cone of depression intersects the zone delineated in Figure 3-4, the use may be renewed. However, no additional allocations that increase the withdrawal's impact beyond that of the previously permitted use as of [rule effective date] will be authorized.

recommend that this text be changed to "...allocation, in combination with prior permitted allocations, will not..."

I don't see a definition of the C-18W Reservoir in Section 3.7.

Please move the label for "Hungryland Slough Natural Area" to this portion of the figure.

This label is in the wrong location. This area is part of the Avenir Development.

Should the area within the red dashed box is be identified as the C-18W Reservoir Buffer Zone in keeping with the text used in Subsection G? (It is currently labelled "Groundwater Protection Area Perimeter.")

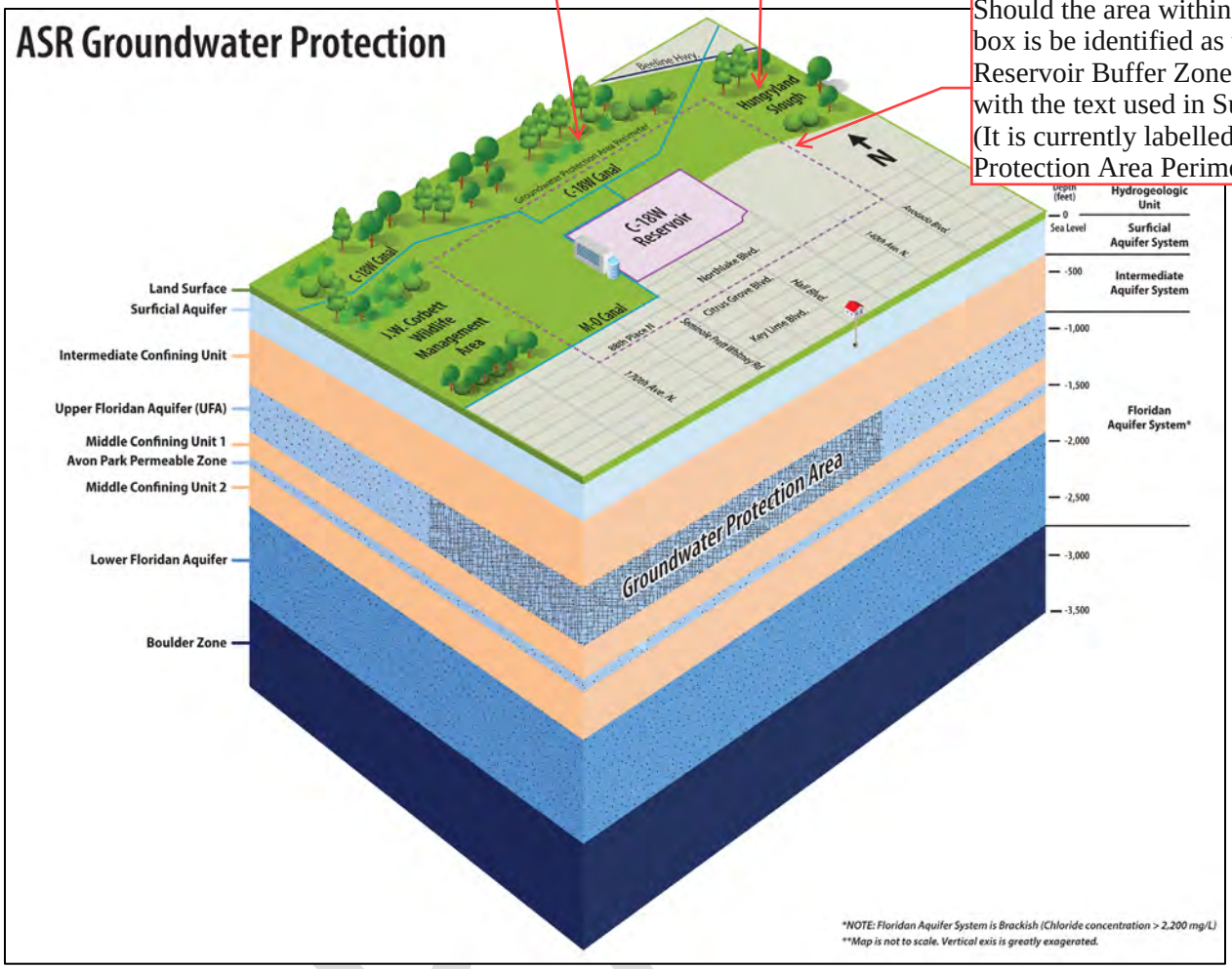


Figure 3-4. Area of upper Floridan aquifer system protection related to the C-18W Reservoir and associated aquifer storage and recovery (ASR) wells.

3.7 Interference with Existing Legal Users

To obtain a water use permit the applicant must provide reasonable assurance that it will not interfere with any existing legal use of water, pursuant to Section 373.223(1)(b), F.S. In general, an applicant must provide reasonable assurances that the proposed withdrawal of water, together with other exempt or permitted uses ~~withdrawals~~ within the cone of influence of the proposed withdrawal, will not result in interference with those existing legal uses.

3.7.2 Definition of Interference with an Existing Legal Use

Interference to an existing legal use is defined as an impact that occurs under hydrologic conditions equal to or less severe than a 1-in-10 year drought event that results in the:

A. Inability to withdraw water consistent with provisions of the permit or exempt use, such as when remedial structural or operational actions not materially authorized by existing permits must be taken to address the interference;

B. Change in the quality of water pursuant to primary State Drinking Water Standards to the extent that the water can no longer be used for its authorized purpose, or when such change is imminent; ~~or,~~

C. Inability of an existing legal user to meet its permitted demands without exceeding the permitted allocation;~~.~~

D. If the proposed use is an ASR system, the applicant shall identify all existing legal uses within the area of influence and provide reasonable assurance that the operation of the proposed ASR system will not cause interference per the criteria contained in Subsections 3.7 and Subsection 3.10; or,~~.~~

E. If the existing legal use is an ASR system, 1) the transmittance of ASR waters away from the delineated project area by changing or accelerating the flow velocity or flow direction; or 2) a change in the concentration of total dissolved solids

is this a reduction by the applicant? the existing legal use? or both?

recommend "increase" instead of "change"

Suggest the addition of the words "...for the applicant..."

3.7.3 Mitigation Requirements for Interference with Existing Legal Uses

If the applicant cannot provide reasonable assurance that a proposed withdrawal will not interfere with existing legal uses, the applicant must submit a mitigation plan. The mitigation plan shall identify actions necessary to mitigate for interference once the impact has occurred, or is imminent. Such actions must be sufficient to provide water consistent with the authorized use and will require a permit modification if required by Rule 40E-2.331, F.A.C. As necessary to offset the interference, mitigation will include pumpage reduction, replacement of the impacted individual's equipment, relocation of wells, change in withdrawal source, or other means. If the existing legal use is an ASR system, replacement of the impacted user's equipment shall not be included in the mitigation plan.

applicant's withdrawl source?

Once the permit is issued, the permittee shall mitigate interference with existing legal uses that was caused in whole or in part by the permittee's withdrawals, consistent with the approved mitigation plan. The mitigation plan will require a permittee to mitigate

Perhaps change to "...the applicant's mitigation plan...".

relocation of the applicant's wells?

Suggest that you insert the word "applicant's" here.

immediately, or upon the actual occurrence of an interference. The determination of when mitigation is required is based upon the likelihood that the interference is projected to occur.

Attachment 2

Draft Technical Document Supporting Rulemaking to Protect Water Made Available by the Loxahatchee River Watershed Restoration Project with Detailed Comments from Palm Beach County

TECHNICAL DOCUMENT SUPPORTING RULEMAKING TO PROTECT WATER MADE AVAILABLE BY THE LOXAHATCHEE RIVER WATERSHED RESTORATION PROJECT

Draft Report

January 2022

South Florida Water Management District

West Palm Beach, FL

EXECUTIVE SUMMARY

This technical document supports amending the South Florida Water Management District (SFWMD or District) consumptive use permitting criteria to protect water made available by the Loxahatchee River Watershed Restoration Project (LRWRP), a component of the Comprehensive Everglades Restoration Plan (CERP). CERP is the framework to restore the Greater Everglades ecosystem, and the LRWRP aims to improve the quantity, quality, timing, and distribution of water flows to the Northwest Fork of the Loxahatchee River. The LRWRP is also a component of the Northwest Fork of the Loxahatchee River minimum flow and minimum water level (MFL) recovery strategy [Subsection 40E-8.421(6), Florida Administrative Code].

The SFWMD will design and construct the LRWRP as the non-federal sponsor of the project. The United States Army Corps of Engineers (USACE) and SFWMD plan to execute a project partnership agreement by September 2022. Project design is scheduled to begin in 2022, with construction occurring between 2023 and 2029. The operational testing and monitoring periods are expected to end in 2031.

The need to protect water for CERP projects arises from the Water Resources Development Act of 2000 (Public Law 106-541) and Section 373.470(3)(c), Florida Statutes, which require the SFWMD to allocate or reserve the increase in water for the natural system resulting from a CERP project. The SFWMD fulfills this requirement by adopting water reservations, consumptive use permitting rules, or both.

Specific rule development to protect water made available by the LRWRP involves amending the existing Lower East Coast Regional Water Availability restricted allocation area (RAA) criteria to expand the definition of North Palm Beach County/Loxahatchee River Watershed Waterbodies to include the project components identified in the LRWRP. Including the project components increases the areal extent of the RAA approximately 10%.

The rule development effort will also adopt new rules to protect the groundwater associated with the LRWRP aquifer storage and recovery (ASR) wells. The ASR wells are anticipated to be constructed along the western perimeter of the C-18W Reservoir. However, the final locations of the ASR wells have yet to be determined. To account for this contingency, a conservative distance of 1 mile from the perimeter of the reservoir is proposed to protect the project water stored via ASR wells. Existing legal users of surface water and groundwater shall be protected so long as such use is not contrary to the public interest.

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ACRONYMS, ABBREVIATIONS, AND UNITS OF MEASURE

ac-ft	acre-foot
APPZ	Avon Park permeable zone
ASR	aquifer storage and recovery
bls	below land surface
C&SF Project	Central and Southern Florida Flood Control Project
CERP	Comprehensive Everglades Restoration Plan
cfs	cubic feet per second
District	South Florida Water Management District
F.A.C.	Florida Administrative Code
F.S.	Florida Statutes
FAS	Floridan aquifer system
ft	foot
LRWRP	Loxahatchee River Watershed Restoration Project
MFL	minimum flow and minimum water level
mg/L	milligrams per liter
mgd	million gallons per day
NGVD29	National Geodetic Vertical Datum of 1929
PIR-EIS	Project Implementation Report and Environmental Impact Statement
PPA	project partnership agreement
RAA	restricted allocation area
RM	river mile
SAS	surficial aquifer system
SFWMD	South Florida Water Management District
UFA	Upper Floridan aquifer
USACE	United States Army Corps of Engineers
WRDA	Water Resources Development Act

C&SF Project should be defined more robustly.

1 INTRODUCTION

The South Florida Water Management District (SFWMD or District) is a regional governmental agency charged with safeguarding the water resources in 16 counties, from Orlando to the Florida Keys. With a population of approximately 9 million permanent residents, the District covers 17,930 square miles (31% of the state) and includes vast areas of urban development, agricultural lands, and conservation areas. The SFWMD is responsible for protecting water supplies and supporting water quality improvement in close collaboration with the Florida Department of Environmental Protection and the Florida Department of Agriculture and Consumer Services. The SFWMD also operates and maintains the Central and Southern Florida Flood Control Project (C&SF Project) system. One of the world's largest water management systems, the C&SF Project is an extensive network of canals, levees, water storage areas, pump stations, and other water control structures. The highly engineered system was built through one of the most diverse ecosystems in the world: the interconnected Greater Everglades ecosystem, which the SFWMD is working to restore and protect (SFWMD 2021a).

Located in Martin and Palm Beach counties, the Loxahatchee River is in the northern part of the Everglades ecosystem and flows into the Atlantic Ocean through the Jupiter Inlet. Approximately 7.6 miles of the river's Northwest Fork were designated as Florida's first Wild and Scenic River in 1985. Downstream segments of the Northwest Fork floodplain contain dense red mangrove forest, while the upper segment contains one of the last native cypress river swamps in southeastern Florida. Over the past century, downstream floodplain wetlands once dominated by swamp hardwoods and bald cypress have changed to mangrove-dominated swamp. This change in vegetation is believed to have occurred because of saltwater intrusion into freshwater areas of the river, caused primarily by human-induced alteration of the watershed and river. The restoration and protection of the Loxahatchee River and its associated ecosystems have been the focus of several District projects, including the Loxahatchee River Watershed Restoration Project (LRWRP; **Section 1.5**), which is part of the Comprehensive Everglades Restoration Plan (CERP; **Section 1.4**).

1.1 Overview and Purpose

This technical document supports amending the existing Lower East Coast Regional Water Availability restricted allocation area (RAA) criteria [Subsection 3.2.1.E of the *Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District* (Applicant's Handbook); SFWMD 2021b] and adopting new rules to protect groundwater components of the LRWRP. The existing RAA boundaries for the North Palm Beach County/Loxahatchee River Watershed Waterbodies include most, but not all, areas needed to complete the LRWRP. This rulemaking would modify the existing RAA boundary to encompass all necessary surface water components identified in the Final Integrated Project Implementation Report and Environmental Impact Statement (PIR-EIS) for the LRWRP [United States Army Corps of Engineers (USACE) 2020]. Additionally, the LRWRP design includes four aquifer storage and recovery (ASR) wells associated with the C-18W Reservoir. Therefore, new RAA criteria are being developed to protect upper Floridan aquifer system (FAS) water associated with those ASR wells (**Section 1.5.1**). This rulemaking effort fulfills the SFWMD's state and federal obligations to protect the water made available by the LRWRP (**Section 2.1.1**).

Please change to "Loxahatchee Slough Natural Area"

Should be modified to add Hungryland Slough Natural Area, Pine Glades Natural Area and Cypress Creek Natural Area.

1.2 Identification of the Existing Restricted Allocation Area

In 2007, an RAA was established for the North Palm Beach County/Loxahatchee River Watershed Waterbodies [part of the Lower East Coast Regional Water Availability criteria, Subsection 3.2.1.E of the Applicant's Handbook (SFWMD 2021b)]. The current RAA includes surface water and groundwater bodies, such as the City of West Palm Beach Water Catchment Area, Pal-Mar property, J.W. Corbett Wildlife Management Area, Loxahatchee Slough, Loxahatchee River, Riverbend Park, Dupuis Reserve, Jonathan Dickinson State Park, Kitching Creek, Moonshine Creek, Cypress Creek, and Hobe Grove Ditch (**Figure 1-1**). The RAA also includes the integrated conveyance systems that are hydraulically connected to and receive water from the waterbodies, such as C&SF Project primary canals and the secondary and tertiary canals that receive water from those primary canals. Net increases in volume or changes in timing on a monthly basis of direct surface water and indirect groundwater withdrawals from the RAA are prohibited over that resulting from base condition uses permitted as of April 1, 2006. Allocations over the base condition water use are only allowed through sources detailed in Subsection 3.2.1.E.5 of the Applicant's Handbook (SFWMD 2021b), such as certified project water, implementation of offsets, alternative water supply, terminated or reduced base condition water use that existed as of April 1, 2006, or available wet season water. The RAA is part of the MFL recovery strategy for the Northwest Fork of the Loxahatchee River.

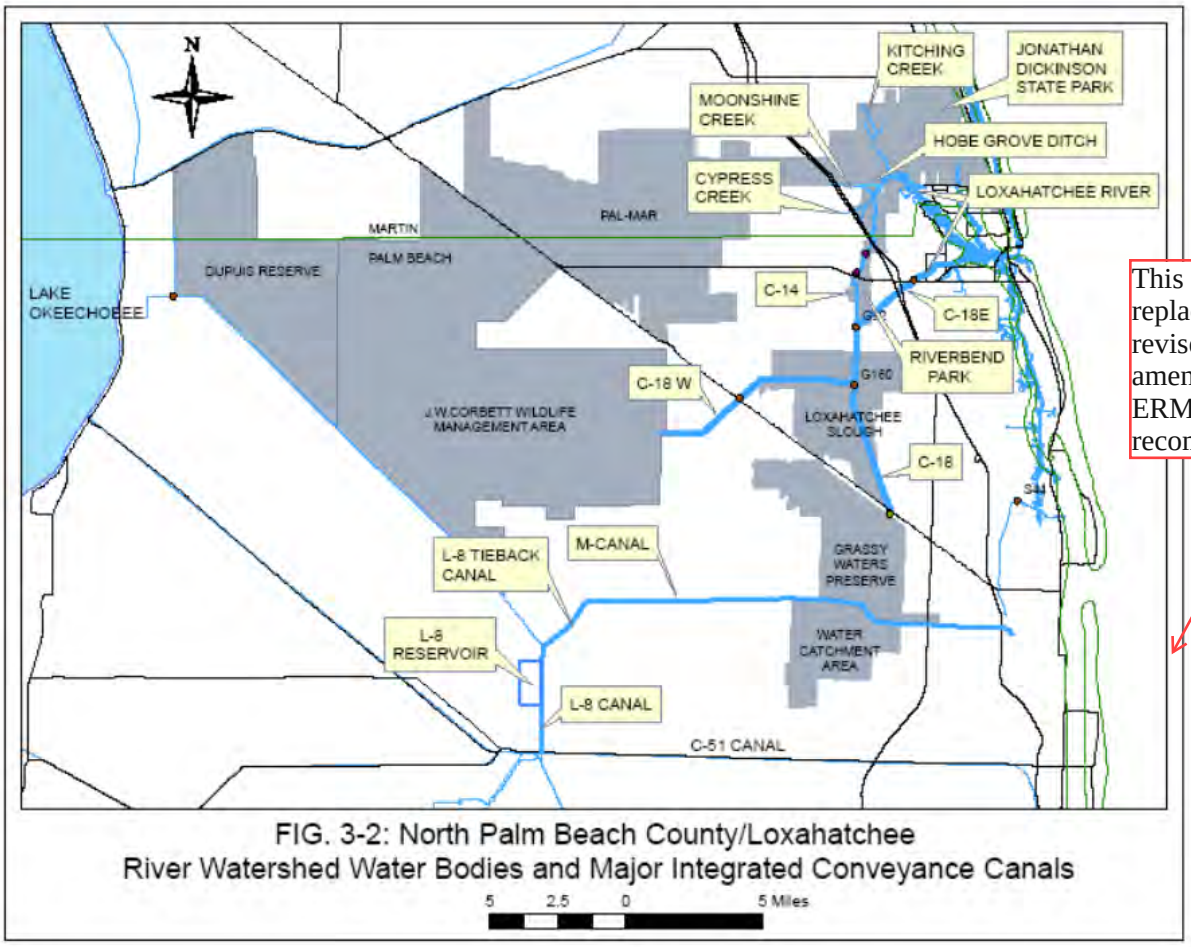


FIG. 3-2: North Palm Beach County/Loxahatchee River Watershed Water Bodies and Major Integrated Conveyance Canals

This figure should be replaced with the revised Figure 3-2, as amended with ERM/PBC recommendations.

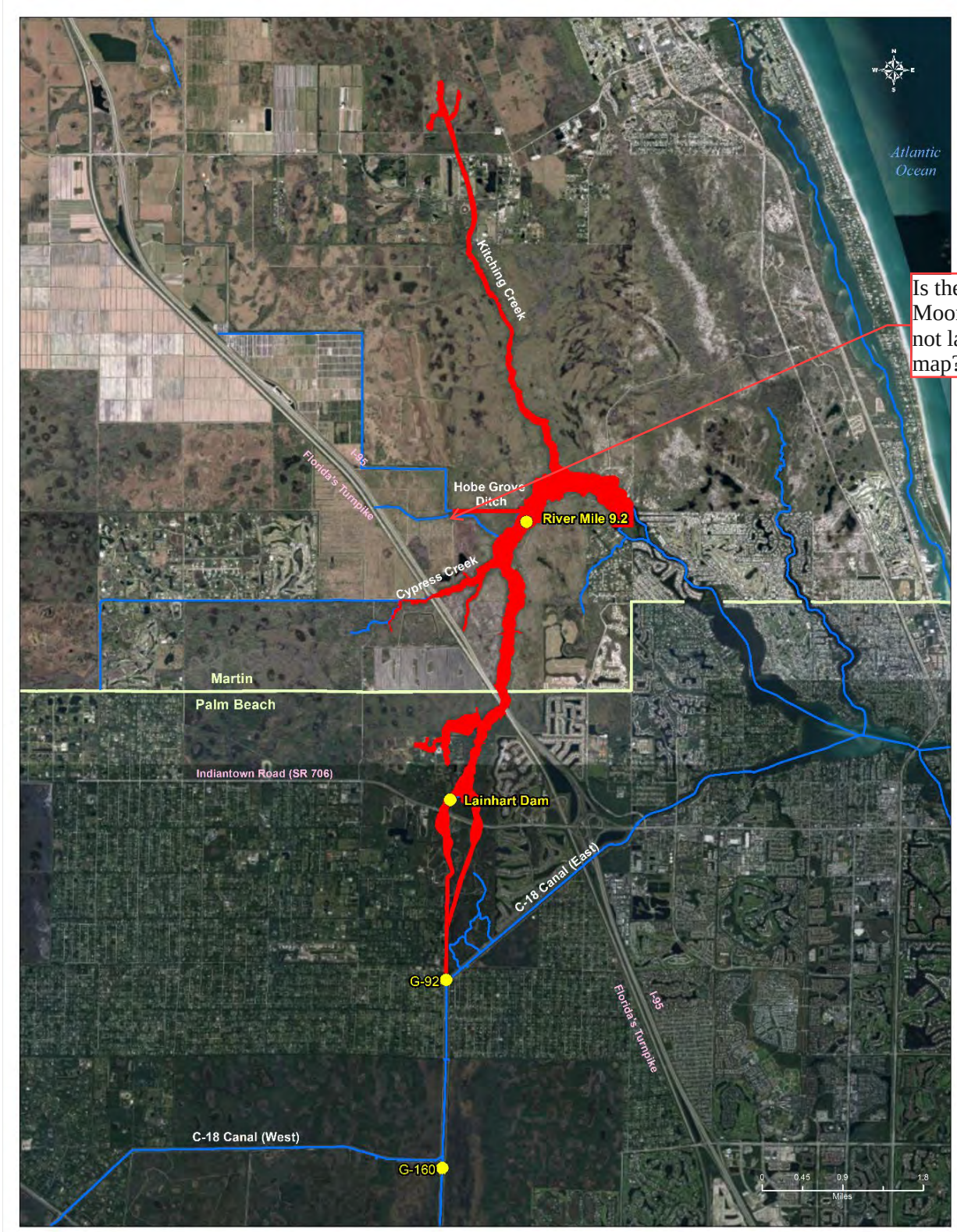
Figure 1-1. Current extent of the North Palm Beach County/Loxahatchee River Watershed Waterbodies and major integrated conveyance canals (From: SFWMD 2021b).

1.3 Northwest Fork of the Loxahatchee River MFL

MFL criteria are flows or levels at which water resources, or the ecology of the area, would experience significant harm from further withdrawals. Significant harm is defined in Subsection 40E-8.021(31), F.A.C., as the temporary loss of water resource functions, which results from a change in surface water or groundwater hydrology, that takes more than 2 years to recover, but is considered less severe than serious harm. As of 2021, the SFWMD has adopted nine MFLs. Additional information about MFLs can be found in the *Support Document for the 2021-2024 Water Supply Plan Updates* (SFWMD 2021c) and at www.sfwmd.gov/mfls.

The Northwest Fork of the Loxahatchee River was designated as a Wild and Scenic River in 1985. An MFL was adopted for the Northwest Fork of the Loxahatchee River in 2003 to protect the remaining floodplain swamp community and downstream estuarine resources against significant harm [Subsection 40E-8.221(4), F.A.C.]. An MFL exceedance occurs when 1) flows at Lainhart Dam decline below 35 cubic feet per second (cfs) for more than 20 consecutive days; or 2) salinity, expressed as 20-day rolling average, is greater than 2 at river mile 9.2 (**Figure 1-2**). An MFL violation occurs when an exceedance occurs more than once in a 6-year period.

Pursuant to Section 373.0421, F.S., recovery strategies [Subsection 40E-8.021(25), F.A.C.] must be adopted for waterbodies where MFLs currently are violated. The goal of a recovery strategy is to achieve the established MFL as soon as practicable. The Northwest Fork of the Loxahatchee River was not meeting the MFL criteria at the time of adoption. Therefore, an MFL recovery strategy [Subsection 40E-8.421(6), F.A.C., and Appendix C of the *2018 Lower East Coast Water Supply Plan Update* (SFWMD 2018)] was adopted simultaneously with the MFL adoption. As stated earlier, the RAA for the Lower East Coast Everglades Waterbodies and North Palm Beach County/Loxahatchee River Watershed Waterbodies is part of the MFL recovery strategy. The MFL criteria are anticipated to be met when the recovery strategy projects are completed and fully operational.



Is there a reason that Moonshine Creek is not labelled on this map?

Figure 1-2. Northwest Fork of the Loxahatchee River MFL area (shown in red).

add "local"?

1.4 Comprehensive Everglades Restoration Plan

CERP is one of the largest environmental restoration programs undertaken that builds upon and complements other state and federal initiatives to revitalize South Florida's ecosystem. The plan, submitted to Congress in 1999, comprises a series of projects designed to address four major characteristics of water flow: quantity, quality, timing, and distribution. Further information about CERP can be found at https://www.evergladesrestoration.gov.

Upon congressional authorization in 2000, the Federal Government and the State of Florida entered into a 50/50 partnership to restore, protect, and preserve water resources in central and southern Florida, including the Everglades. The USACE is the lead federal agency, and the SFWMD is the non-federal sponsor. A status summary of CERP is provided by the secretaries of the Army and the Interior in the jointly submitted Five-Year Report to Congress per the Water Resources Development Act (WRDA) of 2000, Section 601(l), and as required by the Programmatic Regulations for the Comprehensive Everglades Restoration Plan [33 C.F.R. § 385.40(d)(1)] (USACE and United States Department of the Interior 2020).

Legal protection of water for the natural system provided by CERP projects is required for the SFWMD and USACE to execute project partnership agreements (PPAs). The SFWMD protects water through the adoption of water reservations, consumptive use permitting criteria, or a combination of the two. The SFWMD's water reservation rules are found in Chapter 40E-10, F.A.C. Chapter 40E-2, F.A.C., contains the SFWMD's consumptive use permitting rules, including 1) regulatory components of an adopted MFL prevention or recovery strategy, 2) implementation criteria for water reservations, and 3) RAA criteria.

1.5 Loxahatchee River Watershed Restoration Project

One of 68 CERP projects and the focus of this document, the LRWRP aims to improve the quantity, quality, timing, and distribution of water flows to the Northwest Fork of the Loxahatchee River and restore hydrologic conditions and connectivity of wetlands and watersheds that form the historical headwaters of the river (USACE 2020). Project planning was completed with the signing of the Chief's Report in April 2020, which included the PIR-EIS completed in January 2020 (USACE 2020). The LRWRP was authorized by Congress in WRDA 2020. The PIR-EIS identified the authorized plan for meeting the objectives to capture, store, and treat surface water currently lost to tide and use that water to increase flows to the Northwest Fork of the Loxahatchee River to meet restoration goals of the river and the natural communities within the watershed. The LRWRP will achieve the intended hydrologic and ecologic restoration goals without impacting existing legal water users or reducing the level of service for flood protection. This fulfills WRDA 2000 and Section 373.470, F.S., Savings Clause requirements (further discussed in **Section 5.3.1**).

PPA = Project Partnership Agreement

The SFWMD is the lead agency responsible for the design and construction of the LRWRP. A PPA between the USACE and SFWMD is planned for execution by September 2022. Completion of the rule development process to protect water generated by the LRWRP is a condition precedent to executing the PPA. The 2021 CERP Integrated Delivery Schedule (USACE 2021) contains the implementation schedule for the project. Project design is scheduled to begin in 2022, with construction occurring between 2023 to 2029. The operational testing and monitoring periods are expected to end in 2031. Most of the real estate acquisition for the project is complete; however, some acquisition of land, canals, and easements in the northern portion of the project area remains.

Loxahatchee Slough Natural Area, Pine Glades Natural Area, Hungryland Slough Natural Area, Cypress Creek Natural Area and Riverbend Park

1.5.1 Project Components and Authorized Plan

The project area encompasses approximately 481,920 acres of central and northern Palm Beach County and southern Martin County, including Jonathan Dickinson State Park, Dupuis Wildlife and Environmental Management Areas, J.W. Corbett Wildlife Management Area, the City of West Palm Beach Water Catchment Area, and Loxahatchee Slough (**Figure 1-3**). The LRWRP project area is bound on the north by the C-44 Canal, on the south by the C-51 Canal, on the west by the L-8 Canal and Lake Okeechobee, and on the east by the Loxahatchee River Estuary and Lake Worth Lagoon. All of the Loxahatchee River watershed and limited portions of the St. Lucie River watershed are included in the project area.

Multiple restoration plan alternatives were modeled during the plan formulation and evaluation process as described in the PIR-EIS (USACE 2020). Each alternative plan was evaluated according to the USACE's four "Principles and Guidelines" criteria: completeness, acceptability, efficiency, and effectiveness. Project benefits and planning level costs were calculated for each alternative plan, and analyses were completed to identify the alternative plans that maximized environmental benefits compared to costs. The evaluation and comparison of alternative plans led to the selection of Alternative 5R, the Authorized Plan, for the LRWRP.

The project components of the Authorized Plan are grouped into three flow-ways based on geographic area (**Figure 1-4**). Structural components of the Authorized Plan include a 9,500-acre-foot (ac-ft) reservoir, four ASR wells, a flow-through marsh, and new pump stations, canals, culverts, weirs, and ditch plugs. Structural components, along with other management measures and water control modifications, will increase volume and improve timing of water deliveries to the Northwest Fork of the Loxahatchee River while restoring hydrology and ecological connectivity in the surrounding natural areas and over-drained wetlands within the watershed. The Authorized Plan will achieve 91% of the dry season target restoration flows and 98% of the wet season restoration target flows to the Northwest Fork as measured at Lainhart Dam (USACE 2020). In addition, the Authorized Plan will restore a total of approximately 27,000 acres of disturbed wetlands (**Section 1.5.2**).

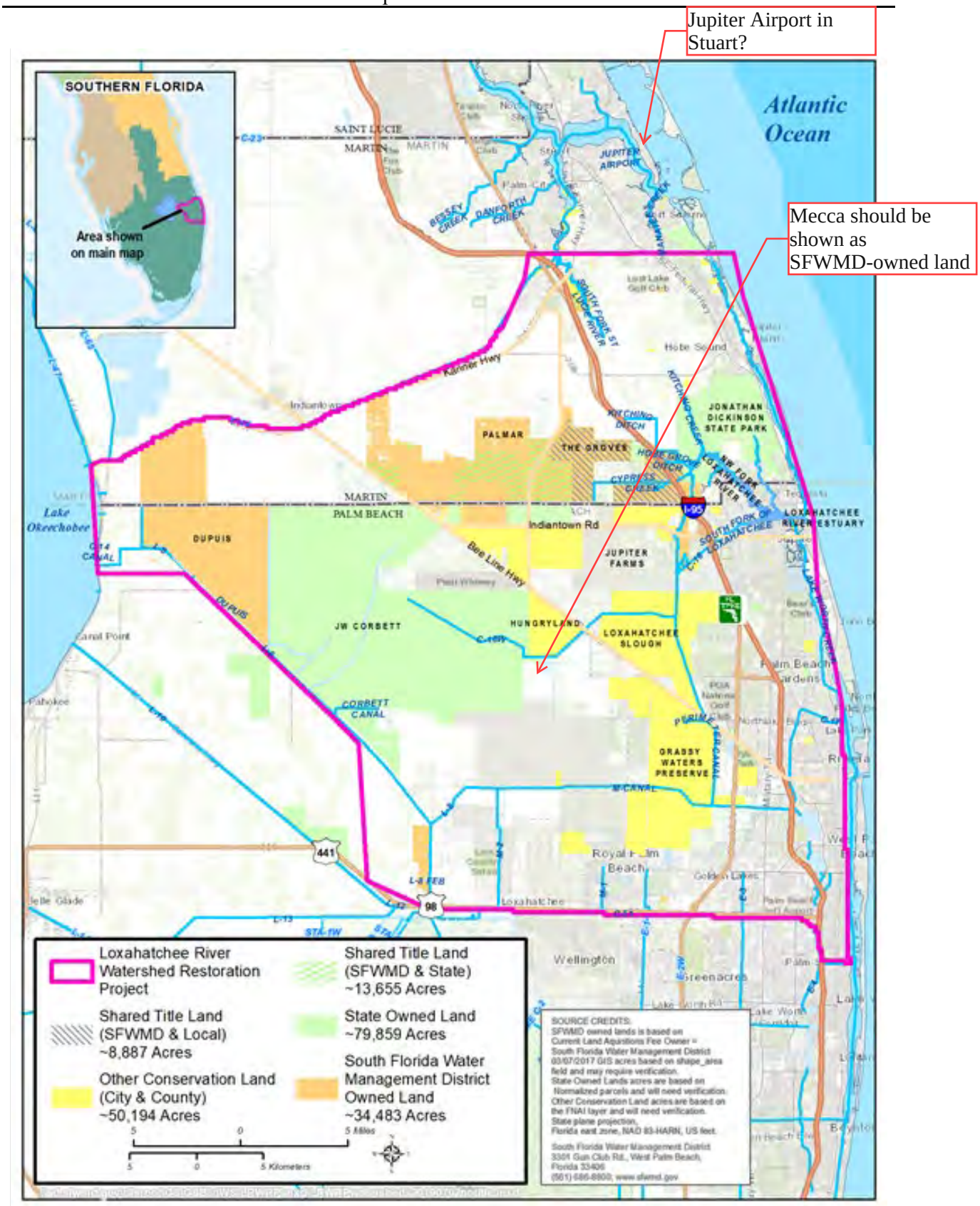


Figure 1-3. Map of the Loxahatchee River Watershed Restoration Project and natural lands included in the project (From: USACE 2020).

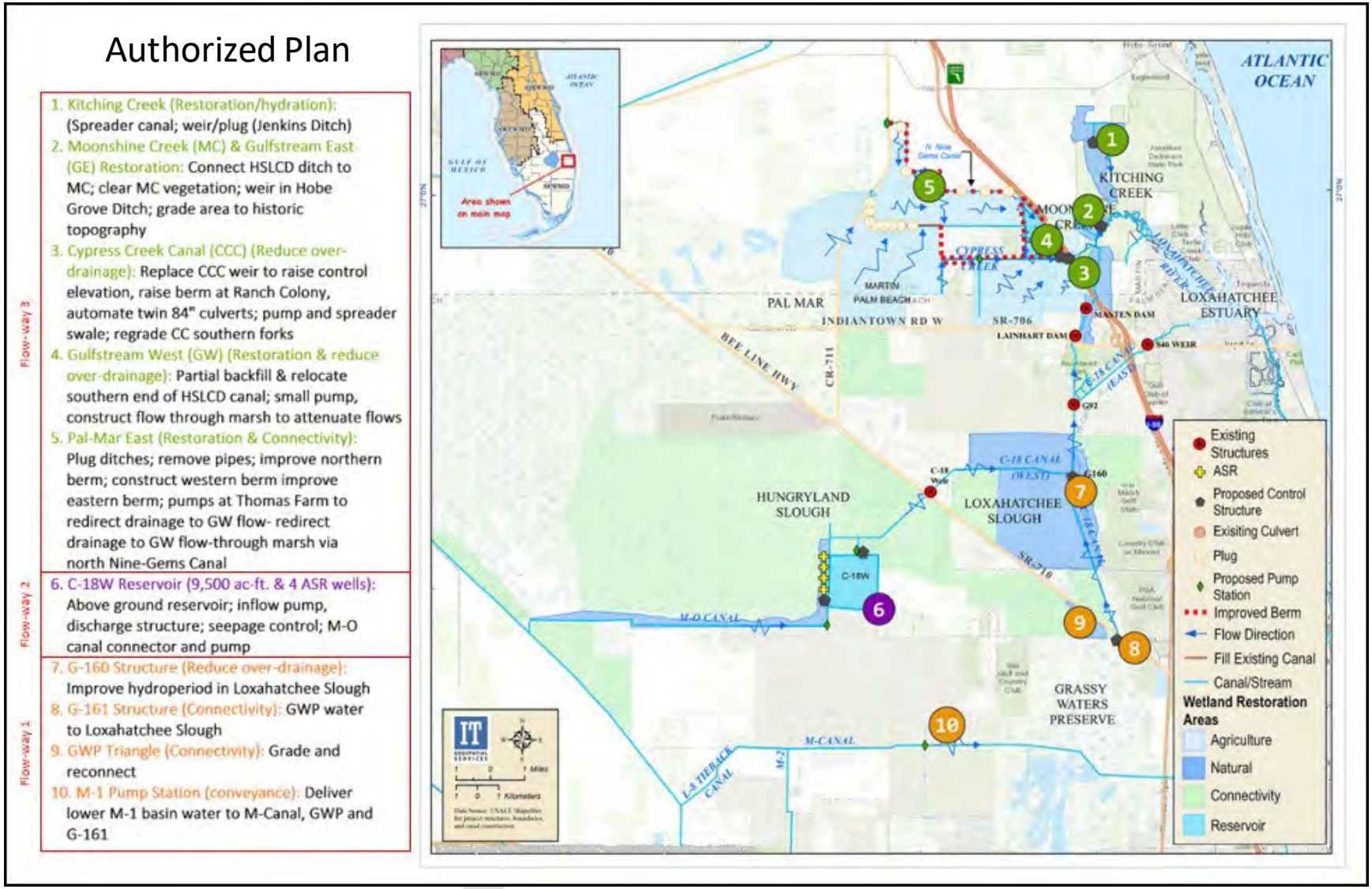


Figure 1-4. Project components and flow-ways of the Authorized Plan for the Loxahatchee River Watershed Restoration Project (From: USACE 2020).

excess water from ITID will go to benefit Grassy Waters. How will this water be protected from use for City's drinking water supply?

Surface Water Components (Flow-ways 1, 2, and 3)

Flow-way 1 is in the southernmost portion of the LRWRP (**Figure 1-4**). Surface water from upstream basins within flow-way 1 will be routed toward the Northwest Fork via three primary canal conveyances: M-1 Canal, M-Canal, and C-18 Canal. The following provides an overview of the surface water components for flow-way 1, which are described in further detail in the PIR-EIS (USACE 2020).

- **M-1 Pump Station**: A new pump station (S-100) will be constructed along the M-1 Canal to deliver up to 75 cfs of water to the M-Canal when specific dry and wet season canal stages permit. Excess water deliveries from the Indian Trail Improvement District Lower M-1 Basin will supplement the City of West Palm Beach Water Catchment Area before the water is ultimately conveyed north to the Northwest Fork.

- **G-161 Structure**: The G-161 structure was constructed in 2007 concurrent with the LRWRP planning process to provide early and essential benefits to the Northwest Fork and its historical headwaters. Benefits include increased base flows to the river as well as hydrologic connectivity and improved hydroperiods for the City of West Palm Beach Water Catchment Area and Loxahatchee Slough. G-161 is the primary structure through which water flows from the City of West Palm Beach Water Catchment Area to the Northwest Fork. The structure is composed of two 60-inch culverts, with a total length of 240 feet (ft), and can discharge up to 150 cfs.

Please change all references to Loxahatchee Slough Natural Area

- **Grassy Waters Preserve (GWP) Triangle**: Although no structural surface water components are planned for the GWP Triangle, hydrologic restoration will be achieved through earthwork and construction of a shallow swale designed to improve hydrologic conditions within the property. Water discharged from the G-161 structure will be distributed across the shallow swale to promote hydrologic connectivity between the eastern and western portions of the property and to improve the hydroperiod of the area. Surface water will flow from the GWP Triangle to the C-18 Canal, then north toward the Northwest Fork through an existing culvert that passes under Beeline Highway.

- **G-160 Structure**: The G-160 structure, completed in 2004, provides the dual purpose of flood control and environmental restoration. Like the G-161 structure, G-160 was constructed concurrent with the LRWRP planning process to achieve early benefits to the Northwest Fork and its historical headwaters. Benefits include enhanced delivery of restoration flows to the river while maintaining specific water levels for the Loxahatchee Slough. The G-160 structure is a reinforced concrete spillway with two vertical lift gates; each spillway bay is 25 ft in length. The structure can discharge up to 2,000 cfs to maintain flood control capability.

please add "..., including the Loxahatchee Slough Natural Area".

Flow-way 2 is in the western and central portion of the LRWRP (**Figure 1-4**). The M-O and C-18W canals are the two primary canal conveyances for flow-way 2. The main surface water component for flow-way 2 is the C-18W Reservoir, which is designed to capture, store, and release water to improve seasonal timing of water deliveries to the river. The following is an overview of the C-18W Reservoir and some of its supporting infrastructure; further details about flow-way 2 surface water components can be found in the PIR-EIS (USACE 2020).

- **C-18W Reservoir**: The C-18W Reservoir will be built on the former Mecca citrus grove property, covering approximately 1,600 acres (including the perimeter embankment) and storing 9,500 ac-ft of water. The reservoir embankment will be 20 ft high with a normal pool design depth of 7.5 ft. The reservoir will receive excess surface water from the adjacent C-18W Canal, J.W. Corbett Wildlife Management Area, and the upper Indian Trail Improvement District basin. A 150-cfs intake pump will deliver water from the C-18W Canal to the northern portion of the reservoir, while three 72-inch gated culverts and three 78-inch culverts will deliver water from the J.W. Corbett

Please clarify that water drawn from the C-18W Canal and J.W. Corbett WMA shall not adversely impact the hydrology of wetlands within Hungryland Slough Natural Area, J. W. Corbett WMA or Sweetbay Natural Area.

Wildlife Management Area and the new M-O connector canal (C-101W), respectively, to the western portion of the reservoir. The reservoir will be surrounded by a seepage canal and managed by a seepage control system. The new 3,500-ft long M-O connector canal (C-101W) will be constructed to convey water north from the eastern end of the existing M-O Canal toward the west side of the reservoir. A new 175-cfs pump station (S-109) will be constructed at the intersection of the M-O Canal and new M-O connector canal to pump surface water north.

Flow-way 3 is in the northern portion of the LRWRP (**Figure 1-4**), crossing the Palm Beach-Martin county boundary. Flow-way 3 includes the Northwest Fork and its historical tributaries (Kitching Creek, Moonshine Creek, and Cypress Creek). Primary conveyance canals in flow-way 3 include Jenkins Ditch, Hobe Grove Ditch, Cypress Creek Canal/Ranch Colony Canal, C-18 Canal, Nine Gems canals, and various canals within the Hobe St. Lucie Conservatory District and South Indian River Water Control District service areas. The following is an overview of the surface water components for flow-way 3, which are described in further detail in the PIR-EIS (USACE 2020).

- **Pal-Mar East (Nine Gems)**: Interior drainage canals will be filled, and small drainage pipes and culverts will be removed to reduce drainage and restore hydrology to the property. Berm improvements (L-111) along the northern and eastern portion of the property will be required to retain onsite surface water. Additional discharge capacity for the property will be provided by three water control structures (S-114A, B, and C) discharging into a canal that runs along the southern property boundary, which ultimately discharges to the Cypress Creek Canal. An existing canal in the western and southwestern portion of Pal-Mar East will be plugged or backfilled to improve hydrologic connectivity between the Nine Gems and Culpepper tracts. This canal currently provides drainage to a farm west of the property and Seminole Pratt Whitney Road. This canal is proposed to be taken out of service and its water rerouted to an existing canal that runs along the northern boundary of Pal-Mar East. A new pump station, likely to be located on the farm property, and a new culvert installed under Seminole Pratt Whitney Road will be required to reroute surface water to the canal bordering the northern boundary of Pal-Mar East.
- **Cypress Creek Canal/Ranch Colony Canal**: Three existing water control structures (S-115A, B, and C) will be modified with telemetry controls to improve hydrologic conditions within the Culpepper tract of Pal-Mar East while reducing discharges into the Cypress Creek Canal. Berm improvements along the eastern boundary of the Culpepper tract and the Cypress Creek Canal will improve water flow and provide flood protection to adjacent residential developments. At the east end of the Cypress Creek Canal, a new water control structure (S-112) will be constructed to reduce over-drainage and improve water level management in the Cypress Creek Canal during the wet and dry seasons. The structure will be a telemetry-operated concrete spillway with two 16-ft wide bays. Perpendicular to the Cypress Creek Canal, a new 20-cfs pump station and spreader swale will be constructed parallel to Mack Dairy Road. The Mack Dairy spreader swale will extend roughly 4,900 ft south of the Cypress Creek Canal to improve sheetflow across the Cypress Creek Natural Area and restore historical flows to the Northwest Fork. The eastern forks of the historical Cypress Creek will be regraded to reduce flow velocities entering the river and restore/promote the growth of native vegetation.
- **Gulfstream West**: A shallow flow-through marsh will be constructed on the Gulfstream West property to restore wetlands, reduce over-drainage, and attenuate water flow. Existing drainage ditches within the property will be removed, and the site will be regraded with a slight southerly gradient to promote sheetflow across the constructed marsh. Water from the Hobe St. Lucie Conservatory District, Pal-Mar East, and the farm west of Pal-Mar East will be pumped into the northern end of the flow-through marsh via a new 150-cfs pump station (S-110). Water will be routed through the marsh by a series of collection ditches and spreader berms. A perimeter levee (L-111) will be constructed to contain surface water, which will be controlled at an average depth

of 3 ft. The discharge structure (S-111S) will consist of a notched weir with variable rates of flow depending on marsh depth. Discharges from the flow-through marsh will be downstream of the new Cypress Creek Canal structure (S-112).

- **Moonshine Creek and Gulfstream East**: Restoration of the Gulfstream East property involves earthwork to regrade the property to historical topography and backfill existing drainage ditches. This project component also includes Moonshine Creek and Hobe Grove Ditch restoration efforts, which involve creating a hydrologic connection between the two features by clearing and removing heavy vegetation and sedimentation. A new weir (S-117) will be constructed at the eastern end of Hobe Grove Ditch to increase surface water and groundwater levels within the ditch. Increased water elevations will promote additional flow to Moonshine Creek, which is a historical tributary to the Loxahatchee River.
- **Kitching Creek**: Kitching Creek restoration will occur within Jonathan Dickinson State Park. A new east-west spreader swale (C-116) will be constructed perpendicular to an interior ditch (Jenkins Ditch) located near the upstream portion of Kitching Creek. The spreader swale will redistribute water to the upstream portions of Kitching Creek. To facilitate dispersion across the spreader swale, a new gated culvert will be constructed in Jenkins Ditch upstream of Kitching Creek.

Aquifer Storage and Recovery Component

Four clustered ASR wells are planned to work in conjunction with the C-18W Reservoir to provide additional water storage capacity and operational flexibility to the reservoir system. The ASR wells will be installed in the upper FAS and are anticipated to be capable of pumping 5 million gallons per day (mgd) for surface water storage and recovery (USACE 2020). The ASR wells will provide the C-18W Reservoir with additional water for deliveries to the Northwest Fork (via the C-18W Canal) to meet downstream restoration flows. Benefit calculations assumed 70% of the stored water in the ASR wells could be recovered (USACE 2020). The four ASR wells, and the associated water treatment facility, will be located along the western perimeter of the reservoir adjacent to Seminole Pratt Whitney Road and the J.W. Corbett Wildlife Management Area. This location will provide partial institutional control of the ASR groundwater "bubble" (i.e., water stored) due to its close proximity to public lands and a very low likelihood that any new or additional ASR wells would be installed by public water supply utilities or municipalities near this location in the future.

Could the drawdown of the FAS adversely affect the hydrology of J. W. Corbett and/or Hungryland Slough Natural Area since the 1-2 foot drawdown cone extends into those conservation areas based on information presented during the 1/25/22 rule making workshop?

1.5.2 Benefits of th

The LRWRP will provide direct hydrologic and ecologic benefits to the Northwest Fork of the Loxahatchee River. The project will achieve 91% of the dry season target restoration flows and 98% of the wet season target restoration flows, as measured at Lainhart Dam (USACE 2020). Restoration of seasonal flows will improve salinity levels in the river and conserve freshwater habitat. Restored flows will help maintain the last remaining riverine cypress habitat in southeastern Florida, riverine tapegrass habitat, oligohaline salinity zones that support juvenile sportfish, mesohaline salinity zones that support oysters, and specific riverine and estuarine conditions that support threatened Florida manatee and federally managed fish species (USACE 2020).

Please add "Natural Area" to both of these.

The LRWRP will restore approximately 27,000 acres of disturbed wetlands: 17,000 acres of former wetlands that were improved for agriculture and 10,000 acres of existing disturbed wetlands in the J.W. Corbett Wildlife Management Area, Loxahatchee Slough, Hungryland Slough, Pal-Mar natural area complex, Cypress Creek Natural Area, City of West Palm Beach Water Catchment Area, and Jonathan Dickinson State Park (USACE 2020). These 27,000 acres of restored wetlands will connect to 51,000 acres of other wetland communities for a total of 78,000 acres of connected habitat (USACE 2020). Wetland restoration efforts will contribute to the recovery of threatened and endangered animal species, such as the

Please add Pine Glades Natural Area to the list.

snail kite and wood stork. The project will also improve native habitat for recreational species, such as white-tailed deer and ducks.

The LRWRP will provide recreational and economic opportunities to the local area, such as hunting, boating, fishing, and tourism. Construction of recreational facilities are included in the Authorized Plan, which will improve public access and connectivity to natural areas and regional trail systems, such as the Ocean to Lake Trail. Public use facilities will be constructed at Moonshine Creek, the Cypress Creek Natural Area, and the C-18W Reservoir. These facilities will include parking areas, boat/kayak launches, trailheads, bridges, a fishing platform, and dry vault toilets.

Implementation of the LRWRP will boost numerous ecosystem services throughout the Loxahatchee River watershed and downstream Loxahatchee River Estuary. Ecosystem services can be defined as the benefits human beings receive from resources and processes supplied by ecosystems (Murray et al. 2013). Some ecosystem services are material (e.g., food, timber, water), while others are derived from ecological processes (e.g., carbon sequestration). The LRWRP will benefit ecosystem services through ecological restoration efforts. The ecosystem services that are expected to improve as a result of the project include wildlife-associated activities in the form of wildlife photography, nature tours, and environmental education, which can facilitate mental health and wellbeing; ecological connectivity of landscapes; biodiversity and species composition; commercial and recreational fishing; outdoor recreational opportunities such as biking, hiking, and kayaking; water quality nutrient and sedimentation assimilation; and atmospheric carbon sequestration (USACE 2020).

The LRWRP will provide the aforementioned benefits to the watershed while meeting the requirements of the WRDA 2000 Savings Clause by maintaining current levels of service for flood protection and water supply to existing legal users within the project area.

2 BASIS FOR THE RESTRICTED ALLOCATION AREA RULES

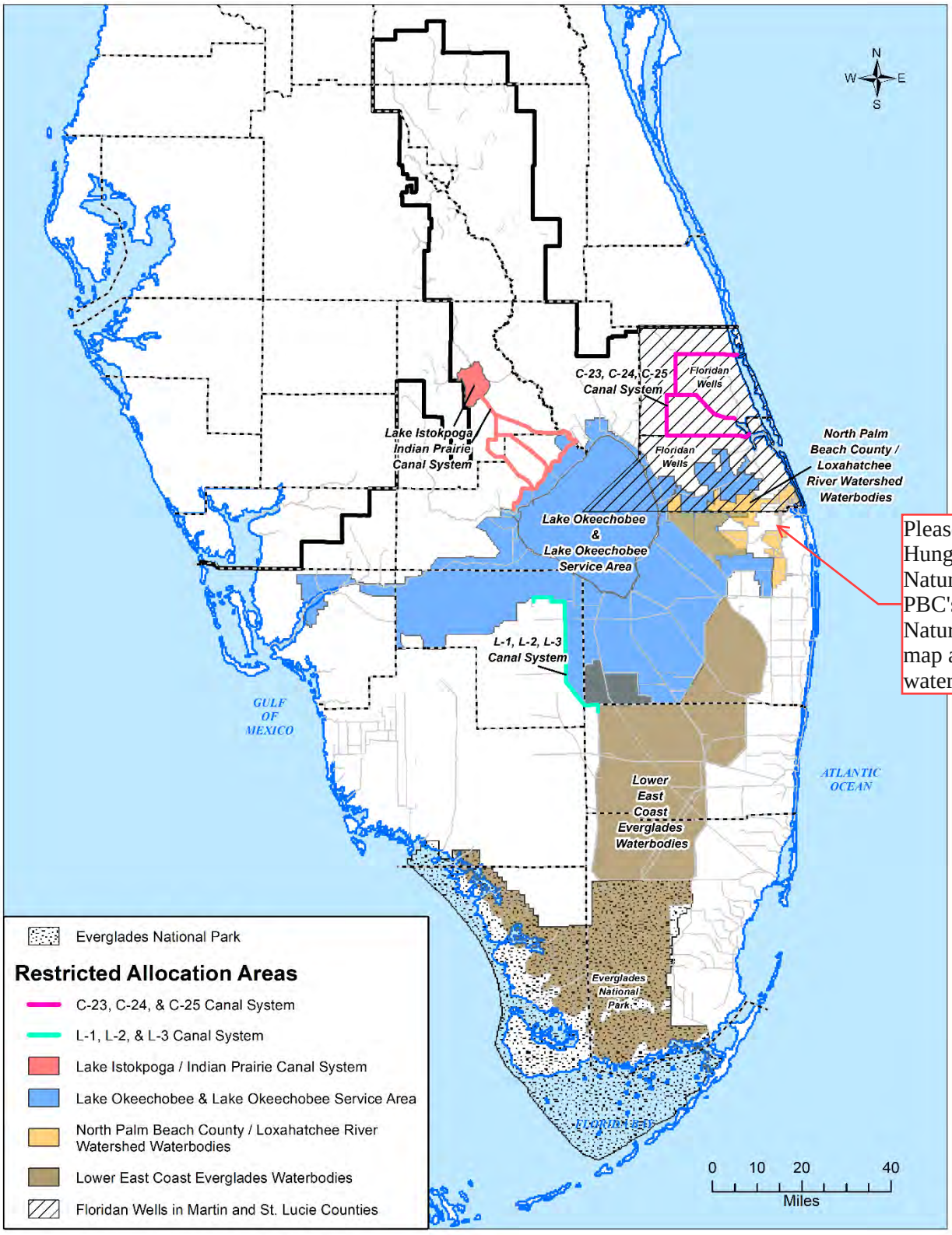
2.1 Definition and Statutory Authority

Section 373.044, F.S., authorizes the governing board of a water management district to adopt rules to implement the various provisions of Chapter 373, F.S. Section 373.216, F.S., requires the water management districts to implement a consumptive use permitting program. The consumptive use permitting program is designed to protect water resources of the area from harm. *See* § 373.219(1), F.S. The District's consumptive use permitting rules include RAAs designed to address a specific water resource concern and protect the water resource from harm.

RAAs are defined geographic areas where use of specific water supply sources (e.g., lakes, rivers, wetlands, canals, aquifers) is restricted due to concerns regarding water availability or other water resource concerns. RAAs are adopted for a variety of reasons, including 1) where there is insufficient water to meet the projected needs of a region, 2) to protect water for natural systems and future restoration projects (e.g., CERP), or 3) as part of MFL recovery or prevention strategies. RAAs are listed in Section 3.2.1 of the Applicant's Handbook (SFWMD 2021b), which is incorporated by reference in Rule 40E-2.091, F.A.C. Requests for water allocations in these regions must comply with the region-specific criteria in addition to all other applicable criteria listed in the Applicant's Handbook.

As of 2021, six RAAs have been adopted for the following geographic areas within the District (**Figure 2-1**):

- C-23, C-24, and C-25 Canal System
- Floridan Aquifer Wells in Martin and St. Lucie Counties
- L-1, L-2, and L-3 Canal System
- Lake Istokpoga/Indian Prairie Canal System
- Lake Okeechobee Service Area
- Lower East Coast Everglades Waterbodies and Northern Palm Beach County/Loxahatchee River Watershed Waterbodies



Please add Hungryland Slough Natural Area and PBC's Cypress Creek Natural Area to the map as NPBC/LRW waterbodies.

Figure 2-1. Restricted allocation areas within the South Florida Water Management District.

2.1.1 Protecting Water for CERP Projects

WRDA 2000 and Section 373.470(3)(c), F.S., require the SFWMD to allocate or reserve water for the natural system resulting from a CERP project before executing a cost-share agreement with the USACE to construct the project. The SFWMD fulfills this requirement by adopting water reservations, consumptive use permitting rules, or both. The USACE has previously verified that these mechanisms meet the federal requirements for several CERP projects. Together, these measures protect water resources across substantial portions of the District. Any water made available by a CERP project beyond that needed for the natural system may be certified by the District's Governing Board as available to be allocated for consumptive uses to meet the CERP goal of water made available for other water-related uses.

2.2 Rulemaking Process

General rulemaking requirements and procedures are described in Chapter 120, F.S., consistent with state law and SFWMD policy. The general rulemaking process includes many steps (**Figure 2-2**). On December 9, 2021, the District's Governing Board authorized publication of a Notice of Rule Development for Rulemaking to Protect Water Made Available by the Loxahatchee River Watershed Restoration Project. The Notice of Rule Development was published in the Florida Administrative Register on December 21, 2021. Building on the analyses conducted for the PIR-EIS, this technical document and the proposed rules and revisions to applicable sections of the Applicant's Handbook (SFWMD 2021b) were drafted.

Two rule development workshops will be held on January 25 and February 22, 2022, to gain public input on the rulemaking. The SFWMD encourages stakeholder review and comment on the draft rules. Public comments, questions, and SFWMD responses given during and after the workshops will be provided as appendices to the final technical document. Once the public comment has been appropriately considered and incorporated, District staff will seek authorization to publish a Notice of Proposed Rule from the District's Governing Board.

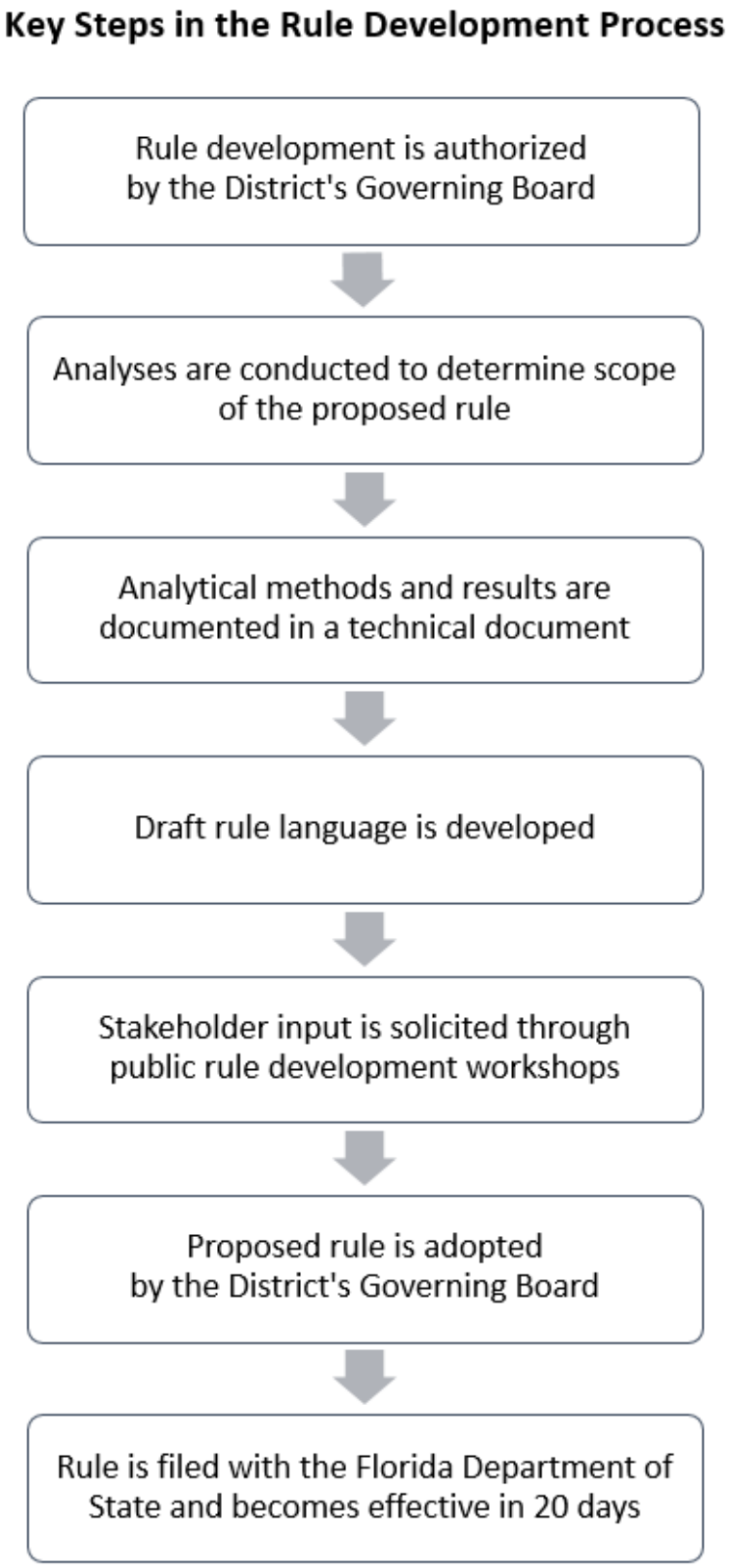


Figure 2-2. Key steps in the rule development process.

3 EXISTING CONDITION OF THE LOXAHATCHEE RIVER WATERSHED

3.1 Description of Watershed

3.1.1 Hydrology

The Loxahatchee River watershed historically spanned more than 216 square miles and primarily comprised pine flatwoods interspersed with cypress sloughs, hardwood swamps, marshes, and wet prairies (USACE 2020). The three forks of the Loxahatchee River—Northwest, North, and Southwest—discharge into the Loxahatchee River Estuary where freshwater from the river meets saltwater flowing in from the Atlantic Ocean through the Jupiter Inlet. The Loxahatchee River Estuary's central embayment is located at the confluence of the river's three forks. There are eight major subwatersheds within the Loxahatchee River watershed: Kitching Creek basin, Grove basin, Pal-Mar basin, Jupiter Farms basin, Historic Cypress Creek basin, Loxahatchee Estuary, C-18/Corbett basin, and L-8 basin (USACE 2020).

Loxahatchee Slough?

please add "...Hungryland Slough, and..."

The Hungryland and Loxahatchee sloughs are located upstream and provide significant freshwater input to the Loxahatchee River, including the Northwest Fork. The C&SF Project, authorized by Congress in 1948 primarily for flood control, altered the hydrology of the Loxahatchee Slough and River by redirecting freshwater that naturally flowed out of the Northwest Fork to the Southwest Fork and then out to tide (McVoy et al. 2011). The primary canal conveyances constructed as part of the C&SF Project include the L-8 Canal, the east and west legs of the C-18 Canal, and the C-51 Canal, all of which impacted the hydrology of the watershed to varying degrees. Dry season flows to the Northwest Fork were limited by altered drainage patterns and lowered groundwater levels due to the construction of canals, levees, and supporting water control infrastructure. Other types of development activities that followed the C&SF Project, such as road construction and urbanization, further limited dry season flows to the Northwest Fork. The permanent opening and management of the Jupiter Inlet post 1947 allowed more saltwater entry to the Loxahatchee River estuary. The original C&SF Project resulted in changes to the watershed hydrology as the landscape was fragmented while the Loxahatchee River estuary has also experienced more Atlantic Ocean connectivity through Jupiter Inlet management.

Land development over the last century has altered the natural hydrology of the watershed, resulting in community-wide changes to aquatic vegetation (freshwater and estuarine), including productivity and function. Collectively, the hydrologic changes have promoted the upstream movement of saltwater. As a result, cypress and other freshwater vegetation intolerant of elevated salinity conditions have been replaced by mangroves and other estuarine plant communities. If freshwater dry season flows are not increased to improve riverine system resilience, the salinity cline will continue to extend farther upriver than under historical conditions, thereby converting more freshwater habitat to estuarine habitat. These effects are likely to be exacerbated by potential sea level rise effects (USACE 2020). Additionally, the hydrologic impacts have had repercussions throughout the food web (USACE 2020). Under the current hydrologic conditions, further reduction in habitat function is possible, resulting in a decrease in the abundance and diversity of fish and wildlife resources throughout the watershed.

3.1.2 Habitats

The land within the Loxahatchee River watershed can be grouped into three broad land use categories: natural areas, agricultural lands, and residential/commercial space. Approximately 63% of the watershed is natural area (USACE 2020). This includes eight major natural areas: Jonathan Dickinson State Park, the Northwest Fork, Loxahatchee River Estuary, Pal-Mar, J.W. Corbett Wildlife Management Area, Loxahatchee Slough Natural Area, City of West Palm Beach Water Catchment Area, and Dupuis Wildlife

These are not natural areas.

Recommend the addition of Hungryland Slough Natural Area, Pine Glades Natural Area and Cypress Creek Natural Area.

and Environmental Area (USACE 2020). The 10 major freshwater and saltwater habitats that make up the Loxahatchee River watershed are cypress swamp, pine uplands, scrub, freshwater marshes, hardwood hammock, mangrove swamp, seagrass beds, oyster reef and beds, estuary (lagoons and inlets), and coastal dunes (USACE 2020). Although the C&SF Project altered hydrology and fragmented the landscape into variously sized habitat patches, the watershed still supports diverse ecological communities that provide food, cover, and roosting and nesting habitats used by a wide range of wildlife.

3.1.3 Fish and Wildlife Resources

The fish and wildlife resources within the Loxahatchee River watershed comprise many taxonomic groups of aquatic macroinvertebrates, freshwater and saltwater fish, amphibians, reptiles, birds, and mammals. Because the Northwest Fork of the Loxahatchee River is a federally designated Wild and Scenic River, area-specific regulations affect the management of fish and wildlife resources.

Shellfish

The Loxahatchee River Estuary supports a variety of shellfish, including crabs, clams, shrimp, and oysters. Of commercial importance, the estuary is home to blue crabs and stone crabs. Oyster reefs within the estuary have been monitored for the past 30 years and shown decreased abundance due to flood control measures that have altered freshwater flows of the river (USACE 2020). South of the Loxahatchee River Estuary, the Lake Worth Lagoon was also impacted by the C&SF Project and has experienced changes in the magnitude and duration of saline conditions, which has prohibited the establishment of oyster communities.

Fish

Oscar and tilapia are not native and should not be considered in the plan

Christensen (1965) identified more than 250 species of fish within the Loxahatchee River and Estuary. The abundance, distribution, and diversity of fish are affected by season, salinity, and habitat availability. The upstream area of the river is characterized by freshwater fish species, and the lower portion is characterized by marine and estuarine species. The freshwater marshes, creeks, and river reaches include many species of small and large fish. Small fish provide an important food source for wading birds, reptiles, and amphibians. Common small freshwater fish include the golden topminnow (*Fundulus chrysotus*), least killifish (*Heterandria formosa*), Florida flagfish (*Jordenella floridae*), golden shiner (*Notemigonus crysoleucas*), sailfin molly (*Poecilia latipinna*), bluefin killifish (*Lucania goodei*), oscar (*Astronotus ocellatus*), eastern mosquitofish (*Gambusia holbrookii*), and small sunfishes (*Lepomis* spp.) (USACE 2020). Larger freshwater fish occur in deeper ditches, canals, and the upper river reaches where tapegrass occurs in widespread beds on the river bottom. This includes largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), redear sunfish (*Lepomis microlophus*), black crappie (*Pomoxis nigromaculatus*), yellow bullhead (*Ameiurus natalis*), white catfish (*Ameiurus catus*), bowfin (*Amia calva*), and tilapia (*Tilapia* spp.) (USACE 2020). Larger fish are prey for birds, alligators, and mammals and serve as a recreational and commercial fishery resource.

Seagrass and mangrove habitat within the estuarine and marine portions of the river provide important habitat and nursery grounds for many fish species. Common recreational and commercial fish species found within the estuarine and marine reaches of the Loxahatchee River include mutton snapper (*Lutjanus analis*), yellowtail snapper (*Ocyurus chrysurus*), lane snapper (*Lutjanus synagris*), yellowtail parrotfish (*Sparisoma rubripinne*), gag grouper (*Mycteroperca microlepis*), pinfish (*Lagodon rhomboids*), tarpon (*Megalops atlanticus*), common snook (*Centropomus undecimalus*), crevalle jack (*Cranx hippos*), spotted sea trout (*Cynoscion nebulosus*), redfish (*Sciaenops ocellatus*), sheepshead (*Archosargus probatocephalus*), mullet (*Mugil* spp.), threadfin shad (*Dorosoma petenense*), and gizzard shad (*Dorosoma cepedianum*) (USACE 2020).

Amphibians and Reptiles

The freshwater wetland complex of the watershed supports a diverse assemblage of amphibians and reptiles. Amphibians are an important food source for wading birds, alligators, and larger predatory fish. Common amphibians include the greater siren (*Siren lacertina*), Everglades dwarf siren (*Pseudobranchus striatus*), two-toed amphiuma (*Amphiuma means*), pig frog (*Rana grylio*), southern leopard frog (*Rana sphenocephala*), Florida cricket frog (*Acris gryllus*), southern chorus frog (*Pseudacris nigrita*), squirrel tree frog (*Hyla squirela*), and green tree frog (*Hyla cinerea*) (USACE 2020). Common reptiles include the American alligator (*Alligator mississippiensis*), snapping turtle (*Chelydra serpentina*), striped mud turtle (*Kinosternon bauri*), mud turtle (*Kinosternon subrubrum*), cooter (*Chrysemys floridana*), Florida chicken turtle (*Deirochelys reticularia*), Florida softshell turtle (*Trionys ferox*), water snakes (*Nerodia* spp.), mud snake (*Francia abacura*), eastern ratsnake (*Pantherophis obsoletus*), and Florida cottonmouth (*Agkistrodon piscivorus*) (USACE 2020). Protected species such as the eastern indigo snake (*Drymarchon corais coupieri*), gopher tortoise (*Gopherus polyphemus*), and gopher frogs (*Lithobates capito*) are also present in the watershed.

Birds

Wading birds and marsh birds are frequently observed in depressional marshes and littoral zones of ditches, canals, and stormwater detention ponds within the watershed. Common wading birds include white ibis (*Eudocimus albus*), glossy ibis (*Plegadus falcenellus*), great egret (*Aredea albus*), snowy egret (*Egretta thula*), great blue heron (*Ardea herodias*), little blue heron (*Egretta caerulea*), tricolored heron (*Egretta tricolor*), green heron (*Butorides virescens*), cattle egret (*Bubulcus ibis*), black-crowned night heron (*Nycticorax nycticorax*), yellow-crowned night heron (*Nycticorax violacea*), roseate spoonbill (*Platalea ajaja*), and wood stork (*Mycteria americana*) (USACE 2020). Common marsh birds include the common gallinule (*Gallinula galeata*), purple gallinule (*Porphyrio martinicus*), least bittern (*Ixobrychus exilis*), limpkin (*Aramus guarauna*), king rail (*Rallus elegans*), and black rail (*Laterallus jamaicensis*).

Additional protected bird species found in the watershed include bald eagles (*Haliaeetus leucocephalus*), northern crested caracaras (*Caracara cheriway*), sandhill cranes (*Antigone canadensis*), and red-cockaded woodpeckers (*Picoides borealis*). The red-cockaded woodpecker has a small population in the J.W. Corbett Wildlife Management Area, where it tends to nest in mature pine trees.

Mammals

black bear and panther may rarely occur in the Lox River watershed, which is not part of any "home ranges"

A variety of mammal species are found throughout the Loxahatchee River watershed from the uplands to the estuary. The rice rat (*Oryzomys palustris natator*), round-tailed muskrat (*Neofiber alleni*), river otter (*Lontra canadensis*), marsh rabbit (*Sylvilagus palustris*), and raccoon (*Procyon lotor*) are common mammal species that inhabit the upland and wetland plant habitats. White-tailed deer (*Odocoileus virginianus*), black bear (*Ursus floridanus*), bobcat (*Lynx rufus*), and the federally endangered Florida panther (*Puma concolor coryi*) also use portions of the watershed as part of their home ranges.

3.2 Description of Northwest Fork of the Loxahatchee River

The Northwest Fork of the Loxahatchee River naturally originates in the Loxahatchee and Hungryland sloughs, which are south and west of the river. The C&SF Project cut off these hydrologic connections to the Northwest Fork and diverted freshwater flow to the Southwest Fork and out to tide through construction of canals (e.g., C-18) and water control structures (e.g., G-92). Downstream from the Loxahatchee and Hungryland sloughs, the Northwest Fork also receives input from other major tributaries of the Loxahatchee River, such as Cypress Creek/Cypress Creek Canal, Hobe Grove Ditch, Moonshine Creek, Wilson Creek, and Kitching Creek. Three distinct reaches (riverine, lower tidal, and upper tidal) and four major forest

community types (swamp, bottomland hardwood, hydric hammock, and upland) are found in the floodplain of the Northwest Fork. The following descriptions of the river reaches and dominant vegetative communities were summarized from the *Restoration Plan for the Northwest Fork of the Loxahatchee River* SFWMD (2006).

- The riverine reach of the Northwest Fork primarily consists of freshwater canopy forest that generally is unaffected by salinity. This area ranges from just north of the G-92 structure to river mile (RM) 9.5 (**Figure 3-1**). Vegetative communities in this reach are dominated by bald cypress (*Taxodium distichum*), pop ash (*Fraxinus caroliniana),* red maple (*Acer rubrum*), pond apple (*Annona glabra*), and water hickory (*Carya aquatica*).
- The upper tidal reach between RM 9.5 and RM 8.13 (**Figure 3-1**) consists of mixed freshwater/brackish canopy forest that has experienced some saltwater intrusion due to tidal influences and lack of freshwater flow during the dry season. Upper tidal reach communities are dominated by pond apple, red and white mangrove (*Rhizophora mangle* and *Laguncularia racemosa*), and cabbage palm (*Sabel palmetto*), with some communities of bald cypress located in the inner floodplain away from the riverbed.
- The lower tidal reach from approximately RM 8.13 to RM 5.5 (**Figure 3-1**) includes salt-tolerant species and is highly influenced by tides and salinity in the water and soils. The lower tidal reach is dominated by red and white mangrove.

Among other contributing factors—including widening and dredging of the Jupiter Inlet, groundwater drawdown in Jupiter and Tequesta, and sea level rise—decreased freshwater input to the Northwest Fork of the Loxahatchee River has led to an increase in upstream salinity, which has caused a decline in rare riverine cypress and an encroachment of mangroves. Restoration target flows developed in the *Restoration Plan for the Northwest Fork of the Loxahatchee River* (SFWMD 2006) identified dry season and wet season flows at Lainhart Dam (located between RM 14 and RM 15; **Figure 3-1**). The restoration target flows would provide preferred seasonal flows to the Northwest Fork and reduce saltwater intrusion in the tidal plain, while maintaining appropriate environmental conditions in the riverine floodplain for aquatic-dependent species, communities, and wildlife (USACE 2020). The target flows developed in 2006 were re-examined in 2012 using new flow, salinity, and biological monitoring data and were found to be valid. Those target flows were used to develop the LRWRP (USACE 2020). Salinity target zones or "envelopes" were also developed in 2006 for the four major salinity zones: freshwater, oligohaline, mesohaline, and polyhaline (SFWMD 2006). Ecological indicators such as tapegrass, fish larvae and juveniles, oysters, and seagrass are monitored within each respective salinity zone to track the health, abundance, and distribution of native riverine and estuarine species.

Sea level rise is a concern for all coastal areas of South Florida. The PIR-EIS reported sea levels relative to the Loxahatchee River and Estuary could rise 0.4 to 2.4 ft over the next 50 years (USACE 2020). This rise in sea level could result in saltwater migration upstream in the Loxahatchee River. The additional freshwater flows resulting from the LRWRP may help mitigate this saltwater migration. Modeling was performed as part of the project and details can be found in the PIR-EIS (USACE 2020).

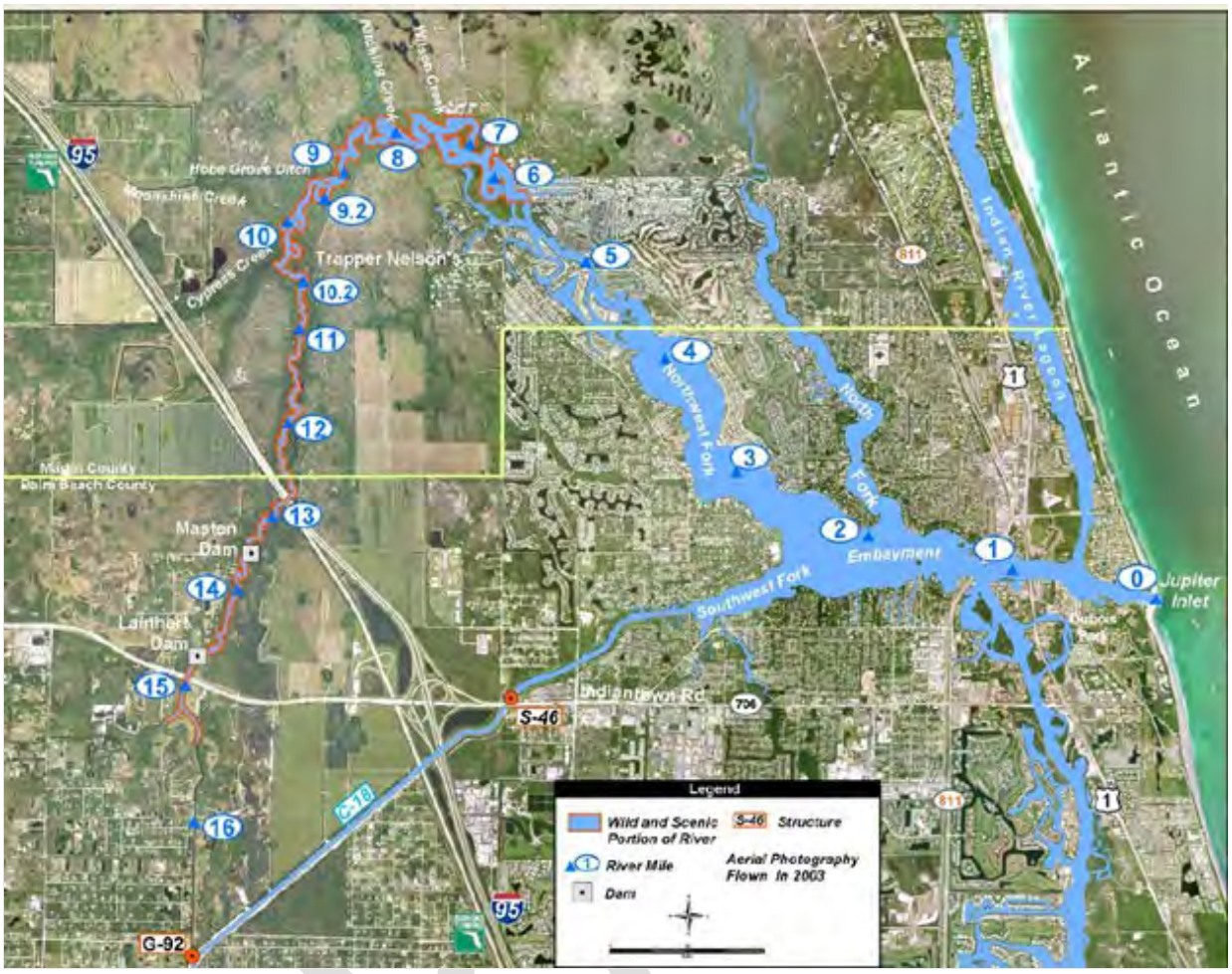


Figure 3-1. River mile designations for the Loxahatchee River (From: SFWMD 2006).

3.3 Geology and Hydrogeology of Aquifer Systems in the Vicinity of the C-18W Reservoir

The geological framework of South Florida has been studied by numerous investigators, including Miller (1990), Meyer (1989), and Reese and Richardson (2008). Most of the following is summarized from Reese and Richardson (2008), supplemented with more recent data. Florida is underlain by a thick sequence of carbonate and clastic sedimentary rocks ranging in age from Paleocene to recent. There are three principal hydrogeologic units present in the study area: the surficial aquifer system (SAS), intermediate confining unit, and Floridan aquifer system (FAS). In this area, the SAS consists of fine- to medium-grain quartz sand with varying amounts of silt, clay, and shell deposits. It is unconfined and produces small quantities of good to fair quality water. The intermediate confining unit generally consists of the fine-grained sediments of the Hawthorn Group. The Hawthorn Group generally acts as a regionally extensive confining unit overlying the FAS in southeastern Florida. In the area of the C18-W Reservoir, the Hawthorn Group is approximately 700 ft thick.

3.3.1 Floridan Aquifer System

The FAS consists of the Upper Floridan aquifer (UFA), middle confining unit, and Lower Floridan aquifer (Miller 1990). Reese and Richardson (2008) refined these units and provided a more consistent hydrogeologic framework using multiple methods for identifying hydrostratigraphic units, including lithologic and geophysical methods.

Generally located about 1,000 ft below land surface (bls), the UFA occurs at the base of the Hawthorn Group and includes the Suwannee Limestone and upper portions of the Avon Park Formation and Ocala Limestone. In the study area, it generally consists of several thin, highly permeable water-bearing zones interbedded with thicker zones of lower permeability. Because of good confinement above the UFA and artesian pressure within it, the top of the UFA is marked by a large increase in hydraulic head. Drilling characteristics, such as a lost-circulation zone, also help identify the top of the UFA. The thickness of the UFA varies between less than 100 ft in central Florida to more than 700 ft in some areas of southern Florida. The bottom of the UFA tends to be gradational in nature and its elevation is difficult to define precisely. The UFA is the target horizon for implementation of ASR at the C-18W Reservoir.

The middle confining unit is divided into three units: upper middle confining unit, Avon Park permeable zone (APPZ), and lower middle confining unit (Miller 1986). As stated above, the boundary between the UFA and middle confining unit is gradational and difficult to define precisely; therefore, the altitude of the top of the upper middle confining unit has a significant degree of variability. The thickness of the upper middle confining unit varies between less than 100 ft to more than 800 ft. The APPZ is a productive unit in the study area. The APPZ is present throughout most of South Florida, although it thins and may pinch out along the southeast coast of Florida and may be absent in portions of Collier and Monroe counties. In other portions of South Florida, it can be up to 500 ft thick. Permeability of the APPZ is mainly associated with fracturing. Transmissivity of the APPZ ranges from less than 100,000 ft^2/day in the southern portions of southern Florida to 1,600,000 ft^2/day in west-central Florida.

The Lower Floridan aquifer consists of a sequence of permeable zones separated by semi-confining units. The first permeable zone is somewhat contiguous throughout South Florida. It is located near the base of the Avon Park Formation at elevations between -1,400 and -2,600 ft National Geodetic Vertical Datum of 1929 (NGVD29). Its thickness ranges from near absent to more than 150 ft. Reported transmissivities range between 10,000 and 50,000 ft^2/day, with some localized higher values. Water quality within the first permeable zone is generally saline throughout South Florida. The first permeable zone is generally above the glauconitic limestone marker bed (**Figure 3-2**). Below the first permeable zone is a series of confining units with localized permeable zones in the upper portion of this deeper unit. The spatial extent of the thin permeable zones has not been fully mapped or identified in the deeper wells that penetrate this unit and would be difficult to treat as distinct hydrostratigraphic units. As a result, these lower confining units and the thin permeable zones within them are treated as a single semi-confining unit referred to as the Lower Floridan confining unit. Below the Lower Floridan confining unit is an extremely transmissive zone of cavernous and fractured dolomites and limestones of the Oldsmar Formation locally referred to as the Boulder Zone. The Boulder Zone occurs at elevations of approximately -2,100 to -3,500 ft NGVD29 and can be several hundred feet thick in some areas (Reese and Richardson 2008), with extremely high transmissivity values. The Boulder Zone represents the base of the FAS in South Florida as it is underlain by the massive impermeable anhydrite beds of the Cedar Keys Formation (**Figure 3-2**).

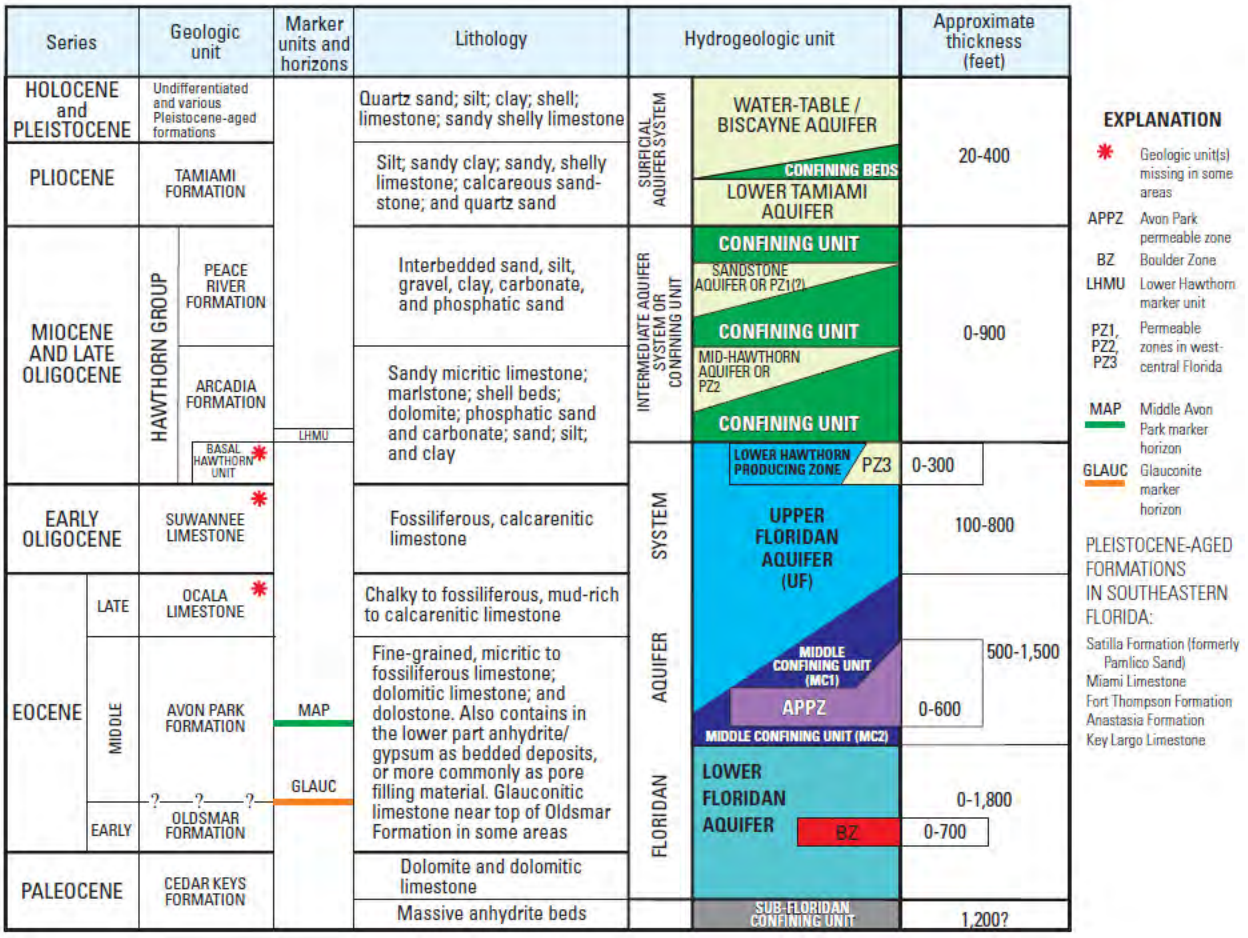


Figure 3-2. Generalized geologic and hydrogeologic framework of South Florida (From: Reese and Richardson 2008).

3.3.2 Hydrogeology at Nearby FAS and Aquifer Storage and Recovery Wells

There are several wells in Palm Beach County that provide information pertinent to the ASR well component of the C-18W Reservoir (**Figure 3-3**). The deep injection wells provide hydrostratigraphic and some water quality information, but generally do not provide information regarding aquifer characteristics in the UFA and APPZ. The FAS supply wells, ASR test wells, and SFWMD exploratory wells have more robust data sets that typically provide this information.

The hydrostratigraphic units most associated with water supply are the UFA and APPZ. Permeable zones within the upper portions of the Lower Floridan aquifer are too brackish to expect reasonable ASR recovery rates. For the UFA and APPZ, chloride and total dissolved solids (TDS) concentrations of 2,000 and 4,000 milligrams per liter (mg/L) are typical in Palm Beach County. The base of the underground source of drinking water, defined as the depth where ambient water quality is 10,000 mg/L total dissolved solids, is encountered between depths of 1,700 ft bls (Geraghty & Miller 1986, 1987) and 1,920 ft bls (PBF-15 at L-8 flow equalization basin; Anderson 2008). The transition to poorer water quality typically occurs over a short interval (approximately 100 ft) based on water quality samples obtained during reverse-air drilling at these sites.

Pratt & Whitney Injection Well: The closest wells to the C-18W Reservoir site that penetrate the entire FAS are located at the Pratt & Whitney deep injection well facility, approximately 4 miles north. The wells at this facility are completed within the Boulder Zone (approximately 3,000 ft bls). The Pratt & Whitney investigation revealed the top of the UFA occurs within the Suwannee Limestone at approximately 800 ft bls (CH2M HILL 1985). Additionally, there are deeper, permeable dolomitic portions of the aquifer that may also be available for storage.

Seacoast Injection Well: The stratigraphy at the Seacoast Utility Authority deep injection well system, 9 miles east of the C-18W Reservoir site, is similar to that at the Pratt & Whitney deep injection well facility. Investigation at this location showed there are several potential storage zones within the upper portions of the FAS, the uppermost of which is at 900 ft bls (CH2M HILL 1989).

C-18 Test ASR Well: In 1976, the Florida Department of Natural Resources constructed and tested an ASR system along the C-18 Canal, approximately 11 miles northeast of the C-18W Reservoir site (Palappert 1977). A 12-inch diameter test ASR well drilled within the UFA underwent four short test cycles at recharge rates of 3 mgd at relatively low pressures. During the fourth cycle, the system exhibited a recovery efficiency of 36% after recharging for only one month and a storage period of 120 days. Testing indicated the UFA would be conducive to future implementation of larger-capacity ASR wells at this site at rates of 5 mgd, with high recovery efficiency.

West Palm Beach ASR Well: The City of West Palm Beach is currently operating an ASR system approximately 11 miles southeast of the C-18W Reservoir site (CH2M HILL 1998). The ASR system is operating at recharge rates in excess of 7 mgd within the UFA and is currently conducting test cycles using filtered surface water. The City has obtained a water quality criteria exemption from the Florida Department of Environmental Protection that allows the ASR system to operate without a disinfection treatment process.

US Sugar ASR Test Well: In 1992, the United States Sugar Corporation constructed a test well system approximately 11 miles west of the C-18W Reservoir site. A 6-inch diameter test well, cased to the top of the FAS at a depth of 925 ft bls, was constructed with an open-hole extending to 1,690 ft bls. The well was hydraulically tested, and results indicated the UFA exhibited a transmissivity of 540,000 gallons/day/ft (Missimer & Associates, Inc. 1993). These attributes indicate a larger-diameter ASR well at this location could be pumped at a rate of 5 mgd, while exhibiting reasonable drawdowns and recharge pressures. Additionally, the water within the UFA exhibited chloride concentrations between 1,100 and 1,800 mg/L, which are similar to other ASR facilities in southern Florida that have had high recovery efficiencies.

Royal Palm Beach Injection Well: The stratigraphy at the Royal Palm Beach deep injection well, located 7 miles south of the C-18W Reservoir site, confirms that the UFA is present at a depth of 900 ft bls, and artesian limestone and dolomitic intervals are present to depths greater than 2,500 ft bls. A lost circulation zone at 950 ft bls indicates a permeable zone corresponding to the top of the UFA, with a total dissolved solids concentration of 4,000 mg/L. These findings indicate that multiple, vertically stacked zones may be available for high-capacity water recharge and storage in the area (CH2M HILL 1988).

L-8 Flow Equalization Basin Site (PBF-15): The SFWMD constructed a tri-zone monitor well to measure groundwater levels continuously in FAS permeable zones at the northeast corner of the L-8 flow equalization basin. Two permeable zones suitable for storage were identified between 890 and 1,100 ft bls. While drilling through this interval, numerous lost circulation zones were encountered, indicating highly fractured or otherwise permeable strata within the UFA that would be capable of accommodating high-capacity recharge and recovery rates (Anderson 2008).

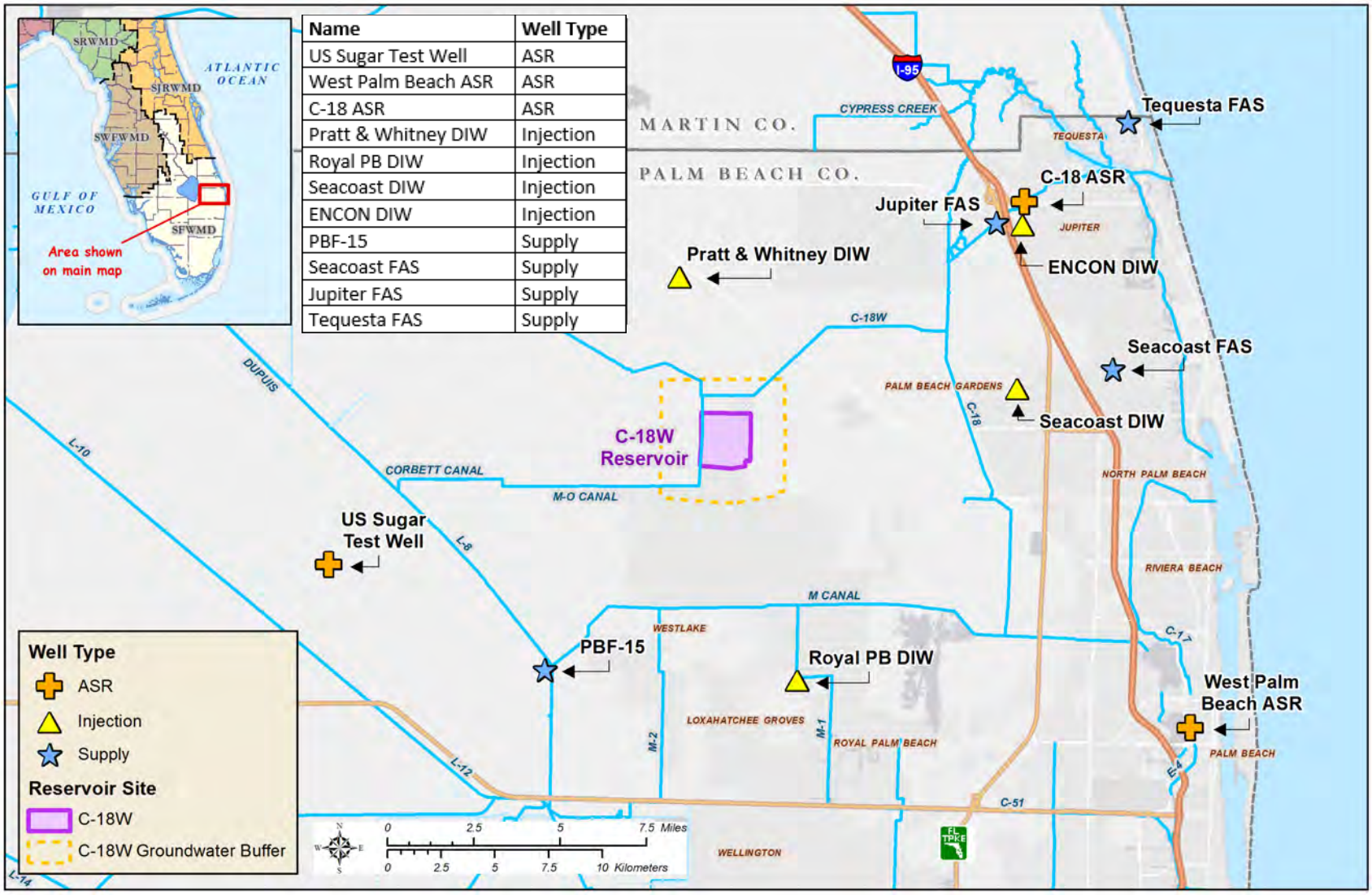


Figure 3-3. The C-18W Reservoir and nearby Floridan aquifer system wells.

3.3.3 Conclusions

Review of hydrogeologic data in the vicinity of the C-18W Reservoir site was based on consultant reports and United States Geological Survey and SFWMD water resource investigations. Based on this review, it appears that subsurface conditions in the general depth range of the UFA (the target zone) are suitable for ASR implementation. The UFA's hydrogeology, background water quality, aquifer characteristics, regional hydraulic gradient, and anticipated pumping rates are all within reasonable ranges associated with other successful ASR systems. There is no specific information in the area that precludes the C-18W Reservoir site from being considered for ASR.

4 IMPROVEMENTS TO HYDROLOGY, HABITATS, AND FISH AND WILDLIFE RESOURCES

4.1 Hydrology

One of the five planning objectives of the LRWRP is to restore wet and dry season flows to the Northwest Fork of the Loxahatchee River and the river's floodplain (USACE 2020). The Authorized Plan will improve the quantity, quality, timing, and distribution of freshwater flow to the Northwest Fork by achieving 91% of the dry season target restoration flows and 98% of the wet season target restoration flows as measured at Lainhart Dam (USACE 2020). To improve seasonal flows, freshwater currently lost to tide (via the Southwest Fork) will be captured and redirected to the Northwest Fork to meet restoration flows before being discharged into the Loxahatchee River Estuary. These improvements will be realized through the construction of structural project components, including a 9,500-ac-ft reservoir, four ASR wells, a flow-through marsh, pump stations, canals, and water control structures, in addition to management and operational modifications to existing water control infrastructure. Fewer high-discharge events (from the Northwest Fork) and low-flow days will improve salinity along the river, which will conserve the river's unique blend of freshwater and estuarine habitats. The LRWRP will also improve the timing and distribution of flows to the Northwest Fork's tributary creeks (Kitching Creek, Moonshine Creek, and Cypress Creek).

Beyond the Northwest Fork of the Loxahatchee River, the LRWRP will provide significant hydrologic improvements to wetlands through restoration of sheetflow and increased hydroperiods. Specific restoration actions include removal of berms, filling of ditches, connecting surface water and groundwater flows between natural areas, and moving water through spreader canals and natural flow-ways. Although hydrology to the watershed and Northwest Fork will be improved, the LRWRP will not fully restore hydrology to pre-drainage conditions (USACE 2020).

Please change to "...Loxhatchee Slough Natural Area, Hungryland Slough Natural Area..."

4.2 Habitats

The spatial extent and quality of wetland resources within the Loxahatchee River watershed have been impacted by drainage, conversion to agriculture, and urban development. The LRWRP proposes to restore approximately 27,000 acres of disturbed wetlands within the watershed: 17,000 acres of former wetlands that were improved for agriculture and 10,000 acres of existing disturbed wetlands in the J.W. Corbett Wildlife Management Area, Loxahatchee Slough, Hungryland Slough, Pal-Mar natural area complex, Cypress Creek Natural Area, City of West Palm Beach Water Catchment Area, and Jonathan Dickinson State Park (USACE 2020). These 27,000 acres of restored wetlands will connect to 51,000 acres of other wetland communities for a total of 78,000 acres of connected habitat (USACE 2020). Restoration and connectivity in these areas will result in habitat improvements for a mix of ridge-and-slough, pine flatwoods, wet prairie, cypress floodplain, cypress strand, dome swamps, depression marsh, and mesic and hydric hammock plant communities (USACE 2020). The LRWRP will also improve conditions for aquatic vegetation and seagrass communities through decreases in the number of high-discharge events and increases in dry season flows to the Northwest Fork and Loxahatchee River Estuary. While the spatial extent of natural plant communities will not be restored to their historical extents and proportions, the quality and quantity of vegetative communities will be greatly improved (USACE 2020).

Please add Pine Glades Natural Area.

4.3 Fish and Wildlife Resources

Alterations to historical drainage patterns and modifications to water management practices have impacted aquatic vegetation communities within the watershed, resulting in disrupted aquatic productivity and function throughout the food web (USACE 2020). The LRWRP will provide habitat improvements benefitting a wide range of fish and wildlife resources through implementation of project components that improve the timing, quantity, quality, and distribution of freshwater flow to the Loxahatchee River and Estuary. The project will also provide habitat connectivity between natural areas and patches of fragmented habitat as lands are committed to the project. This increase in the spatial extent of suitable habitats will provide additional foraging and nesting opportunities for fish and wildlife, including threatened and endangered species.

In the estuarine environment, oysters will benefit from the project as a result of fewer high-discharge events to the Loxahatchee River and Estuary. Commercially and recreationally important species of fish, such as snapper and grouper, will benefit from improved seagrass habitat and an increase in forage prey availability as the project re-establishes a more natural salinity regime to the river and downstream estuary. Increased freshwater flows to the river and estuary will improve habitat for other estuarine wildlife species such as manatees, sea turtles, and wading birds. In the freshwater environment, fish and wildlife will benefit from expansion of the riparian fringe due to implementation of project components that restore flow to the river and its historical tributaries. Restoration efforts for natural areas and hydrologically impacted lands throughout the project area will increase stages and hydroperiods of wetlands. Such wetland improvements will provide better habitats for crayfish and small fish, thus increasing prey and foraging opportunities for amphibians, reptiles, birds, and small mammals.

Currently degraded populations of listed species are expected to improve after the restoration and enhancement of suitable habitat. Nine federally listed species are either known to exist or potentially exist within the project area (USACE 2020). Those that would benefit from the LRWRP include the Florida manatee, Florida bonneted bat, snail kite, and wood stork. Twelve state-listed species are also potentially present in the project area (USACE 2020). Those that will benefit from the LRWRP include beach-nesting bird species (e.g., American oystercatcher, black skimmer, least tern), wading birds (e.g., reddish egret, little blue heron, roseate spoonbill, tricolored heron), and sandhill cranes. The LRWRP will contribute to the ongoing monitoring and management of threatened and endangered species, which will help maintain or enhance existing populations.

Everglade

5 IDENTIFICATION OF WATER TO BE PROTECTED

The purpose of amending the Lower East Coast Regional Water Availability RAA rule to expand the boundaries of the North Palm Beach County/Loxahatchee River Watershed Waterbodies is to ensure water associated with the operation of the LRWRP is protected from consumptive use. Expansion of the RAA will protect surface waterbodies that deliver water to the Loxahatchee River or its tributaries. New rules are needed to protect the water stored in the upper FAS via ASR wells included in the LRWRP's Authorized Plan.

5.1 Surface Water

The RAA for the Lower East Coast Everglades Waterbodies and North Palm Beach County/Loxahatchee River Watershed Waterbodies is a component of the MFL recovery strategy for the Northwest Fork of the Loxahatchee River, as set forth in Chapter 40E-8, F.A.C. The RAA helps implement the SFWMD's objective to ensure that water necessary for restoration of the Loxahatchee River watershed is not allocated for consumptive use upon permit renewal or modification under this rule. Any evaluation of water withdrawn from the North Palm Beach County/Loxahatchee River Watershed Waterbodies shall address the impacts of the proposed use on surface water and groundwater from: a) integrated conveyance systems hydraulically connected to the North Palm Beach County/Loxahatchee River Watershed Waterbodies and are tributary to or receive water from such waterbodies; and b) the North Palm Beach County/Loxahatchee River Watershed Waterbodies. Integrated conveyance systems hydraulically connected to the North Palm Beach County/Loxahatchee River Watershed Waterbodies include primary canals used for water supply, including, but not limited to, C&SF Project canals and secondary and tertiary canals that derive water from primary canals for supply purposes. Canals used strictly for drainage are not considered part of the North Palm Beach County/Loxahatchee River Watershed Waterbodies.

The LRWRP is a CERP project designed to restore the Loxahatchee River and meet part of the Northwest Fork of the Loxahatchee River MFL recovery strategy. As discussed previously, a condition of CERP projects is the legal protection of project water for the natural system prior to entering a cost-share agreement with the federal government. Most, but not all, the areas included in the LRWRP are already within the existing definition of the North Palm Beach County/Loxahatchee River Watershed Waterbodies and, therefore, protected under the existing RAA. However, to fully protect the water needed for the LRWRP, the existing RAA needs to be amended to include the remaining project areas. **Figure 5-1** shows the proposed, expanded RAA boundaries for the North Palm Beach County/Loxahatchee River Watershed Waterbodies under the Lower East Coast Regional Water Availability rule. Added areas are shown with dashed outlines.

Please see all of the comments on Figure 3.2 of the Applicants Handbook for Water Use Permit Applications

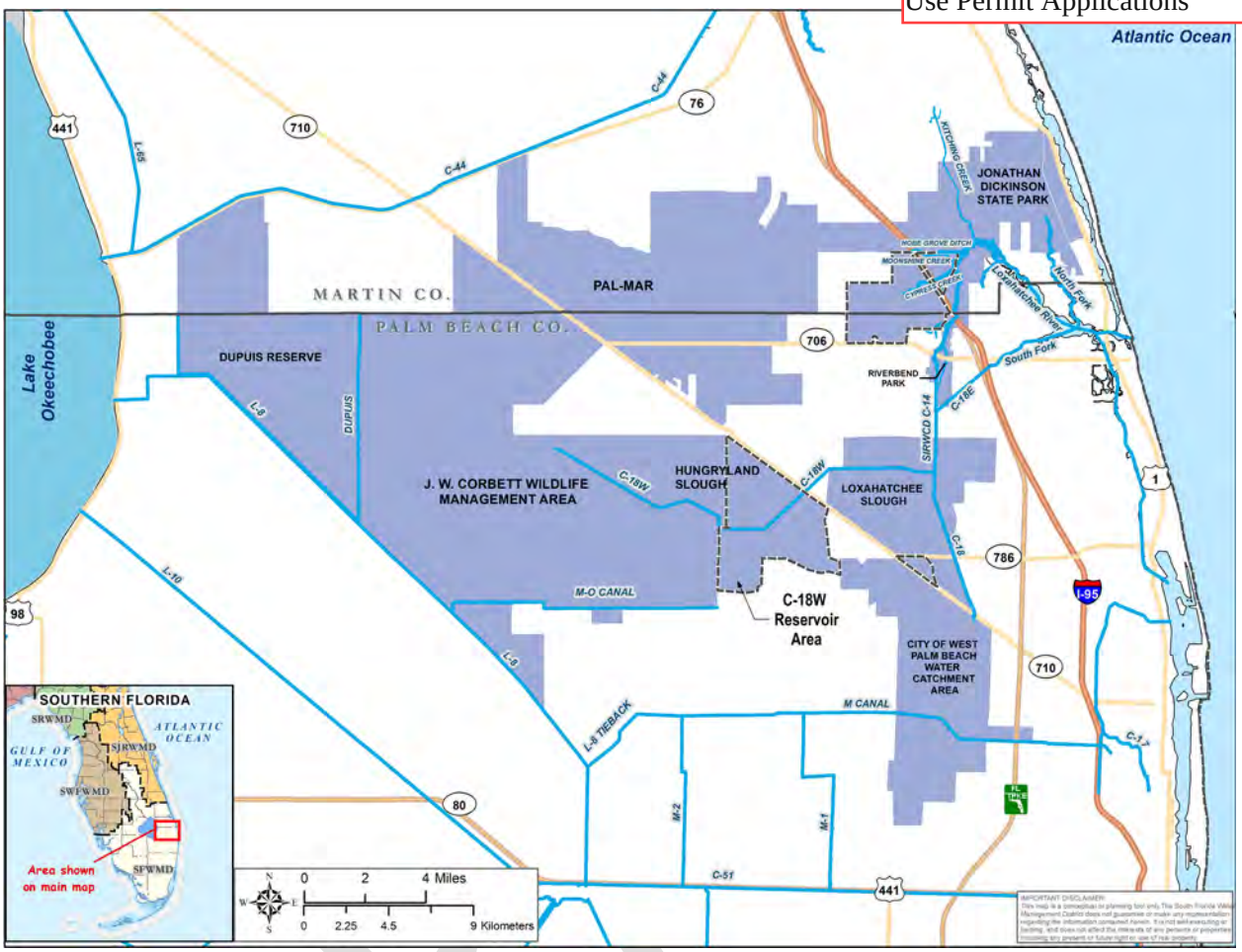


Figure 5-1. The proposed, expanded restricted allocation area boundaries for the North Palm Beach County/Loxahatchee River Watershed Waterbodies under the Lower East Coast Regional Water Availability rule. Dashed lines indicate new areas added to the existing restricted allocation area.

Please explain and provide background information on why the 2006 base condition assumption is still valid considering the Lox River CERP project has been authorized by Congress and it is now 2022?

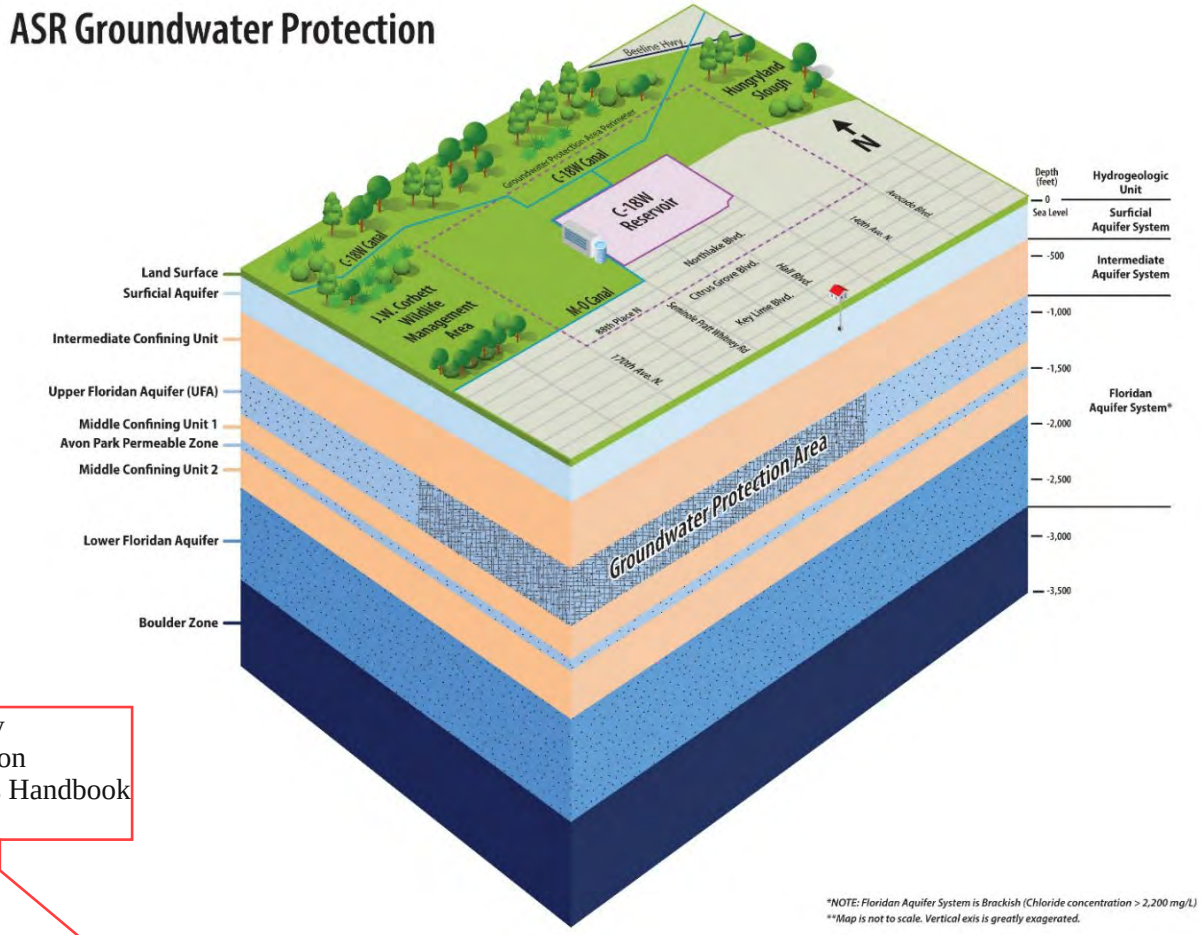
5.2 Groundwater

5.2.1 Surficial Aquifer System

Under the Lower East Coast Regional Water Availability RAA rule, groundwater withdrawals from the unconfined surficial aquifer system (SAS), including the Biscayne aquifer, are limited to the extent that they induce seepage from the North Palm Beach County/Loxahatchee River Watershed Waterbodies above an established base condition (maximum annual average use for a 5-year period ending on April 1, 2006). The current rule applies to the areas shown in **Figure 5-1**. The same base condition will apply to consumptive use permits within the expanded areas in this update to the Lower East Coast Regional Water Availability RAA rule (the areas shown with dashed outlines in **Figure 5-1**).

5.2.2 Floridan Aquifer System

The LRWRP ASR component will store excess surface water in the upper FAS via four ASR wells adjacent to the C-18W Reservoir, as described in the Authorized Plan. To protect the water stored in the upper FAS, the SFWMD will implement a new RAA and modify the current criteria pertaining to existing legal users. The proposed rule will prohibit direct withdrawals from the upper FAS within the RAA boundary identified in **Figure 5-2** to protect the groundwater storage zone associated with the project's ASR wells. This RAA is narrowly defined to continue to encourage water users to utilize the FAS outside the boundary as an alternative water supply source. Consideration of withdrawals that induce seepage across the groundwater RAA boundary will be evaluated as described in Subsection 3.2.1.G of the Applicant's Handbook (SFWMD 2021b). Based on information from previous ASR investigations and modeling performed for the LRWRP, a 1-mile buffer from the boundaries of the C-18W Reservoir parcel was determined as the area necessary to protect the project water stored via ASR (**Figure 5-2**).



See County comments on Applicant's Handbook Figure 3-4

Figure 5-2. Graphic representation of the hydrogeology beneath the C-18W Reservoir (not to scale). The Upper Floridan aquifer (and possibly the Avon Park permeable zone) are anticipated to be utilized for storage and recovery of treated surface water beneath the C-18W Reservoir.

Groundwater Modeling of Aquifer Storage and Recovery at the C-18W Reservoir

During development of the LRWRP PIR-EIS, four ASR wells were simulated as part of the C-18W Reservoir operation. In the model, the minimum and maximum volumes of the ASR storage bubble were 8,700 and 30,000 ac-ft, respectively. Inflow and outflow capacities were limited to a combined flow rate of 30 cfs. The ASR system assumed a 70% recovery efficiency. Results from the Kissimmee River ASR Pilot Project system (nearly 100% recovery efficiency during each cycle over a 4-year testing period; SFWMD and USACE 2013) give some assurance that the 70% recovery efficiency assumed in the LRWRP model is conservative.

To achieve high recovery efficiencies, the brackish water in the storage zone must be displaced away from the ASR well, so a freshwater target storage volume (i.e., the bubble) can be established. To accomplish this, the initial recharge volumes/durations should be large and the recovery volumes purposefully limited. The operational model simulation assumed a minimum bubble volume of 8,700 ac-ft would always be maintained within the aquifer.

The ASR wells are anticipated to be constructed along the western perimeter of the C-18W Reservoir (**Figure 5-3**). Assuming a maximum bubble volume of 30,000 ac-ft, the radial extent of the bubble was estimated using a calculation developed by Warner and Lehr (1981) (**Figure 5-4**). The calculation assumed the upper FAS storage zone was 200 ft thick, with an effective porosity of 20%, and used a dispersivity coefficient of 65 to account for mixing, diffusion, and dispersion within the storage zone. The radial edge of the bubble was estimated to extend 4,280 ft from the injection (recharge) point. The ASR well locations will be determined during preconstruction engineering and design and may be positioned at alternative locations adjacent to the reservoir. To account for this contingency, a conservative distance of 1 mile (5,290 ft) around the perimeter of the reservoir is proposed to protect the project water stored via ASR (**Figure 5-2**).

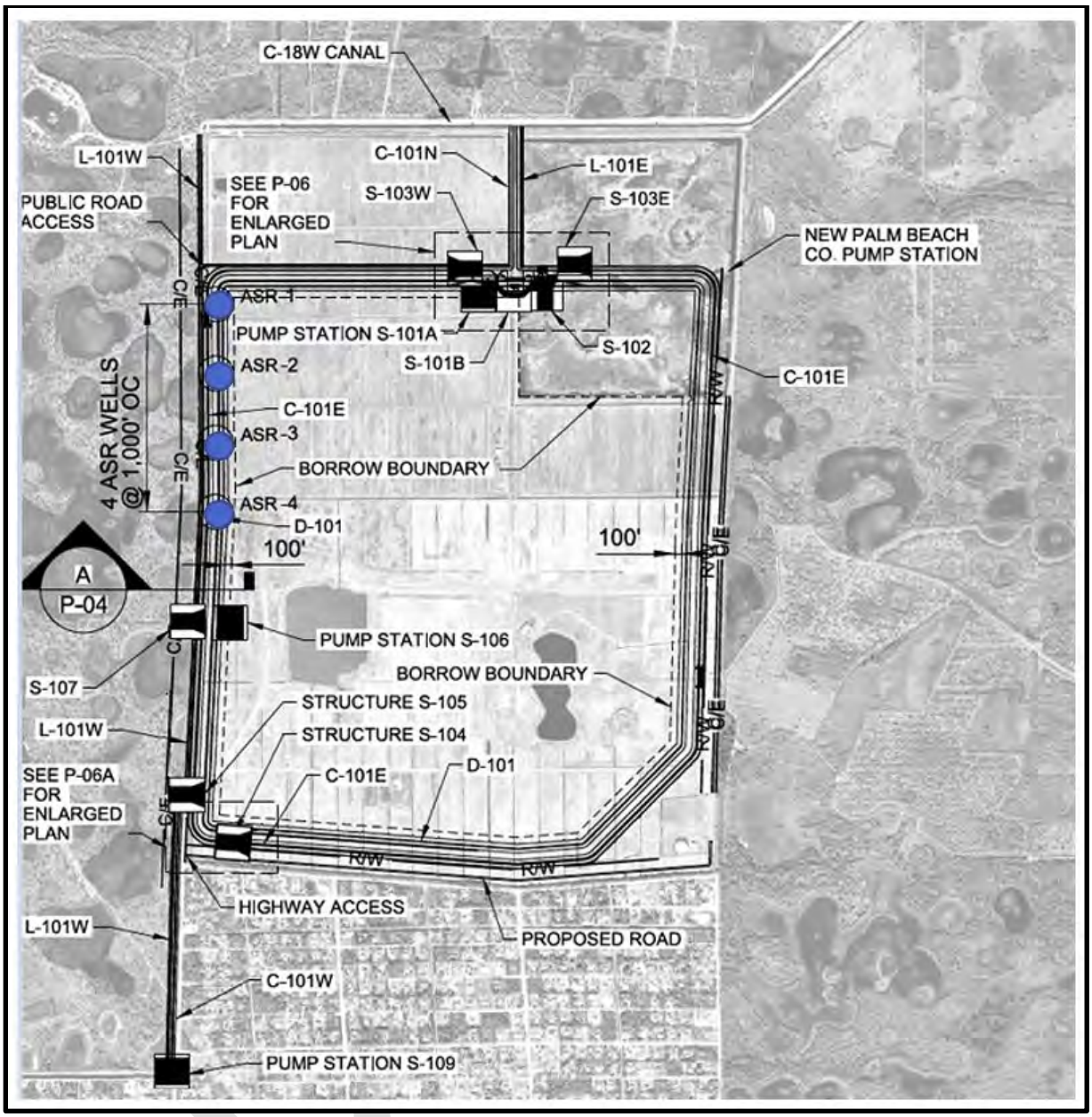


Figure 5-3. Conceptual design of the C-18W Reservoir and aquifer storage and recovery (ASR) wells (From: USACE 2020).

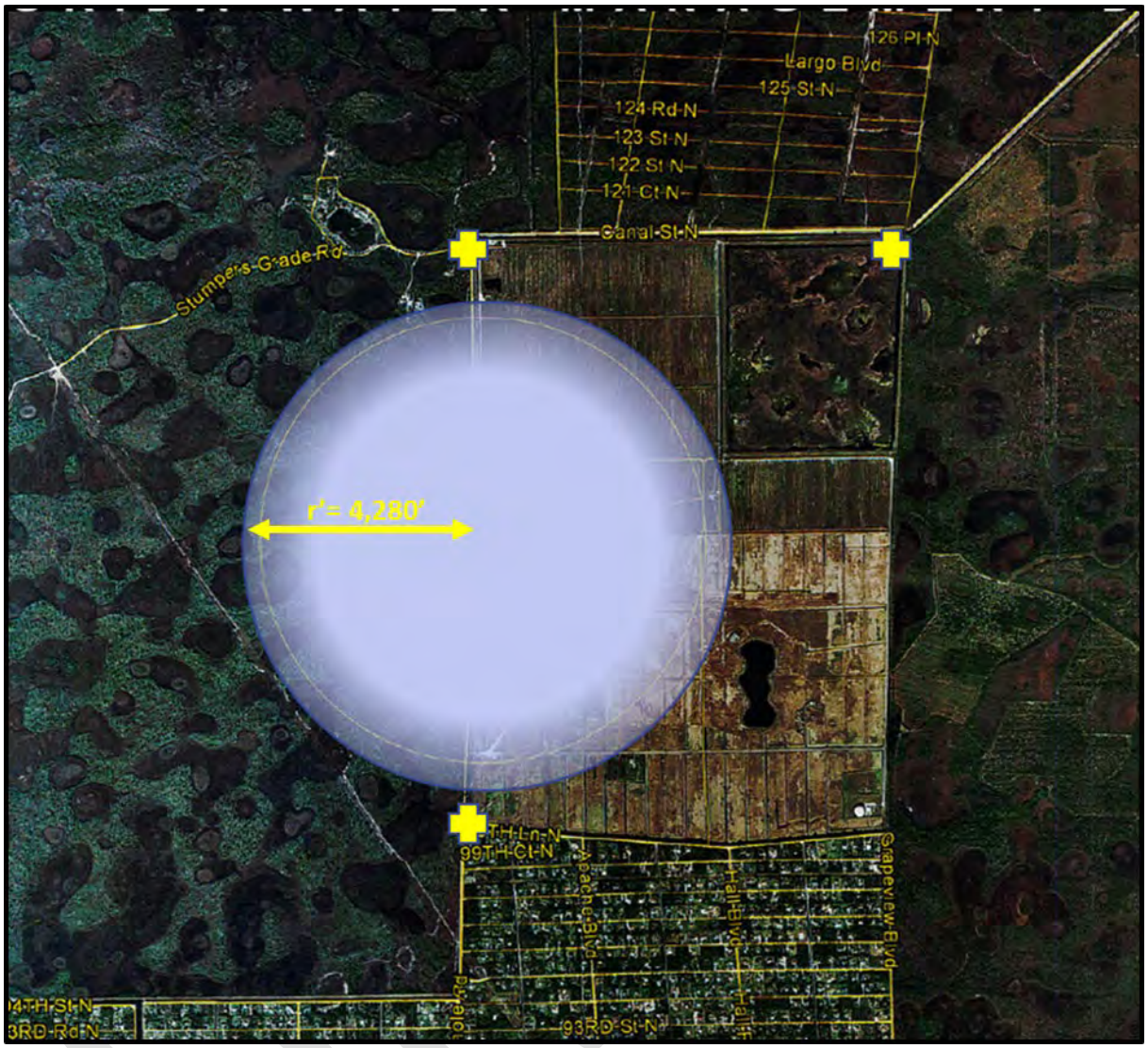


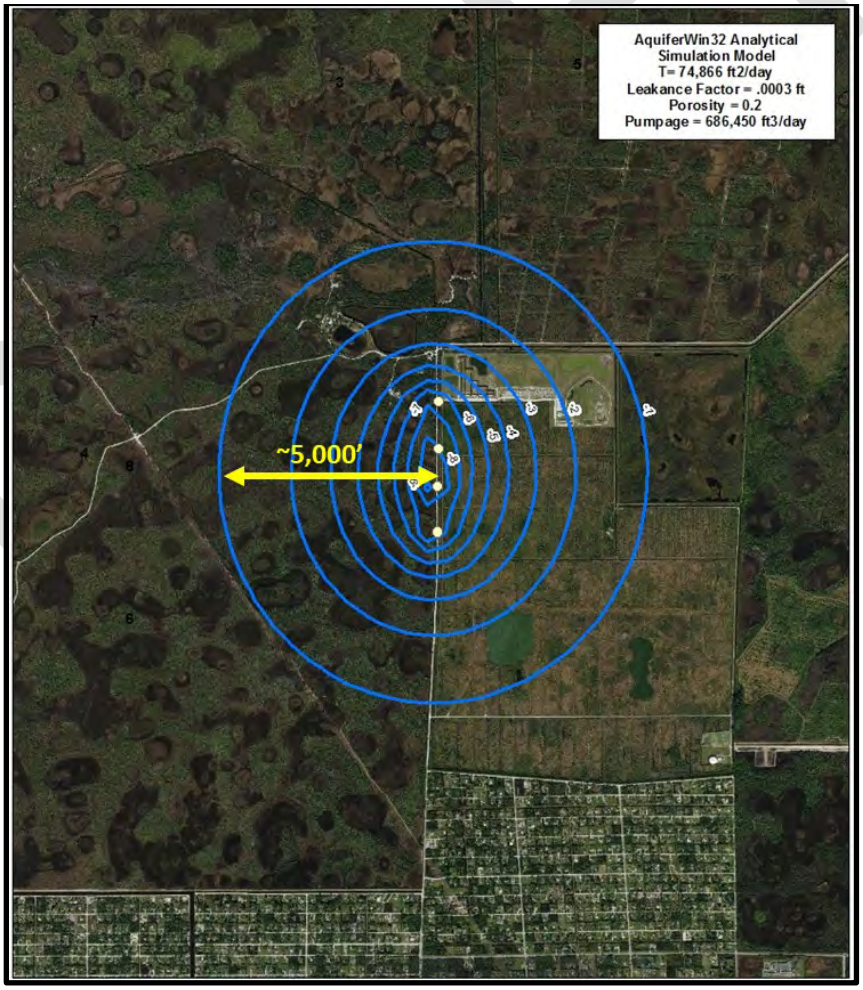
Figure 5-4. Estimated lateral extent of a 30,000-acre-foot groundwater bubble (light blue) in the upper Floridan aquifer system beneath the western border of the C-18W Reservoir parcel where four ASR wells are planned for construction. Yellow crosses are potential monitor well locations.

The effects of operating the ASR wells at the C-18W Reservoir were estimated using WinFlow groundwater modeling software. WinFlow is an interactive, analytical model that simulates two-dimensional steady--state and transient groundwater flow (in confined and unconfined aquifers) with wells, uniform recharge, circular recharge/discharge areas, and line sources or sinks. The model depicts the flow field using streamlines, particle traces, and water-level contours. The steady-state module simulates groundwater flow in a horizontal plane using analytical functions developed by Strack (1989). The transient module uses equations developed by Theis (1935) and Hantush and Jacob (1955) for confined and leaky aquifers, respectively.

The results of an exploratory/test well would provide the best data to derive site-specific aquifer hydraulic properties such as transmissivity, storativity, and leakance. These properties play a role in determining the effects of operating the ASR wells. Transmissivity is the rate at which water passes through a unit width of the aquifer under a unit hydraulic gradient. Storativity is a dimensionless measure of the volume of water

discharged from an aquifer per unit area of the aquifer and per unit reduction in hydraulic head. For a confined aquifer, storativity results only from the rock and fluid compressibility and is typically very small ($\sim 10^{-4}$ to 10^{-5}). Leakance is the volume of water that flows through a unit area of a semi-confining layer separating two aquifers per unit head difference per unit time. At this time, an exploratory well has not been constructed at the project site. In the absence of measured values for these parameters, the reported values from nearby wells described in the previous section include transmissivities of 46,000 to 221,925 ft^2/day, storativity of 0.0004, and leakance 0.007 ft.

A WinFlow simulation at the C-18W Reservoir was conducted by using the Hantush-Jacob solution to assess the potential drawdown that could result from the four proposed ASR wells, each pumping at a rate of 5 mgd (3,500 gallons per minute). ASR wells were spaced 1,000 ft apart, as shown in the conceptual design plans (**Figure 5-3**). Aquifer parameters for the WinFlow model were estimated from review of aquifer performance tests conducted at wells in proximity to the project site. A conservative approach to the analysis was conducted using a low range of transmissivity (74,866 ft^2/day) and leakance (0.0003 ft) and a porosity of 20% for the UFA. Pumping withdrawals from the four ASR wells were simulated for 90 days with no recharge. The resulting model 1-ft drawdown contour lines are shown in **Figure 5-5**. Model results indicate the 1-ft drawdown contour would extend to a maximum of approximately 1 mile beyond the western boundary of the reservoir. Based on this analysis, a 1-mile buffer around the C-18W Reservoir would be reasonable and not overly protective for operation of the ASR system.



The 1-foot drawdown area affects a portion of the area under the Hungryland Slough Natural Area and J. W. Corbett WMA. Please confirm that this will not adversely affect the hydrology of the natural area or Corbett.

Figure 5-5. The estimated lateral extent of 1-foot drawdown contour lines from simulated withdrawals from the four aquifer storage and recovery (ASR) wells for 90 days with no recharge.

5.3 Effects of the Amended and New Rules on Existing Legal Users

An existing legal use of water is defined as a water use authorized under a SFWMD water use permit or existing and exempt from permit requirements. The LRWRP maintains existing water supply performance for agricultural and municipal water users in the Lake Okeechobee Service Area (LOSA) and North Palm Beach Service Area within the LRWRP project area.

Table 5-1 lists the active existing permitted users (as of October 31, 2021) in northern Palm Beach County and southern Martin County, from Lake Okeechobee to the west to the Atlantic Ocean to the east. The first and second columns of **Table 5-1** list the water use permit numbers and permittee names. The remaining columns show the water sources for each permit.

5.3.1 Surface Water Use Permits

Implementation of the LRWRP will not diminish water supplies for existing users, as required by the Savings Clause. The Savings Clause analysis is listed in WRDA 2000 as a means to protect users of legal sources of water supply (and to protect the levels of service for flood protection) that were in place at the time of enactment. Specifically, Section 601(h)(5) of WRDA 2000, titled "Savings Clause," requires, in part, an analysis of each project's effects on legal sources of water that were in existence on the date of enactment of WRDA 2000. Existing legal sources provide water to permitted users, as shown in **Table 5-1** at the end of this chapter. For a full discussion on the LRWRP's compliance with the Savings Clause and Section 373.1501, F.S., see the PIR-EIS (USACE 2020).

Existing water use permits were reviewed to determine the surface water withdrawal locations and volumes within the expanded North Palm Beach County/Loxahatchee River Watershed Waterbodies boundary. Permit selection included direct withdrawals of surface water from a regional waterbody. Of the existing permits (**Table 5-1**), 81 were identified as withdrawing from a surface waterbody within 0.5 mile of the expanded North Palm Beach County/Loxahatchee River Watershed Waterbodies area. Surface water withdrawals are used for multiple use classes (**Table 5-1**). Stakeholders can search for water use permits through the SFWMD's online maps (https://apps.sfwmd.gov/WAB/SFWMDMapping/index.html).

The waterbodies proposed to be added to the definition of North Palm Beach County/Loxahatchee River Watershed Waterbodies are located on publicly owned lands that have minimal potential for future water use permitting. Water needs for future uses will continue to be met by public water supply utilities, on-site surface water storage, domestic wells, and reclaimed water systems. In homeowners' associations and community development districts, a combination of on-site waterbodies, off-site waterbodies, and the SAS are used for landscape and recreation irrigation and will remain available.

Any domestic self-supply water users can continue to use surface water as their source of water. Over time, potable water, reclaimed water, and wastewater utility service areas will expand into the unincorporated areas of Martin and Palm Beach counties. The Palm Beach County Water Utility Department projects 60% of the domestic self-supply population will eventually convert to public utility use. This population is included in the *2018 Lower East Coast Water Supply Plan Update* (SFWMD 2018); therefore, it is considered an existing water use.

Most existing legal users in the region will not be affected by the amended Lower East Coast Regional Water Availability rule. The existing surface water use permits are already complying with the Lower East Coast Regional Water Availability rule. Any existing legal user within the RAA seeking an increase in allocation will need to perform modeling to demonstrate the cone of depression from the increased withdrawal. If the 0.1-ft cone of depression reaches one of the defined North Palm Beach

County/Loxahatchee River Watershed Waterbodies, the user will need to identify one of the sources in Subsection 3.2.1.E.5 to meet the difference between the base condition and the proposed increase. The user may incur additional costs related to the new source. If the user is located in area with plans for reclaimed water expansion, the user would experience increased water source costs regardless of the proposed RAA amendments.

5.3.2 Groundwater Use Permits

Surficial Aquifer System

Existing water use permits were reviewed to determine the withdrawal locations and volumes of groundwater from the SAS within the expanded North Palm Beach County/Loxahatchee River Watershed Waterbodies boundary. Permit selection included withdrawals of groundwater from the SAS that could cause drawdown in a protected surface waterbody. Of the existing permits (**Table 5-1**), 189 were identified as having at least one well completed in the SAS within the vicinity of the expanded North Palm Beach County/Loxahatchee River Watershed Waterbodies boundary. Groundwater withdrawals from the SAS are used for multiple use classes (**Table 5-1**). Existing SAS water use permits are complying with the Lower East Coast Regional Water Availability rule. Stakeholders can search for water use permits through the SFWMD's online maps (https://apps.sfwmd.gov/WAB/SFWMDMapping/index.html).

Many residential properties south of the C-18W Reservoir site have domestic SAS wells that are permitted by rule and are not required to submit consumptive use permit applications. The cone of depression from these wells is small, generally not extending beyond the property boundaries. The SAS and FAS are hydrogeologically separated by an intermediate confining unit that prevents cross-aquifer interference.

The C-18W Reservoir site is surrounded by natural areas, including J.W. Corbett Wildlife Management Area to the west and Hungryland Slough to the north. Further development of SAS wells in these natural areas is unlikely.

Natural Area

Floridan Aquifer System

Existing water use permits were reviewed to determine the withdrawal locations and volumes of groundwater from the FAS within 1 mile of the C-18W Reservoir site (**Figure 5-4**). Of the existing permits (**Table 5-1**), none were identified as having at least one well completed in the FAS within 1 mile of the C-18W Reservoir site. Groundwater withdrawals from the FAS are primarily used for public water supply by larger utilities such as the Town of Jupiter, Village of Tequesta, and Seacoast Utility Authority northeast of the C-18W Reservoir site (**Table 5-1**). Some utilities also use FAS water for blending with SAS withdrawals. For example, Palm Beach County Water Utility Department has proposed FAS/SAS blending in its recent permit modification (application 210924-3/permit 50-00135-W). Expanded use of brackish groundwater from the FAS for public water supply requires planning and wellfield management to prevent undesirable changes in water quality. In addition to public water supply, the FAS is used for some power generation activities in the vicinity of the project. The FPL West County Energy Center has three FAS wells that are used as needed for cooling water.

The SFWMD encourages water users to utilize the FAS as an alternative water supply source where possible. However, to protect the water stored in the upper FAS, the SFWMD will implement a new RAA rule and modify the criteria pertaining to existing legal users. The proposed rule will prohibit direct withdrawals from the upper FAS within the RAA boundary. Consideration of withdrawals that induce seepage across the groundwater RAA boundary will be evaluated as described in Subsection 3.2.1.G of the Applicant's Handbook (SFWMD 2021b). There are no existing FAS users within the RAA boundary. Any

FAS users seeking to modify their consumptive use permit allocation will have to model the proposed use to determine if it will impact the area of protected water in the upper FAS.

Future use of the FAS would require an applicant to provide reasonable assurances that the proposed withdrawal of water, together with other exempt or permitted uses within the cone of influence of the proposed withdrawal, will not result in interference with existing legal uses, pursuant to Section 373.223(1)(b), F.S. The definition of interference with an existing legal use is provided in Section 3.7.2 of the Applicant's Handbook (SFWMD 2021b). In regard to the C-18W Reservoir ASR waters, future requested allocations should not interfere with the ASR wells or result in 1 ft or more of drawdown to the portion of the upper FAS that underlies the C-18W Reservoir groundwater buffer zone delineated in **Figure 5-2**. The groundwater buffer zone must be maintained to allow stored water to be recovered when needed for the benefit of the LRWRP. Any action causing the groundwater bubble to move away from the recovery zone or reducing the quality of recovered water would impact project water reserved for natural systems. It is proposed that, for an ASR system, interference includes the movement of stored ASR waters away from the delineated project area by changing or accelerating the flow velocity or flow direction, or a change in the concentration of total dissolved solids.

The proposed Applicant's Handbook rules for the FAS do not increase water use permitting fees or regulation (e.g., additional licensure, continuing education requirements). Water use permit applications from the FAS already require staff time and specialized knowledge (e.g., legal, technical). The current rules require existing and future FAS users to model proposed withdrawals to determine potential impacts to the FAS. *See* Section 3.1.2 of the Applicant's Handbook (SFWMD 2021b). Under the proposed rules, if the modeling results show interference or a cone of depression touching the delineated zone in **Figure 5-2**, users/applicants will need to modify the proposed water allocation, which could include reducing the volume sought from the well or relocating the well.

Due to high costs of constructing an FAS well and the treatment needed to make the water potable, domestic wells typically are drilled into the SAS (100 to 120 ft bls maximum compared to approximately 1,000 ft bls to reach the UFA). Therefore, the new proposed rule to protect water in the upper FAS for the ASR wells at the C-18W Reservoir site is not likely to affect any domestic self-supply water users in the region. Additionally, domestic SAS wells will not affect the ASR water protected in the upper FAS.

Table 5-1. Existing legal users and sources in the vicinity of the Loxahatchee River Watershed Restoration Project footprint. Note: primary source – 1°; secondary source – 2°; tertiary source – 3°.

Permit	Permittee Name	SFWMD Canal	On-site Lake	Other Off-site Surface Water	Surficial Aquifer System	Floridan Aquifer System	Public Water Supply Utility	Reclaimed Water
Martin County								
Agricultural								
43-00436-W	Armstrong Property	1°						
43-02552-W	Hobe Sound Farms		1°		2°			
43-00200-W	Jack Martin Farms/Shiloh Farms		1°		2°			
43-00045-W	Hobe Tree Farm				1°			
Diversion & Impoundment Secondary User								
43-02339-W	Harmony Ranch	1°						
43-02340-W	The Burg Farm	1°						
Diversion & Impoundment								
43-00087-W	Box Ranch of Martin County D & I	1°						
43-00057-W	Hobe St Lucie Conservancy District		2°	1°	3°			
Golf Course								
43-00138-W	Cypress Links Golf		1°		2°			
43-00221-W	Jonathans Landing at Old Trail		1°		2°			
43-00054-W	Jupiter Hills Club				1°			
43-00091-W	Riverbend Golf Club		1°		2°			
43-00140-W	Turtle Creek Club				1°			
Industrial								
43-00764-W	Girl Scout Camp Welaka				1°			
Landscape								
43-01726-W	Bridge Water Estates				1°			
43-01072-W	Coastal Waste & Recycling of Martin				1°			
43-02790-W	Corner Pine Ranch				1°			
43-01822-W	County Line Park				1°			
43-02228-W	Daystar Storage				1°			
43-00679-W	Florida Power & Light - Martin County				1°			
43-01696-W	Gille Residence		1°		2°			
43-02485-W	Hair Designer				1°			
43-01760-W	Hemingway Estates				1°			
43-01371-W	Hobe Sound Commerce Lot No 9				1°			
43-02045-W	Island Country Estates HOA Inc				1°			
43-01805-W	Jupiter Equestrian Estates				1°			
43-01995-W	Jupiter Hills		1°		2°			
43-00722-W	Jupiter Hills Homeowners Association		1°		2°			
43-01414-W	Lot 23 Ranch Colony - Landscape Irrigation		1°		2°			
43-02984-W	Martin County Fire Rescue Station 36				1°			
43-00877-W	Nichols Sanitation Inc (Hobe Sound Site)		1°		2°			
43-01633-W	North Passage HOA				1°			
43-01890-W	Old Cypress				1°			

Permit	Permittee Name	SFWMD Canal	On-site Lake	Other Off-site Surface Water	Surficial Aquifer System	Floridan Aquifer System	Public Water Supply Utility	Reclaimed Water
43-02680-W	Old Trail Entrance Feature Landscape Irrigation				1°			
43-02042-W	Pennock Preserve				1°			
43-01905-W	Pennock Preserve PUD		1°		2°			
43-01179-W	Public Works Facility Irrigation Well				1°			
43-02410-W	Ranch Colony				1°			
43-01763-W	Ranch Colony Lot 16				1°			
43-01744-W	Ranch Colony Property Owners Association				1°			
43-02199-W	River Ridge – New Well				1°			
43-01372-W	Sharma Residence Ranch Colony Lot 1				1°			
43-02921-W	T Asplundh Project				1°			
43-02686-W	Tennis Court Irrigation				1°			
43-00813-W	Tequesta Park				1°			
43-00603-W	The Little Club Condominium Association Incorporated		1°		2°			
43-01602-W	The Prado				1°			
43-01444-W	Tranquility				1°			
43-02803-W	Turtle Creek Common Areas				1°			
43-02679-W	Turtle Creek East				1°			
43-01994-W	Turtle Creek Village POA				1°			
43-01970-W	Waters Edge Property Owners Association Phase Two				1°			
43-01765-W	YZ Ranch		1°		2°			
Livestock								
43-02738-W	Armstrong Property				1°			
43-01599-W	Funny Farm		2°		1°			
43-02645-W	HB10E-004 - Cypress Creek				1°			
43-02378-W	Indiantown Property				1°			
43-01679-W	Kitchen Creek Ranch				1°			
43-02852-W	Mancils Cattle Grazing Lease				1°			
43-02919-W	Powerline Road				1°			
43-03067-W	SS Farms, LLC				1°			
Nursery								
43-02142-W	Alfred M Levy Nursery				1°			
43-02753-W	Jenkins Landscape		1°		2°			
43-02146-W	Toms Tropical Trees				1°			
Public Water Supply								
43-01982-W	Bridge Water Estates				1°			
43-01745-W	Equestrian Camp Sites				1°			
43-02971-W	Fernlea Nursery				1°			
43-02732-W	Hummingbird Substation				1°			
43-00782-W	Jonathan Dickinson State Park - Trapper Nelson & Stop Camp				1°			
43-02256-W	Oblivious Land LLC Private Helistop				1°			
43-02017-W	Old Trail at Jonathans Landing				1°			

Permit	Permittee Name	SFWMD Canal	On-site Lake	Other Off-site Surface Water	Surficial Aquifer System	Floridan Aquifer System	Public Water Supply Utility	Reclaimed Water
43-00609-W	Payson Park Thoroughbred Training Center				1°			
43-00066-W	South Martin Regional Utility				1°	2°		
43-01284-W	St Lucie Mobile Home Village				1°			
43-02101-W	State Road No 9 I -95 Weigh-in Motion Station				1°			
43-00498-W	Tanah Keeta Scout Reservation				1°			
Palm Beach County								
Agricultural								
50-04659-W	Moules Nursery		1°					
50-08980-W	Riverbend Park				1°			
Diversion & Impoundment								
50-00793-W	Lake Worth Drainage District	1°		2°				
50-01584-W	Town of Jupiter Recharge System	1°						
Golf Course								
50-00203-W	Breakers West Development		1°		2°			
50-00941-W	Eastpointe Country Club Irrigation System		1°		3°		2°	
50-02831-W	Golf & Racquet Club at Eastpointe		1°		3°		2°	
50-02120-W	Ibis Golf and Country Club		1°		2°			
50-01906-W	Iron Horse Lake Wells				1°			
50-01905-W	Ironhorse Country Club Irrigation		1°					
50-00537-W	Mayacoo Lakes Country Club		1°		2°			
50-01443-W	Old Marsh Golf Club		1°		2°			
50-00617-W	PGA National Golf Club and Sports Center		1°		2°			
50-00223-W	Tequesta Country Club		1°		2°			3°
50-07881-W	The Resort at Jupiter Country Club		1°					2°
Industrial								
50-01849-W	Jupiter Ready-Mix Concrete Plant				1°			
50-03722-W	Matheson Tri Gas West Palm Beach				1°			
50-05185-W	Pratt & Whitney, A Div. of Raytheon Tech Fire & Cooling	1°						
50-08888-W	Pratt & Whitney, A Div. of Raytheon Tech Aquifer Remediation				1°			
50-06015-W	Walgreens Distribution Center				1°			
Landscape								
50-07721-W	15835 Corp. Rd. L.L.C.				1°			
50-02446-W	Acreage Substations		2°	1°				
50-09412-W	Adult Quality Care				1°			
50-06316-W	All About Storage				1°			
50-08665-W	Alloy Cladding			1°				
50-05714-W	Alta Terrace-Phase Ii		1°					
50-02788-W	Amoco Food Mart				1°			
50-07042-W	Andros Isle				1°			
50-04149-W	Andros Isle Oakton Lakes		1°					

Permit	Permittee Name	SFWMD Canal	On-site Lake	Other Off-site Surface Water	Surficial Aquifer System	Floridan Aquifer System	Public Water Supply Utility	Reclaimed Water
50-11742-W	Avenir Ph. 2 Spine Rd No. 2 Streetscape Common Irr.			1°				
50-11769-W	Avenir Pod-5			1°				
50-04494-W	Baywinds		1°		2°			
50-05628-W	Baywinds Rpd Pod F Lots 1-68		1°					
50-08880-W	Beacon Baptist Church		1°		2°			
50-11331-W	Bella Villaggio				1°			
50-05434-W	Bimini Twist Plaza				1°			
50-03597-W	Breakers Pointe Lake		1°					
50-09266-W	Breakers West Association				1°			
50-06192-W	Briggs Equipment				1°			
50-11905-W	Calvary Church of Jupiter				1°			
50-02314-W	Caribbean Villas Apartments				1°			
50-05727-W	Chase Bank				1°			
50-04336-W	Church of God of Prophecy				1°			
50-06713-W	Cobblestone Village			1°				
50-05757-W	Costco Wholesale of West Palm Beach		1°		2°			
50-07883-W	Cvt Properties LLC			1°				
50-03735-W	Devonshire at PGA National		1°					
50-10422-W	Discovery Village at Palm Beach Gardens				1°			
50-05200-W	Donald Ross Land Owners Association				1°			
50-05618-W	Donald Ross Road Beautification				1°			
50-11301-W	Dunbar Woods		1°		2°			
50-08766-W	Dunkin Donuts				1°			
50-03282-W	Eastpointe Homeowners Association		1°		2°			
50-05598-W	Eckerd Drugs 31				1°			
50-03122-W	Elementary School E		1°					
50-11938-W	FPL Avenir Substation				1°			
50-06268-W	FAS Well Irrigation (Town of Jupiter)				1°			
50-08213-W	Fimco Manufacturing Inc				1°			
50-08830-W	First Park South Florida-Entry Irrigation				1°			
50-03288-W	Flagler Manor				1°			
50-05615-W	Florida Power and Light Ryder Substation			1°	2°			
50-08576-W	Fox Parcel 4c				1°			
50-08776-W	Foxhall Homeowners Association				1°			
50-06792-W	Golden Corral				1°			
50-10667-W	Gramercy Park				1°			
50-12022-W	Ground F X Equipment and Hauling				1°			
50-06060-W	Hamilton Bay Recreation Center				1°			
50-09892-W	Haverhill Affordable Housing L T D				1°			
50-11967-W	Homesafe				1°			
50-07966-W	Ibis Isle		1°					
50-07991-W	Ibis Lakes Homeowners Association Inc		1°					
50-09050-W	Ibis Property Owners Association		1°		2°			

Permit	Permittee Name	SFWMD Canal	On-site Lake	Other Off-site Surface Water	Surficial Aquifer System	Floridan Aquifer System	Public Water Supply Utility	Reclaimed Water
50-01664-W	Irrigation (Pratt & Whitney, A Div. of Raytheon Tech Corp)		1°					
50-09403-W	Jupiter 7th Day Adventist Church		1°		2°			
50-07320-W	Jupiter Country Club		1°					2°
50-07348-W	Jupiter Country Club				1°			
50-10557-W	Jupiter/Palm Beach RV Motorcoach Resort		1°		2°			
50-02315-W	Landscape Irrigation for Administration Building				1°			
50-07093-W	Loxahatchee Reserve		1°					
50-07356-W	Mirasol Irrigation System		2°	1°			3°	
50-06863-W	New Frito-Lay DC				1°			
50-03139-W	North Palm Beach County Aviation Airport				1°			
50-05331-W	North River Plantation		1°		2°			
50-03247-W	Northlake Boulevard Landscape Improvements			1°				
50-09128-W	Oceanside Masonary				1°			
50-06494-W	PDD BE Group Irrigation				1°			
50-07503-W	PM Group				1°			
50-06202-W	Palazzo Grande				1°			
50-06069-W	Palisades PUD		1°					
50-08788-W	Palm Beach County Fire Station No. 14				1°			
50-08991-W	Palm Beach Park of Commerce Lot 35G				1°			
50-11899-W	Palm Beach Park of Commerce Parcel 7				1°			
50-12117-W	Palm Coast Sales				1°			
50-11954-W	Park of Commerce - Building 26				1°			
50-11935-W	Park of Commerce - Project Energy				1°			
50-06257-W	Parkwood Estates PUD				1°			
50-07161-W	Portosol		1°					
50-08943-W	Portosol Okeechobee Blvd Median				1°			
50-08873-W	Precision Contracting Services				1°			
50-06373-W	Premier Park of Commerce		1°					
50-11281-W	Project Beach Ball		2°	1°				
50-04161-W	Publix Shoppes At Ibis 651				1°			
50-02238-W	R and M Management Co LLC				1°			
50-06405-W	Riverside Oaks				1°			
50-03425-W	Riverwalk		1°		2°			
50-03454-W	Royal Palm Beach High School				1°			
50-09166-W	S & K Sales Office				1°			
50-06254-W	Shirley Investment Properties				1°			
50-10724-W	Shoppes At Andros Isle Publix No 0653				1°			
50-10187-W	Sierra Square Irrigation Well				1°			
50-10916-W	Sikorsky D F C		1°					
50-09162-W	Sikorsky Sloped Landing Area		1°					
50-09162-W	Sikorsky Sloped Landing Area		1°					

Permit	Permittee Name	SFWMD Canal	On-site Lake	Other Off-site Surface Water	Surficial Aquifer System	Floridan Aquifer System	Public Water Supply Utility	Reclaimed Water
50-11672-W	Sisson				1°			
50-10703-W	Sonoma Isles		1°					
50-05642-W	South Florida Donuts				1°			
50-09600-W	SR 704 Okeechobee Blvd Beautification				1°			
50-10261-W	State Road 7 - Irrigation Conversion				1°			
50-06518-W	Suntrust Bank at Baywinds Commercial				1°			
50-06300-W	Super Target at Royal Palm Beach		1°					
50-06223-W	T.M. Russell Inc				1°			
50-06947-W	Tangelo Substation				1°			
50-07757-W	TDSI West Palm		1°					
50-09902-W	The Big Green Egg Building				1°			
50-04642-W	The Reserve at Ibis			1°				
50-10578-W	Thousand Pines				1°			
50-05847-W	Tribute Boats				1°			
50-05442-W	Village Shoppes LLC				1°			
50-07504-W	Walgreens Distribution Center				1°			
50-06496-W	West Palm Commerce Park		1°					
50-05706-W	West Palm Commerce Park and Haverhill Commerce Park		1°		2°			
50-06889-W	Western Repump				1°			
Livestock								
50-09293-W	Riverbend Park- Equestrian				1°			
50-09781-W	Rocky Pines Rd				1°			
Nursery								
50-08594-W	Hammock Tropical Garden			1°				
50-11658-W	Ibis Nursery				1°			
50-04449-W	Lidonni Nursery and Landscape		1°		1°			
50-09747-W	Terracon Nursery Tree Farm				1°			
50-08340-W	The Bushel Stop				1°			
Public Water Supply								
50-09534-W	Bushel Stop				1°			
50-02825-W	Church 12265 Indiantown Rd Jupiter Farms		1°		2°			
50-00615-W	City of West Palm Beach Public Utilities	3°		1°		2°		
50-02654-W	Everglades Youth Camp				1°			
50-09243-W	Firestation 14				1°			
50-10610-W	Jupiter/Palm Beach RV Motorcoach Resort				1°			
50-06546-W	Palm Beach County Research Park Temp Construction				1°			
50-11198-W	Palm Beach County Shooting Sports Park				1°			
50-00135-W	Palm Beach County Water Utilities Department				1°			
50-00460-W	Riviera Beach Public Water Supply				1°			
50-07662-W	Sandhill Crane Access Park				1°			
50-00365-W	Seacoast Utility Authority				1°	2°		

Permit	Permittee Name	SFWMD Canal	On-site Lake	Other Off-site Surface Water	Surficial Aquifer System	Floridan Aquifer System	Public Water Supply Utility	Reclaimed Water
50-05234-W	Storage Facility at J W Corbett Preserve				1°			
50-00010-W	Town of Jupiter Water Utilities				2°	1°		
50-00046-W	Village of Tequesta - Public Water Supply				2°	1°		
50-00046-W	Village of Tequesta - Public Water Supply				2°	1°		

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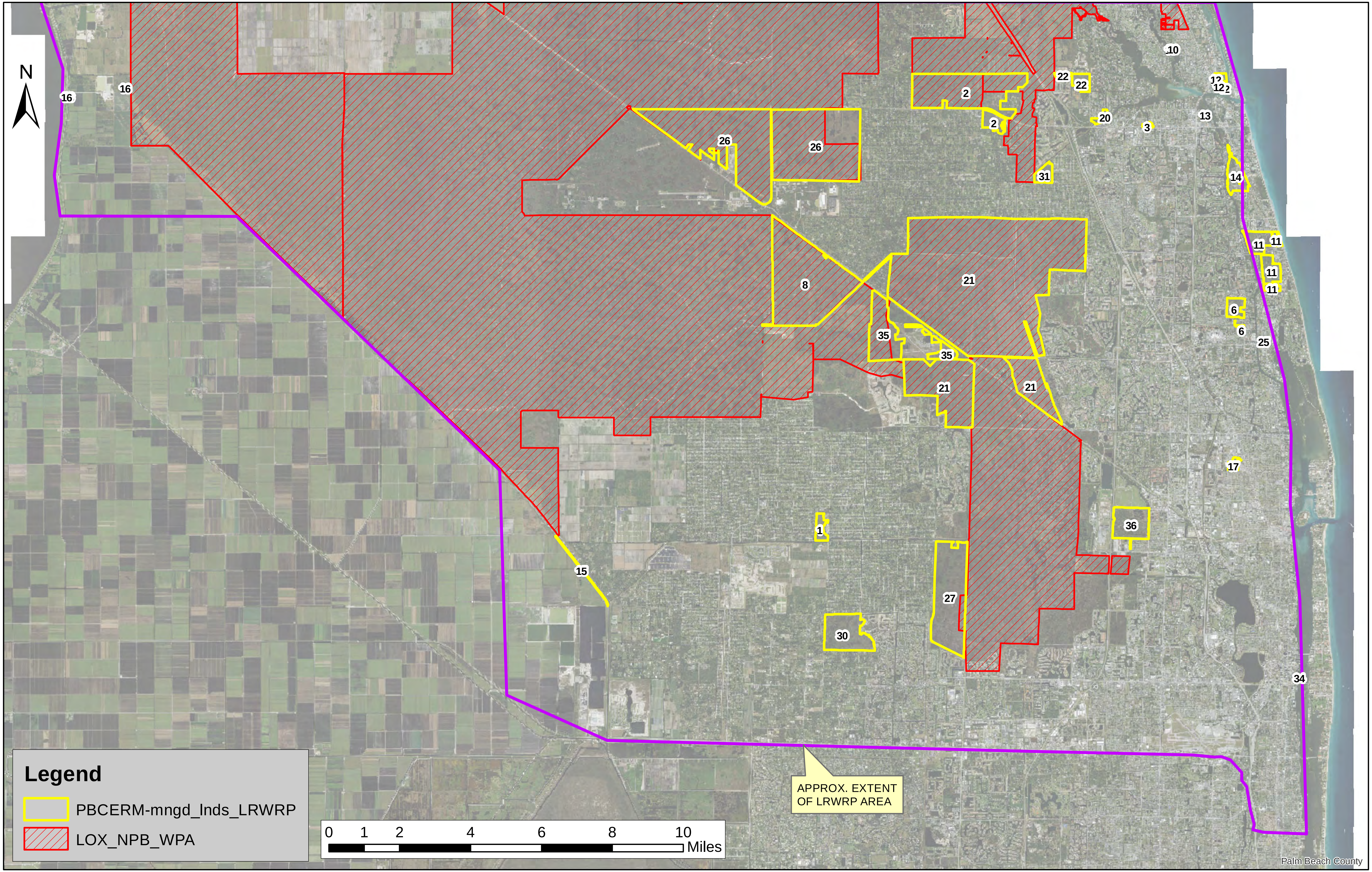
Attachment 3

Map of the SFWMD-proposed North Palm Beach County/Loxahatchee River Watershed Water Body boundaries along with boundaries of Palm Beach County Natural Areas



N
Legend
PBCERM-mngd_lnds_LRWRP
LOX_NPB_WPA
0 1 2 4 6 8 10 Miles
APPROX. EXTENT OF LRWRP AREA
Palm Beach County

PALM BEACH COUNTY NATURAL AREAS PROGRAM STATUS
Updated November 23, 2021

Lands Owned/Managed by ERM (31,659 acres)

1 Acreage Pines – 124 acres
2 Cypress Creek – 2,044 acres[1]
3 Delaware Scrub – 19 acres (includes 3 acres of mangroves leased from state)
4 Delray Oaks – 25 acres
5 East Conservation Area – 216 acres
6 Frenchman's Forest – 174 acres (includes Prosperity Oaks and 2.2 acres along N and E sides managed by ERM, and 1.6 acres along north edge of Cabana Colony canal)
7 High Ridge Scrub – 39 acres
8 Hungryland Slough – 3,047 acres[2]
9 Hypoluxo Scrub – 99 acres (includes retention area and abandoned right of way managed by ERM)
10 Jackson Riverfront Pines – 3 acres
11 Juno Dunes – 569 acres
12 Jupiter Inlet – 78 acres
13 Jupiter Mangroves – 1 acre
14 Jupiter Ridge – 269 acres
15 J.W. Corbett/Lox. Refuge Connector – 3 acres
16 Lake Okeechobee Connector – 8 acres
17 Lake Park Scrub – 55 acres
18 Lantana Scrub – 33 acres
19 Leon M. Weekes Envl. Preserve – 12 acres
20 Limestone Creek – 52 acres (includes 29.3 acres along C-18 Canal managed by ERM)
21 Loxahatchee Slough – 13,010 acres (includes 257 acres leased from SFWMD + 3 acres leased from TIITF)
22 North Jupiter Flatwoods – 163 acres (includes 3.0-acre P&V right of way, 5.9-acre connector in Martin County and 9.3-acre Jupiter Cypress Preserve managed by ERM)
23 North Ocean Ridge Mangroves – 20 acres
24 Ocean Ridge – 27 acres (includes 12.3 acres owned by Town)
25 Pawpaw – 3 acres
26 Pine Glades – 6,689 acres (includes 273 acres in Palm Beach Heights)
27 Pond Cypress – 1,824 acres
28 Pondhawk – 79 acres
29 Rosemary Scrub – 14 acres
30 Royal Palm Beach Pines – 772 acres
31 Sandhill Crane Wetlands (formerly C-18 Triangle) – 138 acres
32 Seacrest Scrub – 54 acres
33 Snook Islands – 118 acres
34 South Cove – 5 acres
35 Sweetbay – 1,094 acres
36 Winding Waters – 562 acres (includes 14 acres within the Turnpike right of way that are managed by ERM)
37 Yamato Scrub – 217 acres

SITES OWNED OR MANAGED BY PBC ERM

[1] Acreage shown includes all lands managed by ERM. This number does not include the 42 acres located south of the C-2 Canal and existing lake that the Parks Department manages.
[2] Includes 48.37 acres in Unit 11 and 23.0 acres in RPB Colony reserved for proposed road right-of-way along western boundary of natural area.

Natural Areas with Public Use Facilities (26)

Acreage Pines, Cypress Creek, Delaware Scrub, Delray Oaks, Frenchman's Forest, High Ridge Scrub, Hungryland Slough, Hypoluxo Scrub, Jackson Riverfront Pines, Juno Dunes, Jupiter Inlet Lighthouse Outstanding, Jupiter Ridge, Lake Okeechobee Scenic Trail trailhead, Leon M. Weekes, Limestone Creek, Loxahatchee Slough, North Jupiter Flatwoods, Ocean Ridge, Pine Glades, Pondhawk, Rosemary Scrub, Royal Palm Beach Pines, Seacrest Scrub, Snook Islands, South Cove, Sweetbay, Winding Waters and Yamato Scrub

Public Comments on the Technical Document for the LRWRP – From Don Medellin (Private Citizen)

Chapter 1 - Introduction

Lines 149-151: This statement is not completely accurate as it relates to alterations. It should be revised to be consistent with what was stated by Jeff Buck at the last workshop and be consistent with what is stated later in the technical document to include the C&SF Project. Also see Section 3.1.1 (lines 509-522 and 644-647.

Line 279: The quality of Figure 1-3 is difficult to read. Can it be replaced with a better image?

Line 282: Can Figure 1-4 be revised to include the location of the G-161 structure? This structure has been constructed but it is not labeled on any figures.

Lines 330-348: There are several canals and structures that are mentioned in the text but there are no supporting figures to show their location.

Line 349: This line states "Pal-Mar East will be plugged…" but it does not specify if a ditch or the entire flow-way is being plugged. Please clarify.

Lines 302-309: Again, not sure where is triangle is located since there is no map that label this area.

Lines 326-329: Please verify the references for where excess water is removed from the canal. I can't tell where the M-O Canal ends and where the C-18W Canal begins. Please clarify.

Line 401-402: This sentence states the ASR well <u>will be</u> located along the western perimeter of the reservoir. This is inconsistent with other parts of the document and what was stated at the workshop which indicated that the final locations of these ASR wells will be determined when the final design is completed.

Chapter 4

Line 805-806: Suggest adding a figure that shows these 3 tributaries for the Loxahatchee River. See Detong Sun for figure where future flow monitoring is proposed.

Chapter 5

Line 878: Suggest a list of secondary and tertiary canals be developed now during the rule development process (while the project details and analyses are fresh on everyone's mind) for future use by the District water use regulatory staff. Will this list be made available to the public?

Line 919: Figure 5-2 does not appear to accurately show intended 1-mile groundwater protection buffer zone adjacent to the reservoir (See southwest corner of figure). The figure should be revised to just show this 1-mile groundwater protection buffer zone or the UFA should be indented to accurately reflect what is being protected. The label for the hatched line should also be enlarged (in the green area)

so it is legible and a consistent label name should be used (e.g., groundwater protection buffer zone). A label showing the distance should also be included in the figure.

Line 1096: I would end this statement to provide a reason why domestic self-supply would not be affected (e.g., because there is a significant confining unit between the two aquifers as described in the previous sections)

Public Comments on the Proposed Draft Rule Language for the LRWRP

Section G.2. of the Applicant's Handbook: Suggest using a consistent term for the rule, Figure 3-4 and technical document. Suggest the use of the term groundwater protection area (buffer zone).

Figure 3-4: See comments above for Line 919 or Figure 5-2 in the technical document.

Section 3.7.2 E. The description in the rule is slightly different from what was included in the technical document. Does the current description in the rule include movement of waters away from the project? Please clarify.

March 7, 2022

VIA EMAIL
nkraft@sfwmd.gov

Natalie Kraft
South Florida Water Management District

RE: Loxahatchee River Watershed Restoration Project Protection Rulemaking Comments on Rule Development Workshop #2

Dear Ms. Kraft,

The Southeast Florida Utility Council (SEFLUC) represents water utilities throughout South Florida which provides potable water to over 6 million people. SEFLUC's mission is to provide a communications, networking and support structure for member utilities to continue to provide superior-quality water supply and wastewater management services to its customers in a cost-effective manner. SEFLUC's member utilities each hold Water Use Permits issued by the South Florida Water Management District (District) which authorizes the use of water essential to serve our customers.

SEFLUC has reviewed the draft rule language recently released by the District in connection with the Loxahatchee River Watershed Restoration Project (LRWRP) in northern Palm Beach and southern Martin Counties. As discussed at the District's recent February 22, 2022 workshop, the purpose of the rulemaking is to adopt rules that allow the District to meet its obligations as the local sponsor for LRWRP, by assuring its federal partners that water necessary for restoration of the Loxahatchee River Watershed is not allocated for consumptive uses.

SEFLUC is concerned that the current draft rule language appears to go far beyond the narrow purpose of protecting water made available for the LRWRP because of new water use permitting requirements that would apply to water uses throughout the District, well outside the LRWRP area of influence.

More specifically, the current draft rule language proposes the addition of a new Section 3.7.2.E to the Applicant's Handbook, which creates a new criterion describing interreference with Aquifer Storage and Recovery (ASR) Uses. This new section defines interference as a withdrawal that causes "1) the transmittance of ASR waters away from the area of influence by changing or accelerating the flow velocity or flow direction; or 2) a change in the concentration of total dissolved solids."

SEFLUC has several significant concerns regarding this proposed provision. First, as stated above, the stated purpose of the LRWRP rulemaking is to assure that water made available by the LRWRP is protected, including the ASR component of the C-18W Reservoir in northern Palm Beach County. However, unlike the rest of the provisions of the LRWRP protection rulemaking which are limited geographically, the proposed revisions to AH Section 3.7 apply throughout the District. Given the seemingly narrow purpose of the LRWRP protection rulemaking, it is almost certain that many stakeholders that would be impacted by the changes to Section 3.7 are not aware of this new requirement, and therefore District-wide public participation and input has been suppressed. It is critical that all stakeholders throughout the District be given an opportunity to provide meaningful feedback on such a significant change to the District's water use permitting requirements. This is especially the case since the District has fast-tracked the development and adoption of the LRWRP protection rulemaking, indicating at the most recent workshop that there would only be a two-week period following the workshop for the public to submit comments, and that the District intends to bring the draft rules to its Governing Board for approval at its April 14, 2022 meeting.

If the District wishes to consider adopting a District-wide ASR interference standard, it should do so through a separate rulemaking where the implications of this change to water users District-wide can be evaluated. Indeed, a review of the rulemaking materials suggests that the District has only evaluated the impact of this rule on water users located in the immediate vicinity of the LRWRP. The rulemaking record is silent as to the impact of this rule to water users outside of the LRWRP area.

SEFLUC is also concerned that the proposed new requirements of AH Section 3.7.2.E are ambiguous and do not provide sufficient guidance as to what may be considered interference with an existing ASR system. As written, the draft rule language states that any "change" in flow velocity or direction or in the concentration of total dissolved solids for an existing ASR system amounts to interference with an existing legal use that would make a proposed use not permittable. Taken literally, this provision would limit any proposed use of water, since any withdrawal causes some theoretical "change" in the aquifer with regard to flow or water quality. This is particularly the case when numerical groundwater models are used to evaluate proposed water uses. As a result, applicants would be left to guess whether the proposed rule language truly applies to any "change" no matter how infinitesimal, or whether there is some unwritten threshold of "change" which may in fact be permittable. This approach would vest District staff with unbridled discretion to decide what amount of "change" is or is not permittable.

Notably, as currently written, even a <u>beneficial</u> change in flow velocity or direction or total dissolved solid concentration would be grounds for determining interference with an existing ASR system. For example, even a proposed use that caused a <u>reduction</u> in the concentration of total dissolved solids would amount to interference as the language is currently written. This is an absurd result that was obviously not considered by the authors of this rule provision.

Most significantly, a requirement based on unspecified "change" is contrary to the statutory requirement that the permitting standard requires "interference" with an existing legal use. As written, there is no connection between whether a "change" in flow velocity or direction, or a "change" in concentration of total dissolved solids would actually interfere with a given existing ASR water use. At the very least, any rule dealing with ASR interference should define the threshold at which a given change associated with a proposed water use amounts to "interference" with an existing ASR use. Only when such a standard is specified would the rule language be consistent with statutory requirements, and more importantly, allow the District and water users to appropriately evaluate whether a given water use will interfere with an existing ASR system.

Additionally, the proposed revision to AH Section 3.7.3 contains language ensuring that interference with an ASR system cannot be mitigated through replacement of the impacted equipment. This is inappropriate since a user would only be able to mitigate its impact by relocating wells or changing withdrawal sources.

The final unintended consequence of this draft rule would be to make it difficult to permit ASR systems in the future. AH Section 3.7.3.D currently provides that to obtain a water use permit for an ASR system, the applicant must provide reasonable assurance that the operation of a proposed ASR system will not render existing water uses unable to withdraw water consistent with the provisions of their permits. With the new language being proposed by the District, the permitting of an ASR system would render existing Floridan aquifer uses unable to withdraw their permitted use because upon renewal, the water users would be unable to demonstrate non-interference with the ASR use.

Given the above concerns, SEFLUC requests that the revisions of AH Section 3.7 of District-wide applicability be removed from the current LRWRP protection rulemaking, and that any future rulemaking regarding the interference standard take into account the concerns expressed herein. Thank you for your consideration of these comments. We look forward to continuing to work with District staff regarding these and other important issues.

Sincerely,

Ana T. Caveda

Ana T. Caveda
Vice-Chair, Southeast Florida Utility Council (SEFLUC)

cc: SEFLUC Members

INDIAN TRAIL
IMPROVEMENT DISTRICT
Est. 1957

March 7, 2022

Dear Ms. Natalie Kraft, via email: nkraft@sfwmd.gov
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406

RE: SFWMD Draft Loxahatchee River Rule

Indian Trail Improvement District is an independent special taxing district of the State of Florida originally created by Chapter 57-646, Laws of Florida. Indian Trail is empowered to construct and maintain public facilities providing water and sanitary sewer, natural gas, drainage, roadways, and parks and recreation services.

MINIMAL BACKGROUND, note: no backup is attached:
Indian Trail has a long and complex history of drainage issues. The largest Unit of Development, the M-1 Basin is the subject of discussion herein as it relates to the proposed Loxahatchee River Rule by the SFWMD.

1. Memorandum of Agreement (MOA) between Indian Trail Improvement District and South Florida Water Management District (SFWMD). This 7/14/97 Agreement was to settle a dispute on allowable discharges. Note the SFWMD has not to date completed STA 1-E resulting in Indian Trail not receiving the full benefits of the MOA.
2. North Palm Beach County Plan (and all of its FKA). This CERP project included 1"/day discharge for Indian Trail as well as other environmental and water supply benefits. The NPBC Plan was usurped by the decision to utilize the L-8 Reservoir as a Flow Equalization Basin to settle the Everglades lawsuit.
3. Moss Property Pilot Program, ERP EI 50-0164073-001. The physical facilities are built, and test pumping will soon commence. The Moss Property (triangle south of the west portion of the JW Corbett Wildlife Management Area) is badly underhydrated as demonstrated in the NPBC Plan. This project is to rehydrate the Moss Property with use of excess discharges from Indian Trail.

4. 2018 Agreement for Donation of Real Property from Palm Beach West Associates I, LLLP to Indian Trail Improvement District. As part of the development of a site plan for Indian Trail Groves by GL Homes, GL Homes agreed to donate 640 acres of land to Indian Trail Improvement District for surface storm water management, drainage, and other ancillary purposes. Indian Trail is budgeting a revision to its Water Control Plan in FY22-23 to make this area into a stormwater impoundment.
5. Most of the approximately 20,000 acre M-1 Basin is served by septic tanks and wells for its typical 1.25 acre Agricultural Residential lots. Fire protection is mostly by withdraws from Indian Trail canals.

Loxahatchee River Rule Comments:

1. There were two SFWMD meetings to receive comments on the draft rule: 1/25/22 and 2/22/22. No representative from Indian Trail was available to attend the 1/25/22 meeting. The District Engineer did participate in the 2/22/22 webinar. The Indian Trail Board has not met since nor been advised of this proposed rule. These comments are therefore from the Indian Trail District Engineer without the opportunity to present the importance of this rule to the Board and receive feedback in a public meeting. The timeline is inconsistent with the importance of the rule and should therefore be extended for at least 6 months.
2. Section 3.7 addresses “Existing Legal Users”. I was assured in the 2/22/22 meeting that exempt users such as single family residential uses and fire protection are protected. Although not in the document I was told the assurance is as of 2006 for existing users. These exempt users have little say in the CUP process. They will have to depend on the regulator (SFWMD) and the applicants analyses to make determinations about their exempt uses. I realize there is a public input process, but these users are disconnected to the process with little to no representation. Exempt users need perpetual protection. Is a single family residence built after 2006 no longer exempt with the adoption of this rule?
3. The Loxahatchee River Plan includes use of Indian Trail’s M-0 Canal and delivery of excess stormwater via a pump to the C-18 Reservoir. The Indian Trail Board has not agreed to this nor been approached by SFWMD or the Corps regarding this to date. The District Engineer has actively participated in the Plans that affect Indian Trail, but no legal or institutional communications exist. The Indian Trail Board should at least be approached by SFWMD or the Corps prior to adoption of this rule.
4. The Loxahatchee River Plan includes the addition of a pump station from Indian Trail’s Lower M-1 Basin into the City of West Palm Beach’s “M” Canal for the delivery of excess stormwater.

INDIAN TRAIL
IMPROVEMENT DISTRICT
Est. 1957

The Indian Trail Board previously rejected this pump station when proposed by the City. The Indian Trail Board should at least be approached by SFWMD or the Corps prior to adoption of this rule.

5. In response to a question at the 2/22/22 meeting I was informed the Loxahatchee River Plan would apply the "savings clause" conditions (Existing Legal Users) and pumping below permitted stages would not be allowed. There is nothing in the proposed rule that give certainty to this stage declaration. I fact, Indian Trail purposefully tries to hold stages slightly higher than control elevations in the dry season for protection of the water resources and fire flow. As verbally stated with no written confirmation, the rule could negatively affect the existing and future water resources protection the District provides to its residents.
6. Indian Trail is actively pursuing providing more hydration to the Moss property. The proposed rule does not address this permitted and potential future increase in water use. The rule could therefore negatively affect the rehydration of the Moss Property and needs to be revised to include protection of current and future deliveries of excess surface waters to this area.
7. Indian Trail is actively pursuing addition of a 640 acre Impoundment adjacent to its existing 720 acre M-1 Impoundment, has met with SFWMD, and intends to use the additional impoundment for storage of excess waters in the dry season to assist its efforts in keeping surface water stages at or above control elevations for fire protection. This rule is in conflict with Indian Trail's continuing efforts to be self-sufficient. The rule needs to include provisions for Indian Trail to operate its proposed 640 acre Impoundment addition for the benefit of those that are required to pay for it. Special Districts are "benefit assessed" and cannot pay for benefits to others.
8. The supporting maps have some type of divide along Seminole Pratt Whitney Road from 100th Lane North south to the "M" Canal that has no technical meaning. How was this delineation made?

Very Truly Yours

Jay G. Foy, P.E.
District Engineer
Indian Trail Improvement District

Indian Trail Improvement District
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13476 61st Street | West Palm Beach | Florida | 33412
Office: 561.793.0874 | Fax: 561.793.3716

WEST PALM BEACH
Public Utilities

DEPARTMENT OF PUBLIC UTILITIES

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March 7, 2022

VIA EMAIL
nkraft@sfwmd.gov

Natalie Kraft
South Florida Water Management District

RE: Loxahatchee River Watershed Restoration Project Protection Rulemaking
Comments on rule Development Workshop #2

Dear Ms. Kraft:

Please accept this letter as the City of West Palm Beach's (City) comments on the South Florida Water Management District's (District) most recent proposed changes to the Applicant's Handbook for Water Use Permits (AH) Sections 1.1, 1.5.2, 3.2.1, and 3.7 (Proposed Rule) in support of the Comprehensive Everglades Restoration Plan (CERP) Loxahatchee River Watershed Restoration Project (LRWRP).

We would like to thank you for addressing some of the comments that the City previously submitted regarding the Proposed Rule. As you know, the City is affected by the Proposed Rule. The City owns and manages Grassy Waters Preserve (Grassy Waters), a 23-square mile aquatic ecosystem comprising the southern half of the historical Loxahatchee Slough. Grassy Waters is a named North Palm Beach County/Loxahatchee River Watershed Waterbody and is a component of the LRWRP. The LRWRP Recommended Plan uses water supplied from Grassy Waters through the G-161 Structure to restore flow to the Northwest Fork of the Loxahatchee River and provides for hydrologic restoration of the Grassy Waters Preserve Triangle. The City relies on Grassy Waters as a primary surface water supply source for its citizens. Finally, the City operates an aquifer storage and recovery (ASR) system and is considering the development of a Floridan aquifer system (FAS) source to supplement its current surface water system as a mechanism to help mitigate public health and safety issues due to potential algal blooms.

The City fully supports rulemaking that allows the LRWRP to move forward without depriving water suppliers of existing water supply sources and future water supply opportunities. Thus, it is important that the Proposed Rule is consistent with the purpose of the LRWRP, is based on sound

science, and does not create unintended consequences for water users located within and outside the North Palm Beach County/Loxahatchee River Watershed Waterbodies.

I. Change in Definition of North Palm Beach County/Loxahatchee River Watershed Waterbodies and Base Condition of the Lower East Coast Regional Water Availability Rule

The Proposed Rule contains revisions to the existing definition of "North Palm Beach County/Loxahatchee River Watershed Waterbodies" in AH Section 1.1 as well as AH Figure 3-2, which is referenced in the definition. It appears that the intent of this revision is to add new areas to the definition and subject those areas to the applicable Restricted Allocation Area requirements of AH Section 3.2.1.E.

The City is concerned that the Proposed Rule potentially creates unintended consequences and ambiguities regarding the interpretation and application of the Lower East Coast Regional Water Availability Rule.

The Lower East Coast Regional Water Availability Rule, codified in AH Section 3.2.1.E., was established in 2007. It prohibits new or modified permits or permit renewals within the Northern Palm Beach County Service Area and Lower East Coast Service Areas 1, 2 and 3, which will cause a net increase in the volume or cause a change in the timing of surface water and groundwater withdrawn from the Lower East Coast Everglades Watershed Waterbodies or the Northern Palm Beach County/Loxahatchee River Watershed Waterbodies over that resulting from the "base condition water use." The "base condition water use" is generally defined based on water withdrawn by the applicant during the twelve months preceding April 1, 2006, with other specific use type criteria similarly established from a base condition utilizing an April 1, 2006 target.

From the time the Lower East Coast Regional Water Availability Rule was adopted in 2007 to the present, these requirements, and the April 1, 2006 base condition, did not apply to water withdrawn from newly identified Hungryland Slough Natural Area, the Cypress Creek Natural Area and the C-18W Reservoir and other areas newly incorporated in Figure 3-2, and certain integrated conveyance canals such as the M-O Canal, the M-1 Canal and the M-2 Canal identified in Figure 3-2. Since these water bodies and conveyance canals were not included in the definition of "North Palm Beach County/Loxahatchee River Watershed Waterbodies" in AH Section 1.1 or in AH Figure 3-2, water uses permitted in the Northern Palm Beach County Service Area and the Lower East Coast Service Areas after 2007, did not have to demonstrate that the base condition water use for these features would not be exceeded. As currently written, the Proposed Rule would create a hardship for these uses, because upon renewal, they would be unable to demonstrate compliance with the Lower East Coast Regional Water Availability Rule because these uses did not exist during the twelve months prior to April 1, 2006.

One way to correct this issue would be to modify the Proposed Rule to make it clear that the "base condition water use" for these newly added areas is in line with the time periods established under

the existing rule by use class, but adjusted for the adoption of the Proposed Rule and not those periods relative to April 1, 2006.

II. Proposed Rule Would Prevent Implementation of LRWRP

The Proposed Rule would appear to prohibit water uses that are contemplated as part of the LRWRP itself. As explained in the Technical Document Supporting Rulemaking to Protect Water Made Available by the Loxahatchee River Watershed Restoration Project (Technical Document), the LRWRP would utilize water withdrawn from the M-O Canal to fill the new C-18W Reservoir and water withdrawn (75 cfs) from a new M-1 Canal pump station to supplement the M Canal to offset water withdrawn (50 cfs) from Grassy Waters Preserve through the G-161 structure to enhance fresh water flows in the Loxahatchee River.

As written, the Proposed Rule would impose the water use limitations of the Lower East Coast Regional Water Availability provisions on the JW Corbett Wildlife Management Area, the M-O Canal, the Hungryland Slough Natural Area (where the C-18W Canal is located), Grassy Waters, and the Loxahatchee Slough Natural Area (where the G-161 and C-18 Canal are located), as well as the specific canals identified in Figure 3-2, such as the M-1 and M-2 Canals. Since the proposed withdrawals from the M-O and M-1 Canals did not exist during the twelve months prior to April 1, 2006, these components of the LRWRP could not be permitted.

In order to address this issue, the Proposed Rule could be revised to make it clear that these water uses associated with the LRWRP are not subject to the "base condition water use" requirements of the Lower East Coast Regional Water Availability Rule.

III. Proposed Rule Will Adversely Impact All New Uses of Upper Floridan Aquifer Within the Northern Palm Beach County Service Area and the Lower East Coast Service Area

As currently written, the portion of the Proposed Rule pertaining to the FAS underlying the C-18W Reservoir would appear to prohibit all new water uses of the FAS within the Northern Palm Beach County Service Area and the Lower East Coast Service Area. New AH Section 3.2.1.G. requires demonstration that a new FAS use will not "adversely impact" the FAS buffer zone reflected in Figure 3-4. An applicant may demonstrate compliance with this provision by either showing that the cone of depression for the requested allocation, individually and cumulatively, will not intersect the FAS buffer zone in Figure 3-4, or by showing that it meets the requirements of AH Section 3.7 (including new Section 3.7.E, which is addressed in separate comments below). Both criteria are impossible to meet as currently written.

First, with regard to the individual and cumulative "cone of depression" buffer zone requirement, since a numerical model would be used to prove compliance based on cumulative impacts of all water users, with this criterion and the drawdown contour determined by a numerical model, the cone of depression associated with a proposed withdrawal on a cumulative basis will likely always

intersect the buffer zone, even for water users at significant distance from the buffer zone. There has not been any analysis performed to determine a reasonable threshold for the required cumulative impact analysis, nor to determine which uses in the region are impacted by the new cumulative impact requirement. Thus, a standard based on the mere intersection of a cone of depression with the "buffer zone" does not establish an "adverse impact" to the water necessary for restoration of the Loxahatchee River Watershed.

Second, these limitations were not determined based on site-specific data that would be necessary for protection in the FAS as acknowledged in the Technical Document. The protection analysis is only based on a 90-day period of withdrawals, similar to a basic consumptive use permit impact analysis, which does not account for the unique operations of ASR and the complexities of the area. For example, the analysis does not consider the ASR bubble's long-term effects on existing or proposed consumptive uses of water.

Third, the new proposed requirement of demonstrating compliance with AH Section 3.7 is similarly flawed. Section 3.7 concerns interference with existing legal uses of water. New Section 3.7.2.E. would require that the applicant demonstrate its proposed use will not cause "1) the transmittance of ASR waters away from the area of influence by changing or accelerating the flow velocity or flow direction; or 2) a change in the concentration of total dissolved solids (TDS)." As written, the draft rule language states that any "change" in flow, velocity, or direction or in the concentration of TDS for an existing ASR system amounts to interference with an existing legal use that would make a proposed use not permittable. Taken literally, this provision would limit any proposed use of water, since any withdrawal causes some theoretical "change" in the aquifer with regard to flow or water quality, particularly when numerical groundwater models are used to evaluate proposed water uses as described above.

In conclusion, the criteria used to demonstrate no adverse impact with the FAS buffer zone are arbitrary and capricious as the criteria are not supported by logic or facts and bear no rational relationship to the harm standard. Moreover, Section 3.2.1.G would appear to reserve the water in the entire FAS in the Northern Palm Beach County and Lower East Coast Service Areas for the LRWRP by making it impossible for new FAS uses to demonstrate non-interference with the FAS buffer zone.

Given the above concerns, the Proposed Rule should be revised to create permitting criteria that describe actual adverse impacts to the ASR water associated with the C-18W Reservoir. The criteria should recognize the ASR system only assumes 70 percent recovery of the water injected in the ASR system, as described in the Technical Document. Adverse impact should be defined as new FAS uses that negatively impact the proposed recovery rate. As to what that would be depends on site specific studies, which at present do not exist in the Technical Document.

IV. The New AH Section 3.7.2.E ASR Interference Requirement

As explained above, the Proposed Rule would create a new Section 3.7.2.E, which prohibits interference with any ASR water use and not just the ASR water use associated with the C-18W Reservoir. Thus, a FAS water use anywhere within the District would have to demonstrate compliance with the new requirement upon initial permit issuance, permit modification, and permit renewal. There are a number of significant problems with this new provision, which are detailed below.

First, if a new District-wide ASR interference standard is something the District wishes to adopt, it should be done through a separate rulemaking so that the District can receive public input from all impacted stakeholder and not just those persons located within the North Palm Beach County/Loxahatchee River Watershed.

Second, a requirement based on unspecified "change" is contrary to the statutory requirement in Section 373.223, Florida Statutes, which requires "interference" with an existing legal use. As written, there is no connection between a "change" in flow velocity or direction, or a "change" in concentration of TDS with interference with a given ASR water use. For example, even a proposed use that caused a reduction in the concentration of TDS would amount to interference as the language is currently written. This is an absurd result that was obviously not considered by the authors of this rule provision.

As currently written, under new Section 3.7.2.E., applicants would be left to guess whether the proposed rule language truly applies to any "change," no matter how infinitesimal, or whether there is some unwritten threshold of "change" which may in fact be permittable. What the District and water users require is an objective standard that can clearly be applied in all situations with predictable results.

Also, this onerous and ambiguous new ASR interference standard would make the permitting of new ASR systems extremely difficult, if not impossible. This is particularly significant since the District is heavily relying on ASR wells to implement CERP. An applicant for a new ASR system would be unable to provide reasonable assurance that the operation of the proposed ASR system will not cause interference with an existing legal use of the FAS. Interference with an existing legal use of water is defined in Section 3.7.2.A as inability to withdraw water consistent with provisions of a permitted or exempt use. Once the ASR well is permitted, the existing legal users of the FAS would be unable to withdraw water upon renewal because of the limitations that would be imposed by Section 3.7.2.E.

Given the above concerns, the LRWRP rule should be revised so that the ASR interference requirement is limited only to ASR associated with the LRWRP, and those requirements should be rewritten based on site-specific data that correlates to actual "interference" with the project, as opposed to the current "change" standard that significantly expands what is contemplated in Section 373.223, Florida Statutes.

V. The New AH Section 3.7.3 ASR Interference Mitigation Requirement

The proposed revision to AH Section 3.7.3 contains language ensuring that interference with an ASR system cannot be mitigated through replacement of the impacted equipment. This is inappropriate since a user would only be able to mitigate its impact by relocating wells or changing withdrawal sources.

VI. Conclusion

Thank you for your consideration of these comments. The City fully supports the LRWRP, however, the Proposed Rule should be tailored to protect the project without imposing requirements that may create unintended consequences for the project itself and other water users both locally and throughout the District. We look forward to continuing to work with District staff regarding these and other important issues.

Sincerely,
CITY OF WEST PALM BEACH

Darrel J. Graziani, P.E., R.S.
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March 7, 2022

Natalie Kraft
Lead Scientist, Applied Sciences Bureau
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33406

Dear Ms. Kraft,

Subject: **Palm Beach County Comments on Rulemaking to Protect Water Made Available by the Loxahatchee River Watershed Restoration Project**

Palm Beach County (County) continues to support South Florida Water Management District (SFWMD or District) efforts to advance Comprehensive Everglades Restoration Projects (CERP) and the ongoing rulemaking to protect water made available by the Loxahatchee River Watershed Restoration Project (LRWRP). The County submits this comment letter following its participation in Rule Development Workshop #2, held virtually on February 22, 2022, and review of the revised Applicant's Handbook for Water Use Permit Applications (Applicant's Handbook), released February 22, 2022, and Draft Technical Document Supporting Rulemaking to Protect Water Made Available by the Loxahatchee River Watershed Restoration Project (Technical Document), dated February 22, 2022. While the County notes SFWMD revised the Applicant's Handbook and updated the Technical Document following the initial public comment period, many of the County's original observations, submitted in the County's February 7, 2022, comment letter, do not appear to have been addressed. The County reincorporates these observations and briefly summarizes them herein. The County also submits additional comments for SFWMD evaluation.

Below are the County's comments, suggestions, and questions regarding the revised Applicant's Handbook and Technical Document:

1) The County appreciates the District's incorporation of the proper and legal names for Loxahatchee Slough Natural Area, Hungryland Slough Natural Area, and Pine Glades Natural Area into the revised definition of North Palm Beach County/Loxahatchee River Watershed Waterbodies within Applicant's Handbook Section 1.1 (Definitions). While these changes are an improvement, Figure 3-2, which forms the basis of the proposed definition, includes inaccuracies and remains unclear. For example, the purple-shaded area in revised Figure 3-2 includes the County's Sweetbay Natural Area but this natural area is not identified. Attachment 3 to the County's February 7, 2022 comment letter provided a map of the North Palm Beach County/Loxahatchee River Watershed Waterbodies boundaries along with County's Natural Areas boundaries. The County suggests SFWMD further examine Attachment 3 to the County's February 7, 2022 comment letter and include additional refinements to Figure 3-2 in the Applicant's Handbook and Figures 1-3 and 5-1 in the Technical Document (see Attachment 1 for additional comments).

2) Critical terms within the revised Applicant's Handbook Section 3.2.1.E such as "integrated conveyance systems" and "primary canals" as well as "secondary and tertiary canals" are undefined. The County believes definitions for these, and other vague terms, should be included in the final rule. At a minimum, a list of the waterbodies, primary, secondary, and tertiary canals should be incorporated. The County notes the District's water reservation for the Upper and Lower Kissimmee Basin Areas has a combination of definitions and figures to assist applicants and existing users in understanding the water elevations and regulatory criteria. Additionally, figures within the Kissimmee reservation's appendix include clarifying language such as "unlabeled waterbodies in this figure are not included in this reservation/contributing waterbody group." If the District chooses to keep these terms undefined and solely rely on a figure, the County suggests that Figure 3-2 be revised to clearly identify the waterbodies, integrated conveyance systems, and canals that are subject to the final rule.

3) Revised Applicant's Handbook Section 3.2.1.G has undefined terms like the "C-18W Reservoir" and "groundwater buffer zone." A clear understanding of these terms and their application within the final rule is critically important to the regulated community because these terms form the foundation of the proposed rule's groundwater restrictions. Noted previously, solely relying on a map or figure for an understanding of these significant terms is vague and problematic, especially when the United States Army Corps of Engineers (USACE) LRWRP Final Integrated Project Implementation Report and Environmental Impact Statement includes not only a proposed project footprint but also identifies the five locations where water for the project needs to be protected. Overall, the County believes additional definitions and clearly identifiable figures will improve the final rule.

4) While the County appreciates the District addressing the groundwater drawdown inconsistency in the original Applicant's Handbook Section 3.2.1.G, inconsistencies between

the revised Applicant's Handbook Section 3.2.1.G and the Technical Document remain. A comparison of the documents is helpful – First, Applicant's Handbook Section 3.2.1.G.2 eliminated the "1 foot or more of drawdown" criterion. Discussed more below, under the revised section, an applicant must meet the criteria of Section 3.7 or the proposed drawdown cannot "intersect" with the defined "groundwater buffer zone." But the Technical Document includes a numeric drawdown of groundwater as a proposed regulatory criterion: "[a]ny existing legal user within the RAA seeking an increase in allocation will need to perform modeling to demonstrate the cone of depression from the increased withdrawal. If the *0.1-ft cone of depression* reaches one of the defined … Waterbodies, the user will need to identify one of the sources in Subsection 3.2.1.E.5 to meet the difference between the base condition and the proposed increase." (Lines 1071 – 1073, Technical Document). The County recommends the District eliminate all potential inconsistencies between the Applicant's Handbook and Technical Document before finalizing these documents.

5) The County seeks a better understanding of how the proposed rule's restriction of consumptive uses will impact surface water and groundwater within the watershed. The County owns and manages over 30,700 acres in the Loxahatchee River watershed, is a consumptive use permittee, and is an integral partner in the joint state-federal effort to restore the Loxahatchee River and watershed. As such, the County has a vested interest in fully understanding the final rule's potential ramifications. The Technical Document is silent and fails to evaluate how the identified groundwater drawdown and groundwater bubble from the LRWRP Aquifer Storage and Recovery (ASR) wells may affect Hungryland Slough Natural Area and the Florida Fish and Wildlife Conservation Commission's J.W. Corbett Wildlife Management Area. District created figures, Technical Document Figure 5-4 and Figure 5-5, clearly show that the proposed ASR wells will impact groundwater levels in both natural areas. The County seeks reassurance that its significant investment, restoration, and maintenance efforts of County-owned Natural Areas will not suffer unintended consequences because of the final rule.

6) A better understanding of the availability of "available wet season" or excess water and how the final rule will co-exist with the rest of the Applicant's Handbook criteria is needed. Noted previously, the County is evaluating the feasibility implementing projects within the watershed to capture and store excess water that is currently being discharged undesirably to the Lake Worth Lagoon Estuary. The County is interested in evaluating the utility of these types of projects to determine if CERP-like water resources benefits can be achieved sooner than what would be achieved under CERP. While the proposed rules, as written, seemingly eliminate access to groundwater and the Floridan Aquifer System, the other criteria in the Applicant's Handbook allow a consumptive use applicant or permittee to seek a surface water allocation beyond the 2006 base condition in accordance with Section 3.2.1.E.5. There appear to be potential issues related to the use of Section 3.2.1.E.5.e by applicants. Under this

subsection, a consumptive use applicant may demonstrate that excess water is available, "provided the applicant demonstrates that such water is not required to achieve the restoration benefits to the Waterbodies pursuant to the *Comprehensive Everglades Restoration Plan*, North Palm Beach County Comprehensive Water Management Plan, and the Acceler8 program." The subsection continues, "[w]ater available under these conditions *shall be limited* to the wet season discharges that are projected to persist following implementation of the *entire Comprehensive Everglades Restoration Plan*, North Palm Beach County Comprehensive Water Management Plan, and the Acceler8 program." While this regulatory burden makes sense for a consumptive use applicant or permittee, the County needs to know if it would be forced to perform such an analysis to determine the availability of excess water for a potential storage project. Being obligated to comply with regulatory criteria to store excess water and eliminate harmful wet-season flows to the Lake Worth Lagoon Estuary would not only waste government resources and tax-payer dollars but may be an arbitrary application of District rules, especially because the County would not be required to apply for a consumptive use permit (in accordance with SFWMD's current policies) if the County advances such storage projects. While the County raises this issue, other local governments who may evaluate achieving CERP benefits through local and private means now or in the future will also be facing this unknown.

7) The precedential nature and current ramifications of the proposed groundwater rules remain a concern. First, the County observed an inconsistency in Section 3.2.1.G that should be resolved. The subsection's first two paragraphs and two proposed regulatory criteria present a framework in which a consumptive use applicant or permittee may seek and demonstrate reasonable assurances to receive a groundwater allocation. However, the subsection's final sentence conflicts with the proceeding paragraphs: "no additional allocations that increase withdrawal's impacts beyond that of the previously permitted use as of [rule effective date] will be authorized." The sentence not only essentially eliminates future groundwater allocations from the Floridan Aquifer System but also directly conflicts with the subsection's regulatory criteria as well as Section 3.3.4 ("No Harm" Standards and Threshold), Section 3.3.5 ("Elimination or Reduction of Harm) and Section 3.3.6 (Mitigation of Harm). The County suggests the District eliminate Section 3.2.1.G's final sentence and revise all inconsistencies within this subsection and the other criteria in the Applicant's Handbook before finalization.

8) The County seeks a better understanding of the scope, application, and interplay between Applicant's Handbook Section 3.2.1.G and 3.7.2.E. Under the proposed rule, an applicant may comply with the proposed groundwater restrictions by either meeting the requirements in Section 3.7 or by demonstrating that an allocation will not interfere with the "groundwater buffer zone" in Figure 3-4. The County commented on the issue of undefined terms and the District's reliance on figures earlier in this letter, but it also recognizes the District's attempt to narrow the application of proposed rule. While the proposed revisions to Section 3.2.1.G

attempt to narrow the proposed rule's application, no such revisions were included within Section 3.7. As written, Applicant's Handbook Section 3.7.2.E could apply District-wide and apply to consumptive users beyond the "groundwater buffer zone" in Figure 3-4 and outside of the Loxahatchee River watershed. ASR wells and Floridan Aquifer System uses exist beyond the "groundwater buffer zone" and defined watershed. The Technical Document, for example, identifies at least three ASR wells within 11 miles of the C-18W Reservoir site; all of these ASR wells are outside of the "groundwater buffer zone." Beyond the potential for District-wide application, the proposed criteria in Section 3.7.2.E. is vague. As written, interference with an existing ASR well can occur if a proposed use "transmits" ASR waters by "changing or accelerating" flow velocity or direction or "changes the concentration of dissolved solids." The County seeks to understand the technical basis for these proposed criteria. The Technical Document does not support this rule language, whether it applies to the "groundwater buffer zone", the defined watershed, or District-wide. For example, the phrase "total dissolved solids" is referenced exactly four times in the Technical Document (Lines 769, 771, 809, 1128, Technical Document). Three of the references are in larger discussions about other ASR wells and the fourth is a reiteration of the proposed rule language. Additional revisions to the Applicant's Handbook and Technical Document are appropriate, so the regulated community fully understands scope and application of the final rule's groundwater restrictions.

9) Based on recent correspondence from USACE to SFWMD regarding the Project Partnership Agreement (PPA; Attachment 2), SFWMD's proposed expedited rulemaking schedule may not be necessary and may result in less public engagement and stakeholder participation. To date, SFWMD staff intends to present a Notice of Proposed Rule and Rule Adoption at the April 14, 2022 Governing Board meeting. This presentation will occur after only two public workshops, one revised draft rule language, and two public comment periods. In comparison, SFWMD's rulemaking timeline for the Lower East Coast Regional Water Availability restricted allocation area included significant public engagement and rule revisions within a fairly short time; 13 months. The District began the original rulemaking effort in January 2006. In that timeframe the District conducted five public workshops, publicized four proposed rule drafts, and presented before the SFWMD Governing Board and Water Resources Advisory Committee multiple times, before staff sought authorization to publish a notice of proposed rule in February 2007. Beyond the significant public engagement during that rulemaking effort, the District engaged with stakeholders and revised the draft rule language multiple times after reviewing stakeholders' public comments. For example, the base condition water use criteria in Section 3.2.1.E.3.a-d were conceptualized and proposed by stakeholders and then drafted and subsequently finalized by the District. The County understands the District's obligations as local sponsor and District staff's representations that negotiating and executing a PPA is motivating the current rulemaking schedule. However, it would appear that recent correspondence from Col. James Booth may alleviate some of the pressure on the rulemaking

schedule because USACE's execution of a PPA is now "contingent upon the ability to reallocate [Fiscal Year 2022] funds to LRWRP" and dependent on language within the Fiscal Year 2022 Appropriations Bill. In addition, the fact that the District and USACE are currently negotiating a Pre-Partnership Credit Agreement should further alleviate the need for the SFWMD-proposed expedited rulemaking schedule. Therefore, due to these new considerations, the County suggests the District extend the current rulemaking schedule to include additional workshops and/or public engagement and further revise the Applicant's Handbook and Technical Document.

The County hopes the District will review these written comments and make appropriate revisions to the Applicant's Handbook and Technical Document. Public engagement and the quality of the final rule language should not be sacrificed by moving more quickly than necessary. Additionally, the County recognizes that some of the issues raised are unique to the County. The County requests a meeting with District staff to discuss the County's Natural Areas and the County's plans for future water storage projects in the next few weeks.

Sincerely,

Jeremy McBryan, PE, CFM
County Water Resources Manager

Attachments (2)

cc: Lawrence Glenn, South Florida Water Management District
Sky Notestein, South Florida Water Management District
Jennifer Brown, South Florida Water Management District
Simon Sunderland, South Florida Water Management District
Jay Steinle, South Florida Water Management District
Patrick Rutter, Assistant County Administrator, Palm Beach County
Todd Bonlarron, Assistant County Administrator, Palm Beach County
Deborah Drum, Director, Environmental Resources Management, Palm Beach County
Michael W. Jones, Chief Assistant County Attorney
Scott A. Stone, Assistant County Attorney
Laura S. Olympio, Manson Bolves Donaldson Varn
Sheryl G. Wood, Manson Bolves Donaldson Varn

Attachment 1

Comments on Figures 1-3 and 5-1 of the Technical Document Supporting Rulemaking to Protect Water Made Available by the Loxahatchee River Watershed Restoration Project (dated February 2022)

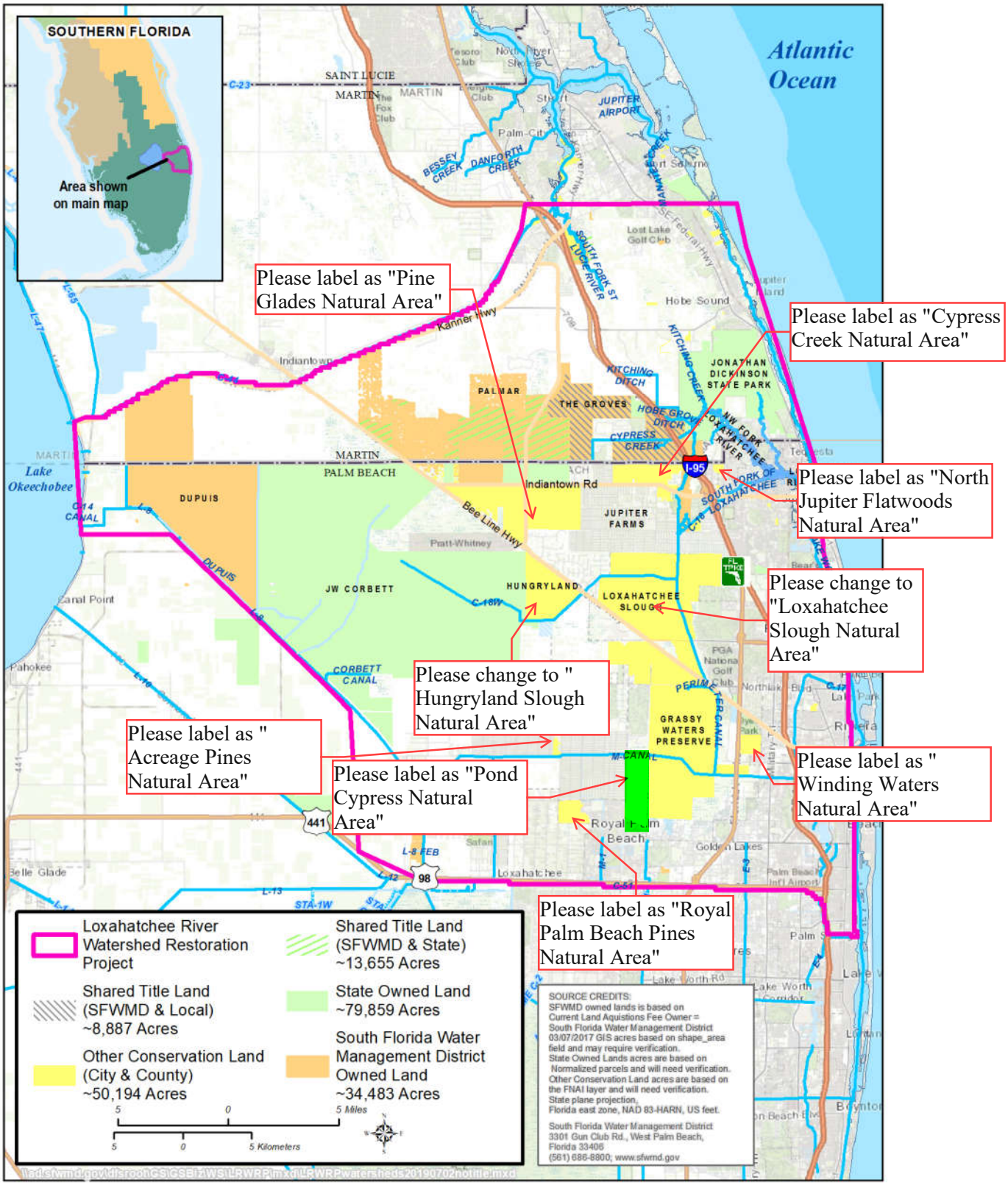


Figure 1-3. Project area for the Loxahatchee River Watershed Restoration Project (From: USACE 2020).

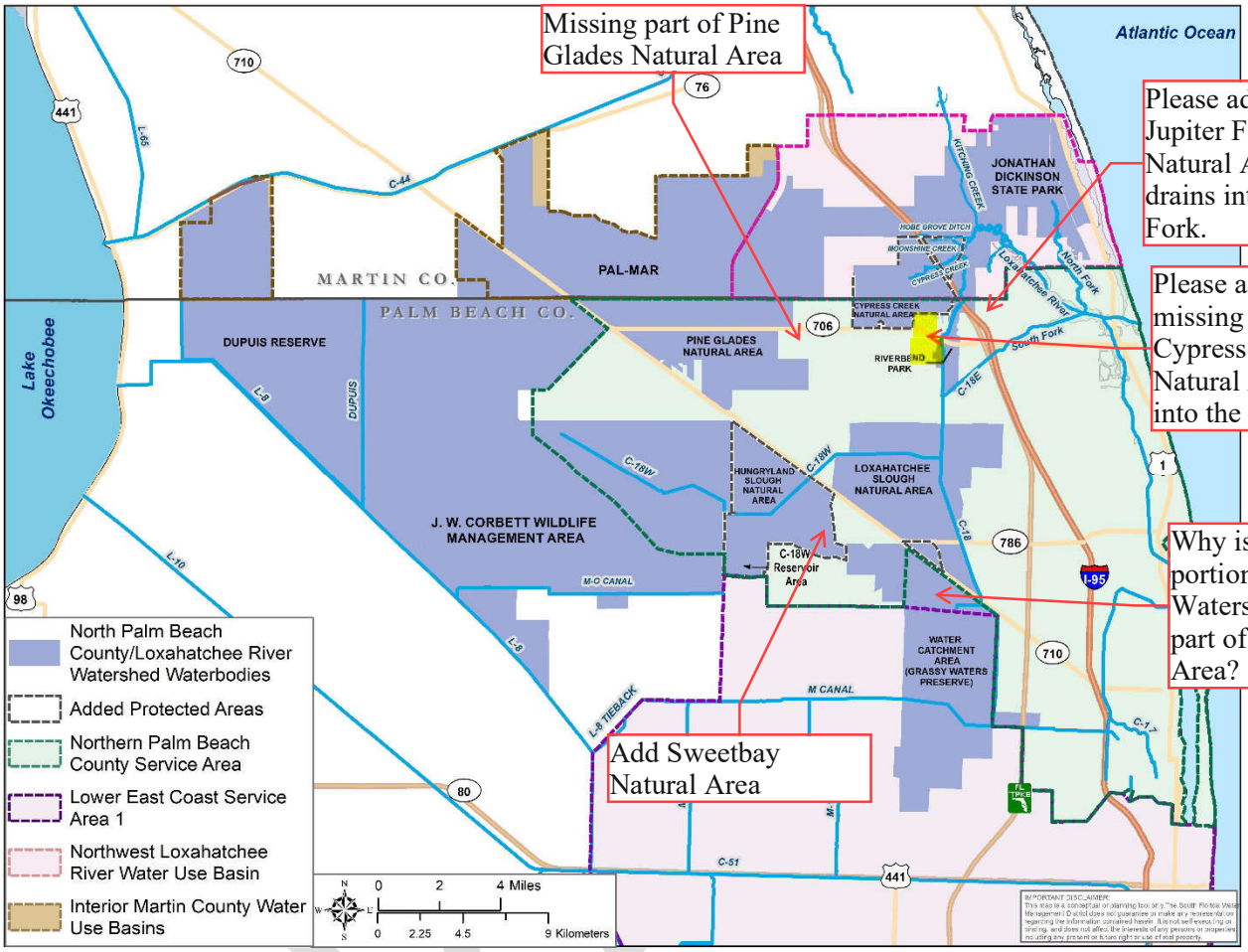


Figure 5-1. The proposed, expanded restricted allocation area boundaries for the North Palm Beach County/Loxahatchee River Watershed Waterbodies under the Lower East Coast Regional Water Availability rule. Black dashed lines indicate new areas added to the existing restricted allocation area.

Should this say "surface water and groundwater withdrawls..." as specified in 1.52.B.1 of the handbook?

5.2 Groundwater

5.2.1 Surficial Aquifer System

Under the Lower East Coast Regional Water Availability RAA rule, groundwater withdrawals from the unconfined surficial aquifer system (SAS), including the Biscayne aquifer, are limited to the extent that they induce seepage from the North Palm Beach County/Loxahatchee River Watershed Waterbodies above an established base condition (maximum annual average use for a 5-year period ending on April 1, 2006). The current rule applies to the areas shown in **Figure 5-1**. The rule only allows allocations over the base condition water use if additional impacts to the Everglades and Loxahatchee River watershed waterbodies are avoided through alternative water supplies, offsets, or reduced or terminated base condition water uses. Wet season water can be allocated if the permit applicant demonstrates that the flows are not needed for CERP projects. The same base condition will apply to consumptive use permits within the expanded areas in this update to the Lower East Coast Regional Water Availability RAA rule (the areas shown with dashed outlines in **Figure 5-1**).

Attachment 2

Correspondence from Col. James Booth (USACE) to Drew Bartlett (SFWMD)
Regarding Loxahatchee River Watershed Restoration Project Partnership
Agreements

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, JACKSONVILLE DISTRICT
701 SAN MARCO BOULEVARD
JACKSONVILLE, FLORIDA 32207-8175

JAN 2 8 2021

Programs and Project Management Division
Ecosystem Branch

Mr. Drew Bartlett
Executive Director
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33406

Dear Mr. Bartlett:

Thank you for your October 13, 2021 letter expressing support for the development and execution of partnership agreements for the Loxahatchee River Watershed Restoration Project (LRWRP). The Jacksonville District U.S. Army Corps of Engineers (Corps) is proud of the partnership with the South Florida Water Management District (SFWMD) to implement the Comprehensive Everglades Restoration Plan (CERP).

Restoring freshwater flows into the Northwest Fork of the Loxahatchee River and increasing the system's hydrologic connectivity to benefit the local flora and fauna, is an important component of the CERP program and our common goal of successfully improving the seasonal timing and distribution of water to drained wetlands in the LRWRP watershed.

The Fiscal Year (FY) 22 President's budget does not include budget for LRWRP. The Execution of the Pre-Partnership Credit Agreement and Project Partnership Agreement (PPA) is contingent upon the ability to reallocate funds to LRWRP. Execution of the PPA will be dependent upon language contained in the FY 2022 Appropriations Bill regarding new start construction projects, as well as approval for a new investment decision. The Corps will do everything it can, within its authorities, to negotiate and execute a PPA, as soon as possible.

If you have any further questions regarding the process please feel free to contact me or Mr. Kyle Keer, Senior Project Manager, at (904) 232-1659 or email at Kyle.J.Keer@usace.army.mil.

Sincerely,

BOOTH.JAMES.LAFAYETTE.1186925935
Digitally signed by BOOTH.JAMES.LAFAYETTE.1186925935
Date: 2022.01.28 15:48:06 -05'00'

James L. Booth
Colonel, U.S. Army
District Commander

WEST PALM BEACH

Public Utilities

March 30, 2022

Natalie Kraft
South Florida Water Management District

RE: Loxahatchee River Watershed Restoration Project Protection Rulemaking Comments on Rule Development Workshop #2

Dear Ms. Kraft:

Please accept this letter as the City of West Palm Beach's (City) comments on the South Florida Water Management District's (District) most recent proposed changes to the Applicant's Handbook for Water Use Permits (WUP AH) Sections 1.1, 1.5.2, 3.2.1, and 3.7 (Proposed Rule) dated March 25, 2022 in support of the Comprehensive Everglades Restoration Plan (CERP) Loxahatchee River Watershed Restoration Project (LRWRP).

We would like to thank you for addressing many of the comments that the City previously raised in its March 7 letter. As you know, the City is affected by the Proposed Rule. The City owns and manages Grassy Waters Preserve (Grassy Waters), a 23-square mile aquatic ecosystem comprising the southern half of the historical Loxahatchee Slough. Grassy Waters is a named North Palm Beach County/Loxahatchee River Watershed Waterbody and is a component of the LRWRP. The LRWRP Recommended Plan uses water supplied from Grassy Waters through the G-161 Structure to restore flow to the Northwest Fork of the Loxahatchee River and provides for hydrologic restoration of the Grassy Waters Preserve Triangle. The City relies on Grassy Waters as a primary surface water supply source for its citizens. Finally, the City operates an aquifer storage and recovery (ASR) system and is considering the development of a Floridan aquifer system (FAS) source to supplement its current surface water system as a mechanism to help mitigate public health and safety issues due to potential algal blooms.

The City fully supports rulemaking that allows the LRWRP to move forward without depriving water suppliers of existing water supply sources and future water supply opportunities. Thus, it is important that the Proposed Rule is consistent with the purpose of the LRWRP, is based on sound science, and does not create unintended consequences for water users located within and outside the North Palm Beach County/Loxahatchee River Watershed Waterbodies.

The City has prepared some suggested revisions to the Proposed Rule for your consideration, which are attached to this letter. The City's proposed changes are highlighted in yellow. The remainder of this letter explains the reason for these proposed changes.

401 CLEMATIS STREET
P.O. BOX 3366
WEST PALM BEACH, FL 33401
561.822.2200

I. Change to Definitions in WUP AH Sections 1.1

We appreciate the changes the District has made to Section 1.1 and Figures 3-1 and 3-2, which clarify the definition of the Lower East Coast Everglades Water Bodies and the North Palm Beach County/Loxahatchee River Watershed Waterbodies. Although the existing text and figures are in improvement over the prior rule draft, the City feels that additional changes are warranted.

First, the City believes the Lower East Coast Everglades Waterbodies Primary Canals and the North Palm Beach County/Loxahatchee River Watershed Waterbodies Primary Canals[1] need to be better defined. Figures 3-1 and 3-2 were modified to show many more canals than was the case with the existing figures. Many of these canals are unnamed and there may be uncertainty as to which watercourses are "Primary Canals." Also, some of the canals do not appear to be part of the integrated conveyance system. It is the City's understanding that these figures were intended to only show canals that conveyed water from Lake Okeechobee and the Waterbodies. However, the figures appear to include canals that don't meet this definition. For instance, in Figure 3-1, the C=100 Canal is upstream of S-118 and is not connected to a Waterbody. Similarly, in Figure 3-2, the Perimeter Canal along the eastern boundary of Grassy Waters Preserve is now included, but it does not convey any water from Lake Okeechobee or a Waterbody. Thus, the City believes canals like these that are primarily for local drainage should be removed from the figures. Additionally, in order to avoid any future misunderstanding as to which canals are in or out of the definition, separate definitions should be created specifically identifying the Primary Canals by name.

Second, the City believes the definition of Lower East Coast Everglades Waterbodies and North Palm Beach County/Loxahatchee River Watershed Waterbodies should be amended to clarify that the Primary Canals identified in the two figures are part of these Waterbodies. This is implied by the fact that the definition of the two Waterbodies contains language cross-referencing Figures 3-1 and 3-2 and the term Primary Canals are included in the legend of those two figures. The addition the term Primary Canals in the definition would make this clear.

Finally, the City notes the definition of Lower East Coast Everglades Waterbodies should be modified to add the word "water" after the term "surface" so that it is consistent with the definition of the North Palm Beach County/Loxahatchee River Watershed Waterbodies.

II. Changes to WUP AH Section 3.2.1.G

Again we appreciate the changes that were made to Subsection 1 and 2. As City explained in its prior letter, the old criteria essentially defined adverse impact to the ASR use associated with the C-18 Reservoir as a no change standard. The change to Subsection 2 now makes the criteria a true

---

[1] City notes that existing Figures 3-1 and 3-2 refer to the canals as the "Major Integrated Conveyance Canals," while the new figures refer to them as "Primary Canals." The City assumes there was no substantive reason for this change in terminology, but would request that the District confirm this fact.

adverse impact criterion similar to ones applied by the District to prevent interference with other legal uses of water.

However, the City believes the change made by the District to add the Avon Park permeable zone (APPZ) as a potential ASR zone requires further changes to the language below. The current language in the proposed rule continues to refer exclusively to withdrawals that impact the Upper Floridan Aquifer System. No mention is made of the APPZ in the actual criteria.

The City recommends addressing this issue by differentiating between applicants withdrawing from both the UFA and APPZ and applicants withdrawing from one or the other zone. So to the extent that the ASR wells associated with the C-18 Reservoir use both zones, then applicants withdrawing water from either zone will have to meet the criteria listed in Subsections 1 and 2 in order to provide reasonable assurance the requested allocation will not adversely impact the proposed ASR use. However, if it turns out that the proposed ASR wells only use one of these two zones, then only applicants withdrawing from that same zone would have to comply with the criteria. So for example, if ASR wells only use the APPZ, then applicants withdrawing from the UFA would not be subject to the criteria. Only applicants withdrawing from the APPZ would have to demonstrate that their requested allocation meets the criteria.

Finally, the City added language at the end of this section clarifying that an existing legal use of the UFA or APPZ would not be limited to their existing permitted allocation. The proposed language recognizes that an existing legal use could obtain an increased allocation, if it demonstrates the increased allocation complies with the criteria contained in Subsections 1 and 2.

III. Conclusion

Thank you for your consideration of these comments. As previously mentioned, the City appreciates the District's consideration of the City's prior comments and hopes that the District looks favorably on the suggestions proposed by the City in the attached document. We look forward to continuing to work with District staff regarding these and other important issues.

Sincerely,

Darrel Graziani
Assistant Director of Public Utilities
City of West Palm Beach

APPLICANT'S HANDBOOK FOR WATER USE PERMIT APPLICATIONS

1.1 Definitions

Additional definitions can be found in Chapter 373, F.S., and Chapters 40E-3, 40E-8, and 62-40, F.A.C.

Lower East Coast Everglades Waterbodies **-** as used in Subsection 3.2.1.E, is defined as the surface water and groundwater from Water Conservation Area 1, 2A, 2B, 3A and 3B, the Holeyland/Rotenberger wildlife management areas, ~~and~~ the freshwater portions of the Everglades National Park and the Lower East Coast Everglades Waterbodies Primary Canals, as depicted in Figure 3.1.

Lower East Coast Everglades Waterbodies Primary Canals **-** as used in Subsection 3.2.1.E, these are the following canals [Insert Canal Names], which convey water from Lake Okeechobee or a Lower East Coast Everglades Water Body.

North Palm Beach County~~-~~/Loxahatchee River Watershed Waterbodies **-** as used in Subsection 3.2.1.E, is defined as the surface water and groundwater from the City of West Palm Beach Water Catchment Area and Grassy Waters Preserve, ~~Water Catchment Area,~~ ~~Pal-Mar and,~~ J.W. Corbett Wildlife Management Area, Loxahatchee Slough Natural Area, Loxahatchee River, Riverbend Park, Dupuis Reserve, Jonathan Dickinson State Park, Kitching Creek, Moonshine Creek, Cypress Creek, ~~and~~ Hobe Grove Ditch, Hungryland Slough Natural Area, the C-18W Reservoir and portions of the Pine Glades, Cypress Creek, and Sweetbay natural areas, the North Palm Beach County/Loxahatchee River Watershed Waterbodies Primary Canals as well as other areas, such as the Interior Martin County Basin, as depicted in Figure 3-2.

North Palm Beach County/Loxahatchee River Watershed Waterbodies Primary Canals **-** as used in Subsection 3.2.1.E, these are the following canals [Insert Canal Names], which convey water from Lake Okeechobee or a North Palm Beach County/Loxahatchee River Watershed Waterbody.

1.5.2 Special Duration Factors

A. No Change.

B. Sources of Limited Availability. For purposes of the Section, the following are Sources of Limited Availability:

1. Upper East Coast Regional Water Supply Planning Area: Surficial Aquifer System throughout the planning area and surface water in the Interior Martin County and Northwest Loxahatchee River Water Use Basins (see Chapter 40E-21, F.A.C., and Figures 3-1 and 3-2, below) to the extent that withdrawals induce seepage from the North Palm Beach County/Loxahatchee River Watershed Waterbodies.

2. Lower East Coast Regional Water Supply Planning Area: Biscayne/Surficial Aquifer System to the extent that withdrawals result in induced seepage from the Central and Southern Florida Project and North Palm Beach

County/Loxahatchee River Watershed Waterbodies, except when stormwater discharge or wet season discharge occurs; Lake Okeechobee; Central and Southern Florida Project; the Caloosahatchee River/Canal; and the Saint. Lucie River/Canal.

3. No Change.

C. No Change.

D. No Change.

3.2 Source Specific Criteria

3.2.1 Restricted Allocation Areas

Due to concerns regarding water availability, the following geographic areas are restricted with regard to the utilization of specific water supply sources. These areas and sources include the following:

E. Lower East Coast Regional Water Availability

In addition to all other applicable consumptive use statutory and rule provisions, the following restrictions shall apply when allocating surface water and Biscayne/Surficial Aquifer System water by permit for water use withdrawals within the Northern Palm Beach County Service Area, and Lower East Coast Service Areas 1, 2, and 3, and the Interior Martin County and Northwest Loxahatchee River Water Use Basins, as depicted in Figures 3-1 and 3-2.

Subsection 3.2.1.E is a component of recovery strategies for MFLs for the Everglades and the Northwest Fork of the Loxahatchee River, as set forth in Chapter 40E-8, F.A.C., and assists in implementing the objective of the District to ensure that water necessary for Everglades restoration and restoration of the Loxahatchee River Watershed is not allocated for consumptive use upon permit renewal or modification under this rule.

1. - 2. No Change.

The evaluation of water withdrawn from Waterbodies under this section shall address the impacts of the proposed use on surface water and groundwater from: a) integrated conveyance systems that are hydraulically connected to the subject Waterbodies and are tributary to or receive water from such Waterbodies; and b) the Waterbodies. Integrated conveyance systems that are hydraulically connected to the subject Waterbodies include primary canals used for water supply including, but not limited to, the Central and Southern Florida Project Canals, the Lower East Coast Waterbodies Primary Canals, the North Palm Beach County/Loxahatchee River Watershed Waterbodies Primary Canals, and secondary and tertiary canals that derive water from primary canals.

3. The "base condition water use" shall be as provided below, but in no case shall exceed the withdrawal permitted to the applicant as of April 1, 2006 for uses within the northern Palm Beach County Service Area and Lower

East Coast Service Areas 1, 2 and 3. For uses within the Interior Martin County and Northwest Loxahatchee River Water Use Basins not subject to these provisions before [rule effective date], the "base condition water use" shall be as provided below, but in no case shall exceed the withdrawal permitted to the applicant as of April 1, 2022:

a. For the public water supply use class, the maximum quantity of water withdrawn by the applicant from the permitted source during any consecutive twelve month period during the five years preceding April 1, 2006 or April 1, 2022, whichever is applicable. If a permit allocation existing as of April 1, 2006 or April 1, 2022 whichever is applicable, contains an allocation based on a conversion of a water treatment system, the base condition water use shall be increased to account for the additional volume used as if the modified system was operational as of April 1, 2006 or April 1, 2022, whichever is applicable;

b. For the irrigation use class, the quantity of water calculated using Subsection 2.3.1.C to meet demands for the following: 1) the number of acres actively irrigated by the applicant over the duration of the irrigation permit existing as of April 1, 2006 or April 1, 2022, whichever is applicable; or 2) if the irrigation project, or a portion thereof, has not yet been constructed pursuant to a required surface water management construction permit or environmental resource permit as of April 1, 2006 or April 1, 2022, whichever is applicable, the number of acres authorized to be irrigated by such project when constructed consistent with a water use permit existing as of April 1, 2006 or April 1, 2022, whichever is applicable.

c. For diversion and impoundment use class, the demands of the applicant calculated pursuant to Subsection 2.3.2.C for the physical conditions of the diversion and impoundment system as of April 1, 2006 or April 1, 2022, whichever is applicable; or

d. For other use classes, the quantity of water withdrawn by the applicant during the twelve months preceding April 1, 2006or April 1, 2022, whichever is applicable.

In determining the base condition water use pursuant to Subsections a. through d. above, the District shall consider and allow adjustments if the applicant demonstrates that such use is not representative of normal operations due to unanticipated conditions affecting the actual quantity of water withdrawn, such as extreme climatic conditions or equipment failure. Only uses conducted consistent with the existing consumptive use permit conditions shall be considered in identifying the base condition water use.

The base condition water use shall not exceed that permitted as of April 1, 2006 or as of April 1, 2022, whichever is as applicable.

The base condition water use shall include water made available through implementation of offsets, alternative water supplies or terminated or reduced base condition water uses, specifically required by permit condition to prevent increased water from being withdrawn from the subject Waterbodies. Under these circumstances, the applicant shall demonstrate that such actions were implemented and function as required by the permit.

4. No Change.

5. If the comparison of the evaluations identified in Subsection 3.2.1.E.4. above, identifies an increase in the volume or change in timing of water required to be withdrawn from the Waterbodies, the applicant shall do one of the following:

a.-c. No Change.

d. Terminated or reduced base condition water use. Identify terminated or reduced base condition water uses as stated below. The request will be approved if the applicant demonstrates that the requested allocation does not cause an increase in volume or change in timing of withdrawals from the Waterbodies over the applicant's base condition water use due to the reduction or elimination of other base condition water uses that existed on April 1, 2006 or April 1, 2022, whichever is applicable. The applicant must demonstrate that water is available by providing documentation of the implementation of a substitution credit [Subsection 62-40.416(8), F.A.C.] or other modification or termination of the historic consumptive use permit prior to issuance of the proposed permit under this rule; or,

e. Available wet season water. Identify water is available during the wet season as set forth below. The wet season water will be approved if the applicant demonstrates that water is available under the conditions described below during the wet season, provided the applicant demonstrates that such water is not required achieve the restoration benefits to the Waterbodies pursuant to the Comprehensive Everglades Restoration Plan, North Palm Beach County Comprehensive Water Management Plan, the Acceler8 program. Water available under these conditions shall be limited to wet season discharges that are projected to persist following implementation of the entire Comprehensive Everglades Restoration Plan, North Palm Beach County Comprehensive Plan, North Palm Beach County Comprehensive Water Management Plan and Acceler8 program.

i.-iii. No Change.

The District will assist the applicant in identifying the best available information necessary to make the determination of wet season water availability. Offsets, alternative water sources and terminated or reduced base condition water uses implemented after April 1, 2006 or April 1, 2022, whichever is applicable shall be considered in addressing requested increases in withdrawals from Waterbodies under this section. Notwithstanding, as stated in Subsection 3.2.1.E.e, water made available from the permitted source through offsets, alternative water supplies and terminated or reduced base condition water uses implemented consistent with permit conditions to prevent increased water from water being withdrawn from the subject Waterbodies, shall be considered in the base condition water use.

6.-7. No change.

7. renumbered as 8.

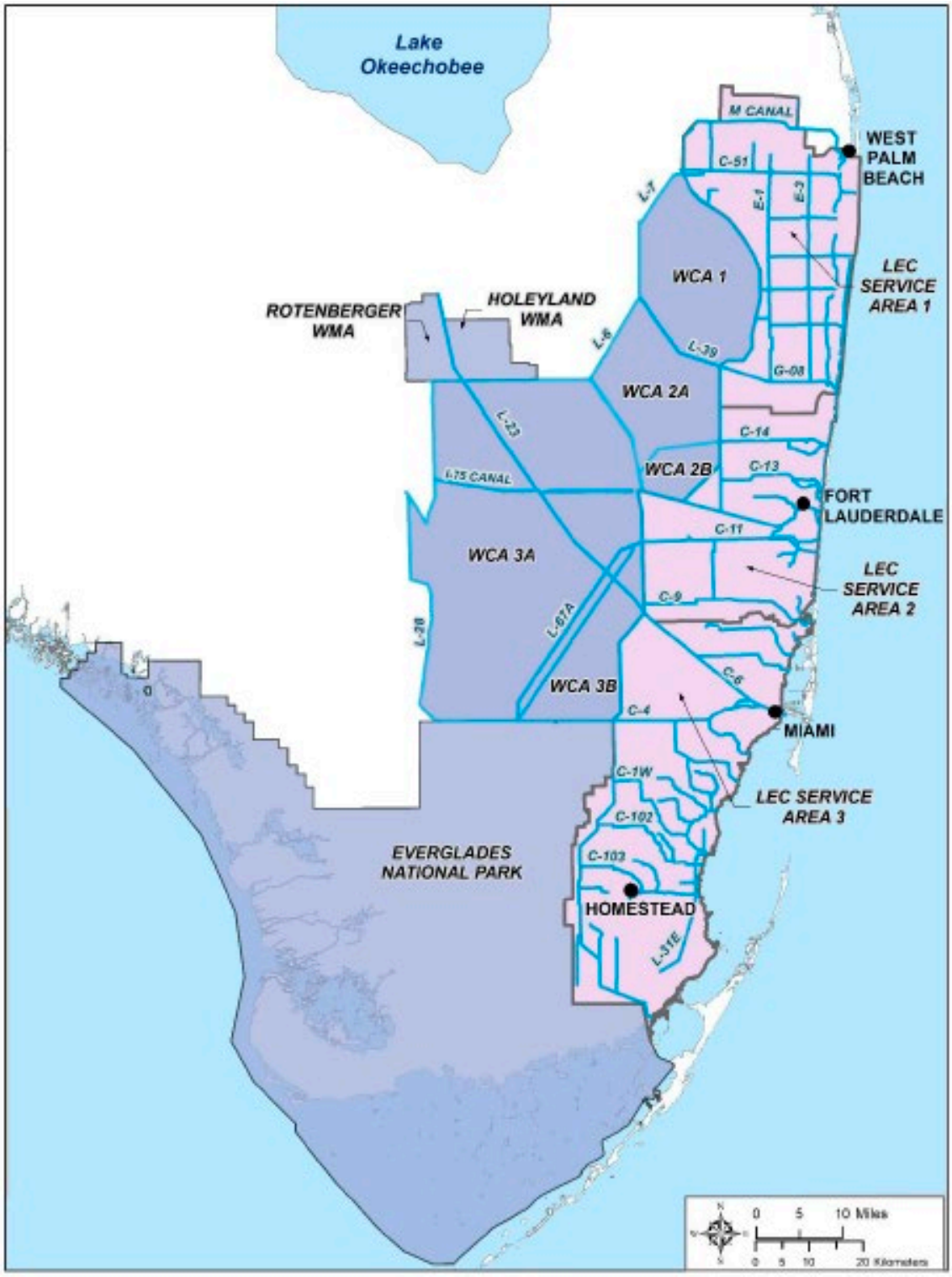


Figure 3-1. Lower East Coast Everglades Waterbodies and Primary Canals.

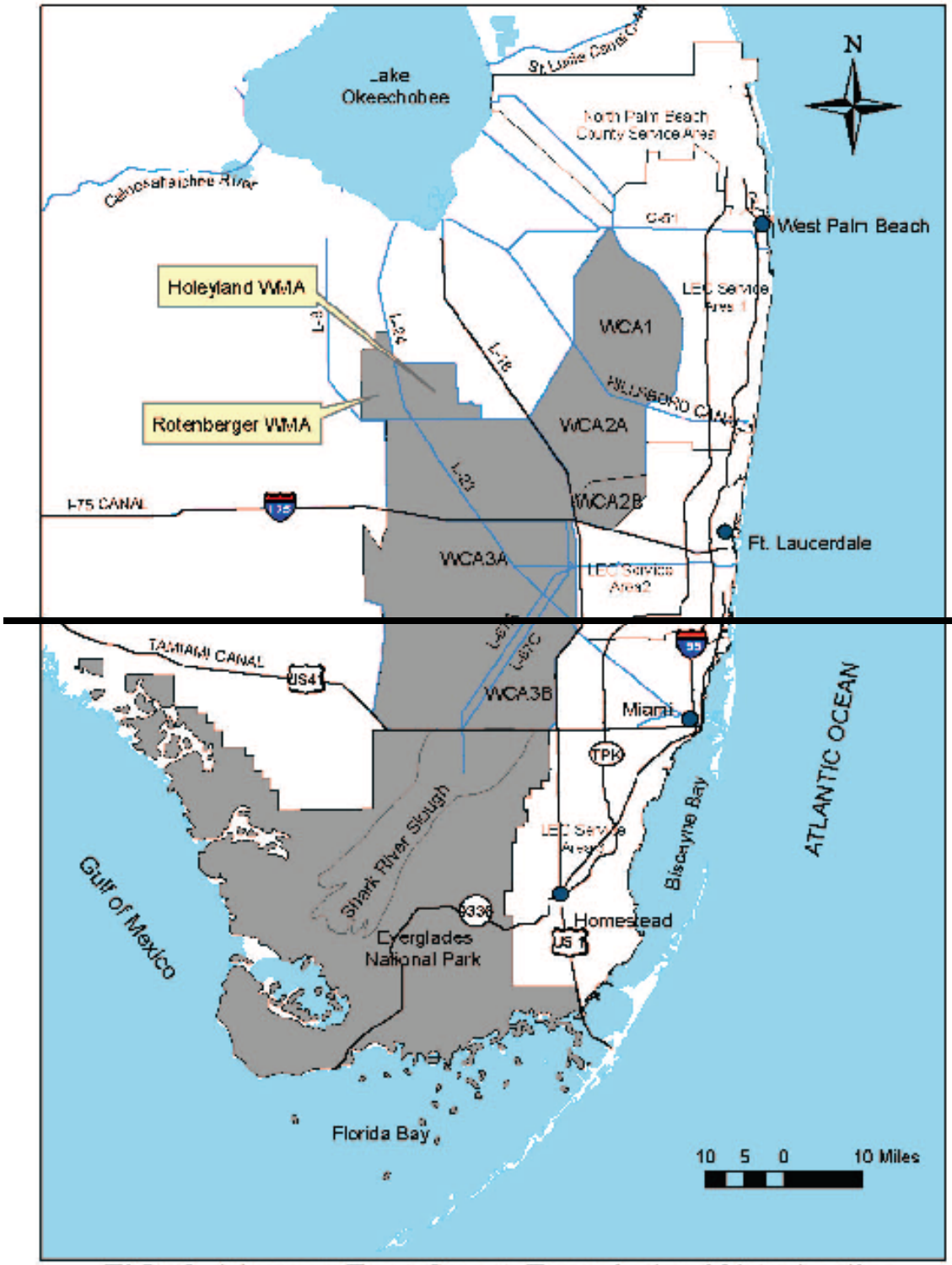


FIG. 3-1:Lower East Coast Everglades Waterbodies and Major Integrated Conveyance Canals

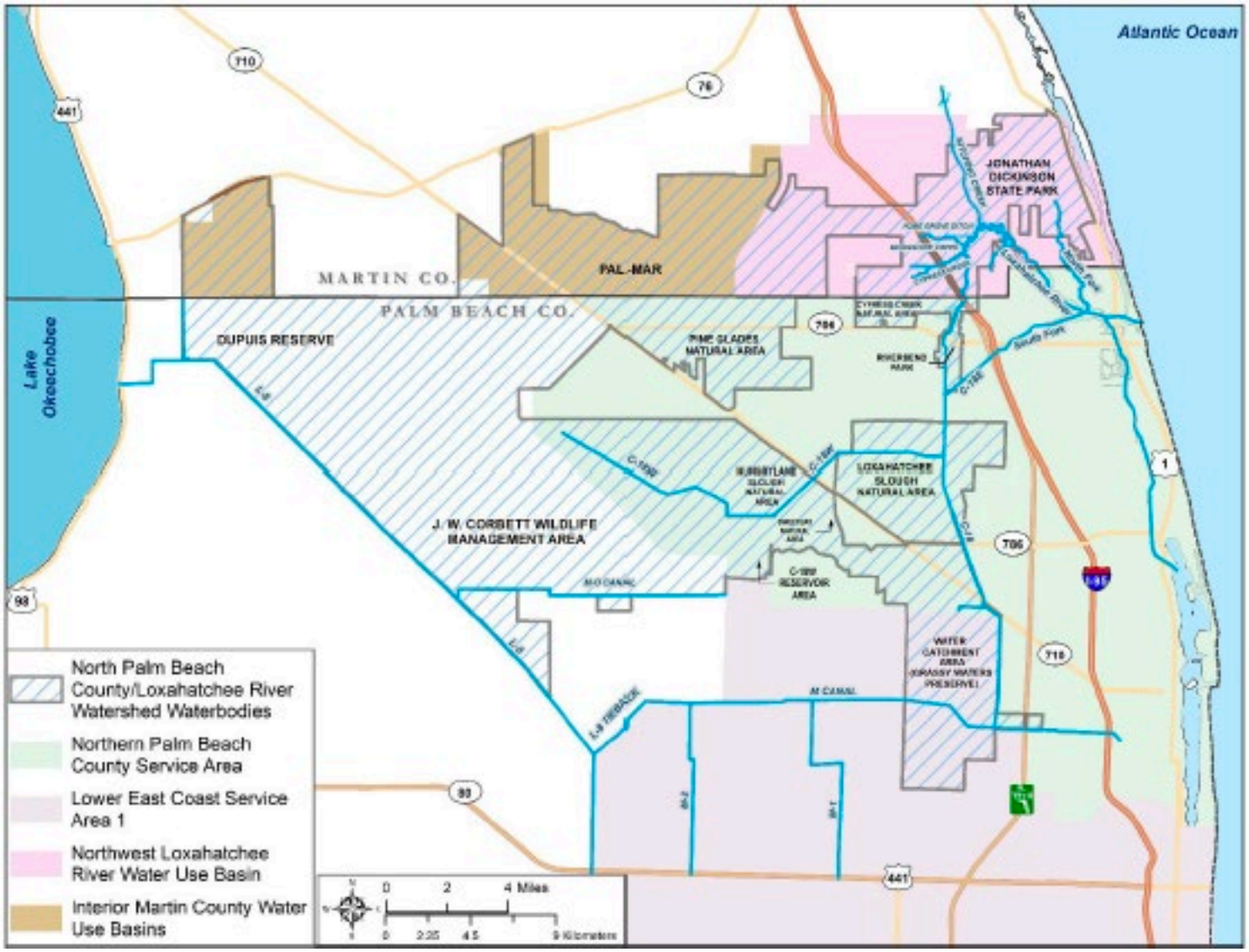


Figure 3-2. North Palm Beach County/Loxahatchee River Watershed Waterbodies and Primary Canals.

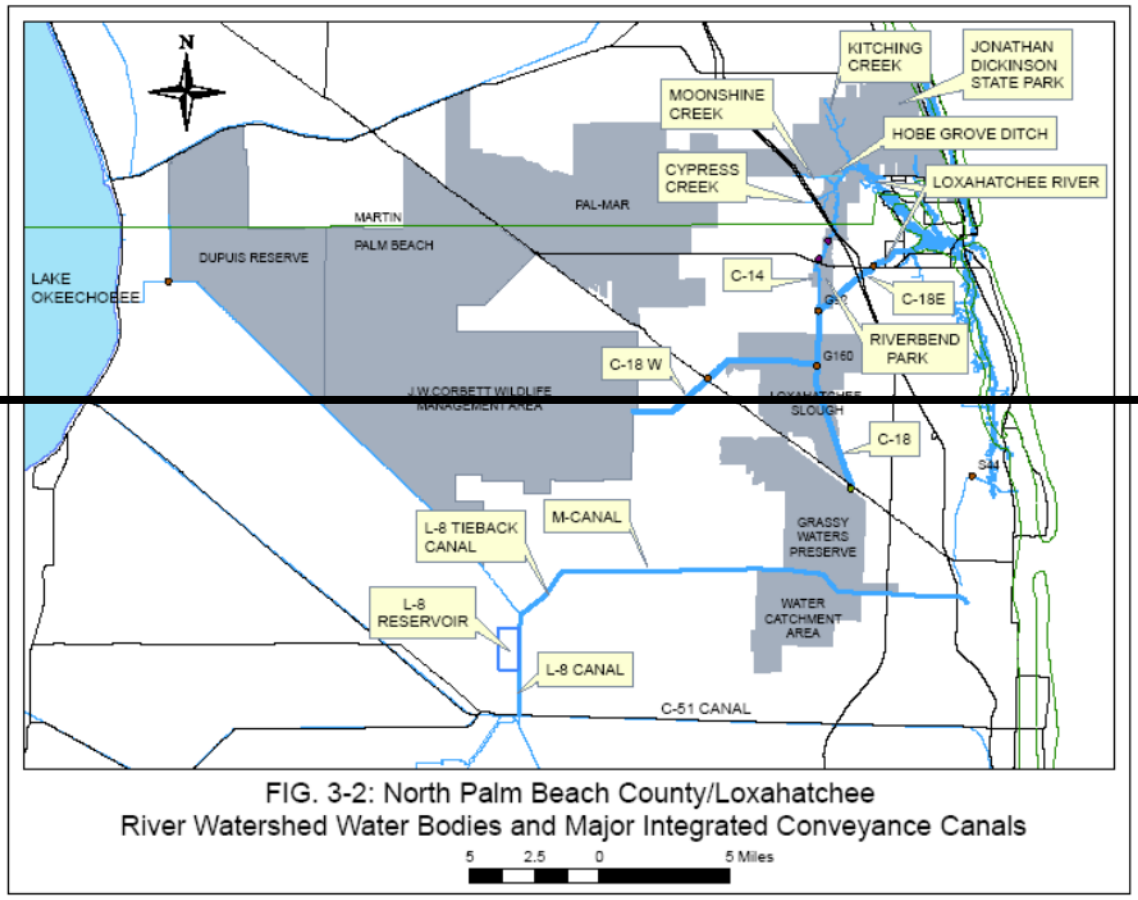


FIG. 3-2: North Palm Beach County/Loxahatchee River Watershed Water Bodies and Major Integrated Conveyance Canals

G. Utilization of the Upper Floridan Aquifer System and Avon Park Permeable Zone Near the C-18W Reservoir Aquifer

The following restrictions shall apply when allocating groundwater stored in the upper Floridan aquifer system (UFA) and the Avon Park permeable zone (APPZ) beneath the C-18W Reservoir, as depicted in Figure 3-4. This subsection assists in implementing the District's objective of ensuring that water necessary for the restoration of the Loxahatchee River Watershed is not allocated to consumptive use upon permit issuance, renewal, or modification under these criteria.

~~The~~ An applicant seeking to withdraw groundwater from the UFA or the APPZ shall provide reasonable assurance that the requested allocation will not adversely impact the portion of the ~~upper FAS~~ UFA or APPZ underlying the C-18W Reservoir and associated buffer zone delineated in Figure 3-4 only to the extent the aquifer storage and recovery wells associated with the C-18 Reservoir use both zones. If the aquifer storage and recovery wells use only one zone, then only applicants using that zone will have to provide reasonable assurance that the requested allocation will not adversely impact the portion of the zone underlying the C-18W Reservoir and associated buffer zone. This demonstration is provided when the following criteria, pursuant to the impact evaluation provisions in Subsection 3.1.2, are met:

1. The requested allocation will not intersect the zone delineated in Figure 3-4; or,

2. If the cone of depression for the requested allocation intersects with the ~~upper FAS groundwater~~ buffer zone delineated in Figure 3-4, the requested allocation will not reduce the anticipated recovery efficiency during the initial construction and testing phase or the recovery efficiency established during the operational phase of the ASR system, as appropriate.

For existing legal users of the UFA and APPZ as of [rule effective date] whose cone of depression intersects the zone delineated in Figure 3-4, the use may be renewed. However, no additional allocation that increase the withdrawal's impact beyond that of the previously permitted use as of [rule effective date] will be authorized, unless the existing legal use uses a zone that is different from the one used by the aquifer storage and recovery wells associated with the C-18 reservoir or the applicant can demonstrate compliance with Subsection 3.2.1.G.2., above.

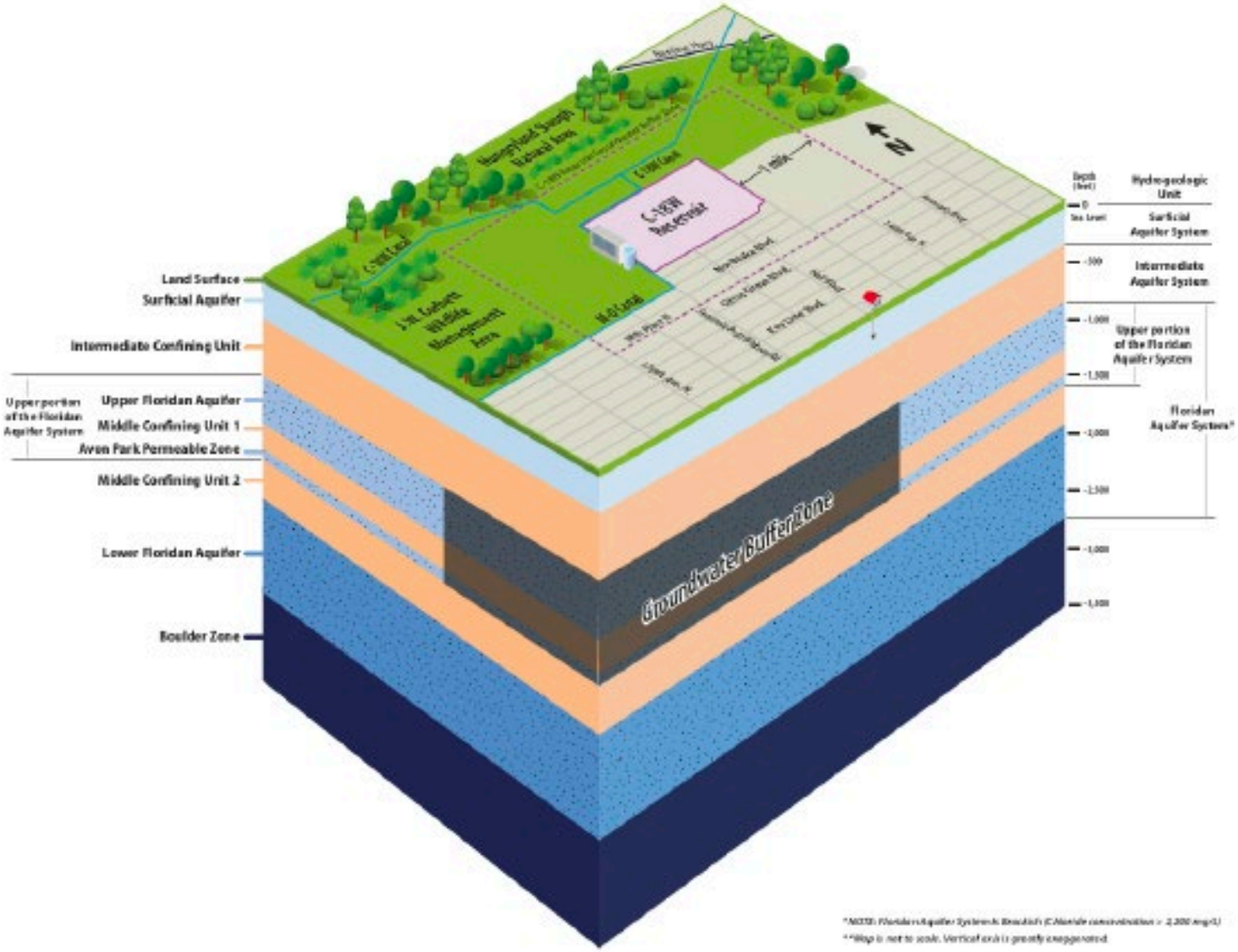


Figure 3-4. Protected area in the UFA and APPZ related to the ASR wells at the C-18W Reservoir.

3.7 Interference with Existing Legal Users

To obtain a water use permit the applicant must provide reasonable assurance that it will not interfere with any existing legal use of water, pursuant to Section 373.223(1)(b), F.S. In general, an applicant must provide reasonable assurances that the proposed withdrawal of water, together with other exempt or permitted uses ~~withdrawals~~ within the cone of influence of the proposed withdrawal, will not result in interference with those existing legal uses.

3.7.3 Mitigation Requirements for Interference with Existing Legal Uses

If the applicant cannot provide reasonable assurance that a proposed withdrawal will not interfere with existing legal uses, the applicant must submit a mitigation plan. The mitigation plan shall identify actions necessary to mitigate for interference once the impact has occurred, or is imminent. Such actions must be sufficient to provide water consistent with the authorized use and will require a permit modification if required by Rule 40E-2.331, F.A.C. As necessary to offset the interference, mitigation will include pumpage reduction, replacement of the impacted individual's equipment, relocation of wells, change in withdrawal source, or other means. If the existing legal use is a Comprehensive Everglades Restoration Plan ASR system, replacement of the impacted ~~user's~~ use's equipment shall not be included in the mitigation plan.

Once the permit is issued, the permittee shall mitigate interference with existing legal uses that was caused in whole or in part by the permittee's withdrawals, consistent with the approved mitigation plan. The mitigation plan will require a permittee to mitigate immediately, or upon the actual occurrence of an interference. The determination of when mitigation is required is based upon the likelihood that the interference is projected to occur.

March 31, 2022

Department of Environmental Resources Management
2300 North Jog Road, 4th Floor
West Palm Beach, FL 33411-2743
(561) 233-2400
FAX: (561) 233-2414
www.pbcgov.com/erm

Natalie Kraft
Lead Scientist, Applied Science Bureau
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33406

SUBJECT: PALM BEACH COUNTY COMMENTS ON RULEMAKING TO PROTECT WATER MADE AVAILABLE BY THE LOXAHATCHEE RIVER WATERSHED RESTORATION PROJECT

Dear Ms. Kraft:

Palm Beach County (County) continues to support South Florida Water Management District (SFWMD or District) efforts to advance Comprehensive Everglades Restoration Projects (CERP) and the ongoing rulemaking to protect water made available by the Loxahatchee River Watershed Restoration Project (LRWRP). The County is grateful for the March 22, 2022, meeting between District staff and County staff to discuss the County's concerns that were identified in its February 7, 2022 and March 7, 2022 comment letters. The County submits this comment letter following that meeting and its review of the revised Applicant's Handbook for Water Use Permit Applications (Applicant's Handbook) and updated draft Technical Document (Technical Document) that were provided to the County on Friday, March 25, 2022.

Overall, the County appreciates that the District addressed many of the concerns raised by the County in its previous comment letters in the March 25, 2022 revisions. As previously mentioned, the County is an integral partner and stakeholder in the joint state-federal process to restore and protect the Loxahatchee River watershed and a consumptive use permittee. In addition, the County's Environmental Resources Management Department is the steward of over 30,700 acres in the Loxahatchee River watershed, including natural areas that are directly affected by this rulemaking effort such as Loxahatchee Slough Natural Area, Hungryland Slough Natural Area, Pine Glades Natural Area, and Sweet Bay Natural Area. After reviewing the Applicant's Handbook and Technical Document, the County supports most of the March 25, 2022 revisions to the Applicant's Handbook, however, the County believes additional refinements can be made to improve the proposed rule language before the final Applicant's Handbook and Technical Document are presented to the District's Governing Board at its April 14, 2022 business meeting. Below are the County's recommendations on the subject rulemaking effort:

1) First, the County supports SFWMD's further revisions to Applicant's Handbook Section 1.1 (Definitions) as well as Figure 3-1 and Figure 3-2. The County specifically appreciates the refinements in Figure 3-2 related to County owned natural areas. The County also recognizes the District's inclusion and identification of primary canals within both Figure 3-1 and Figure 3-2. Identifying the primary canals in both Figure 3-1 and Figure 3-2 is an overall improvement, but the County agrees with the City of West Palm Beach's (City) observation, submitted in its March 30, 2022, comment letter, that the Lower East Coast Everglades Waterbodies primary canals and the North Palm Beach County/Loxahatchee River Watershed Waterbodies primary canals need to be clearly defined. The County supports the City's proposed revisions related to Applicant's Handbook Section 1.1 (Definitions) and believes the proposed revisions will provide additional clarity and a better understanding to stakeholders and the regulated community on what waterbodies are subject to the final rule language. If the City's proposed revisions are made, the County also recommends that District staff ensure that Section 1.2 of the Technical Handbook include the same list of primary canals for consistency between the two documents.

2) Next, the County is grateful the District listened to stakeholder comments and concerns regarding the potential implications of the groundwater criteria within prior drafts of the proposed rule. The removal of Section 3.7.2.E. and current revisions to the Applicant's Handbook Section 3.2.1.G are an improvement from the previous draft rule language. The County specifically appreciates SFWMD revising the proposed adverse impact criteria within Applicant's Handbook Section 3.2.1.G. The current proposed rule language now comports not only with other sections of the Applicant's Handbook but also with the statutory framework, that forms the basis of consumptive use permitting. However, the late addition of groundwater restrictions in the Avon Park Permeable Zone seems to have created some inconsistencies within the proposed rule that should be rectified. The City also noted this fact and provided proposed revisions to differentiate between groundwater allocations from the Avon Park Permeable Zone and Upper Floridan Aquifer system. The County supports the City's proposed revisions and believes the District should incorporate the same into the final rule.

The County hopes SFWMD will take the time to review these written comments and incorporate the City's proposed revisions into the final Applicant's Handbook criteria. The County also recommends that District staff ensure there are no inconsistencies between the final Applicant's Handbook and final Technical Document. The County appreciates District staff's commitment to this rulemaking effort and looks forward to its continuing partnership and mutually beneficial working relationship to maintain and enhance Loxahatchee River watershed as well as South Florida's water resources.

Sincerely,

Deborah Drum, Department Director
Environmental Resources Management, Palm Beach County

cc: Lawrence Glenn, South Florida Water Management District
Sky Notestein, South Florida Water Management District
Jay Steinle, South Florida Water Management District
Jennifer Brown, South Florida Water Management District
Simon Sunderland, South Florida Water Management District
Patrick Rutter, Assistant County Administrator, Palm Beach County
Todd Bonlarron, Assistant County Administrator, Palm Beach County
Ali Bayat, P.E., PMP, Director, Water Utilities Department, Palm Beach County
Michael W. Jones, Chief Assistant County Attorney, Palm Beach County
Scott A. Stone, Assistant County Attorney, Palm Beach County
Laura S. Olympio, Manson Bolves Donaldson Varn
Sheryl G. Wood, Manson Bolves Donaldson Varn

INDIAN TRAIL
IMPROVEMENT DISTRICT
Est. 1957

March 31, 2022

SFWMD Governing Board
c/o Ms. Natalie Kraft, via email: nkraft@sfwmd.gov
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406

RE: SFWMD Draft Loxahatchee River Rule

Indian Trail Improvement District (Indian Trail) must oppose the proposed Rulemaking modifications to your Consumptive Use Permits to address revisions for the CERP Loxahatchee River Plan. The Indian Trail Board of Supervisors has not been contacted regarding any Agreement to utilize the "W*orks of the District*" that are included in the Loxahatchee River Plan.

The Loxahatchee River Plan (Plan) is good for the River's eco-system, but has no substantial benefit, but perhaps a negative impact for Indian Trail. The US Army Corps of Engineers (Corps) is requiring South Florida Water Management District (SFWMD) to develop a rule to protect the water saved by the Plan for the Loxahatchee River. This prioritizes the use of current discharges for the River and may hinder or prevent the use of this water for planned or other potential future uses if not permitted by 2006 via a consumptive use permit. While SFWMD staff cite Indian Trail's use for rehydration of the *Moss Property* and future uses in our proposed 640-acre Impoundment will fall under the protection of the "savings clause" and/or will not need consumptive use permits, Indian Trail has been disappointed with past promises.

Indian Trail's M-1 Basin lost all its allowable discharge to the C-51 Canal in the 1970's when the C&SFFCD (SFWMD) determined the C-51 Canal could not accept the previously permitted flows. Indian Trail was forced to close one of its 2 Amil Gates that discharged into the C-51 Canal "with the stipulation that one of the gate will be blocked off or otherwise rendered inoperative until such time as the C-51 improvements have been implemented", see attached 11/22/72 letter to Indian Trail. The remaining gate discharge was assigned to the Village of Royal Palm Beach. The planned improvements to the C-51 Basin at the time included building the C-51 West Impoundment (this evolved into STA 1-E).

Indian Trail Improvement District
www.indiantrail.com
13476 61st Street | West Palm Beach | Florida | 33412
Office: 561.793.0874 | Fax: 561.793.3716

INDIAN TRAIL
IMPROVEMENT DISTRICT
Est. 1957

This promise was broken which resulted in a lawsuit that was settled by a Memorandum of Agreement (MOA) dated 7/14/97, see attached. Indian Trail is still, as of this date 25 years later, waiting on SFWMD to fulfill its obligations contained in the MOA.

Our second major disappointment came from the joint decision by SFWMD, FDEP, and the EPA to utilize the L-8 Reservoir as included in the CERP North Palm Beach County Plan as a Flow Equalization Basin to settle the Everglades lawsuit. Indian Trail was promised an increase in discharge from 274 cfs to 1100 cfs to the L-8 Basin in this NPBC Plan. Yet, another significant promise broken and left to bear by the District residents and landowners.

Indian Trail Improvement District has been left to fend for itself with limited financial resources in the overall decision-making process. Use of the "*Works of the District*" by others must be addressed and may not be possible unless all operations are completely controlled by Indian Trail. Please note that Indian Trail is by State law benefits assessed. Agreement(s) with Indian Trail must be made prior to the implementation of revised Consumptive Water Use Rules or the use of the "*Works of the District*" must be excluded from the Loxahatchee River Plan.

Also attached as supporting documentation are:

1. Indian Trail Improvement District's 2018 Agreement for Donation of Real Property from Palm Beach West Associates I, LLLP for the 640-acre future Impoundment.
2. A comments letter from the Indian Trail Improvement District Engineer dated 3/7/22.

Indian Trail Improvement District is in support of restoration of the Loxahatchee River, but must either be a partner in the process or Indian Trail and its "*Works*" must be entirely excluded from the project and any associated rules.

Very Truly Yours,

Michael Johnson
President
Board of Supervisors

Burgess Hanson
Executive Director

Jay G. Foy, P.E.
District Engineer

Indian Trail Improvement District
www.indiantrail.com
13476 61st Street | West Palm Beach | Florida | 33412
Office: 561.793.0874 | Fax: 561.793.3716

CENTRAL AND SOUTHERN FLORIDA

G. E. DAIL, Jr., Executive Di

FLOOD CONTROL DISTRICT

P. O. BOX 1671
WEST PALM BEAC
FLORIDA 33402
Telephone (305) 655-

IN REPLY REFER TO: 7-C51-82

November 22, 1972

File C-51
Date Rec'd. 11-27-72
Route to | Init.
Wood
Beard
Lopez
Drafting
Mary

Mr. Arthur F. Wood, P.E.
Wood, Beard and Associates, Inc.
P. O. Box 1449
Fort Pierce, Florida 33450

Dear Mr. Wood:

Reference is made to the recent meetings between you, as Engineer for Royal Palm Beach Colony, Inc., and District representatives in which the status of Permit No. 1207, issued by the District to Royal Palm Beach Colony, Inc., was discussed.

Permit No. 1207, issued March 7, 1960, allows an inflow of 2230 cfs. into the West Palm Beach Canal (C-51) at the stage of 14.0 ft. msl. for approximately 29 square miles. This equals approximately 2.9 inches of daily runoff. Future design for the area west of S.R.#7 calls for two inches of runoff for urban development. The present canal system will handle only one inch of runoff.

The following items were discussed with you at the November 13, 1972 meeting:

1. The present allowable inflow is 780 cfs.

2. The ultimate allowable inflow will be 1560 cfs.

3. The District will allow the construction of a structure with 2-Amil Type D-710 gates with a discharge capacity of +780 cfs. each with the stipulation that one gate will be blocked off or otherwise rendered inoperative until such time as the C-51 Improvements have been implemented.

4. That a 48 Inch CMP culvert with riser will be installed in the Main Canal just north of the City of West Palm Beach's "M" Canal and that boards will be set to an elevation of 19.0 ft. msl.

5. That storm runoff will be stored to this elevation upstream of the culvert until the stages in C-51 drop down to normal.

EXHIBIT E

Please furnish this District a letter, executed by the appropriate corporate officer, requesting a modification of Permit No. 1207, to cover the following items:

1. Allowable peak inflow of 780 cfs. from the area served by the Royal Palm Beach Canal.

2. Installation of the gated water level control structure in the Royal Palm Beach Canal, with provision for operation of one gate only.

3. Installation of the 48-inch culvert with riser, flashboards to elevation 19.0 ft. msl., immediately north of Canal M.

4. Inflow from area north of Canal M to be limited during storm runoff periods to the capacity of the 48-inch culvert with flashboard elevation at 19.0 ft. msl.

For your information, the original permit application was executed by Mr. Norman A. Cortese, Vice President of the Corporation.

Sincerely,

G. E. DAIL, JR.
Executive Director

GED:wsg

Memorandum of Agreement (MOA)
Between
Indian Trail Improvement District (ITID)
And
South Florida Water Management District (SFWMD)

This MOA becomes effective upon the substantial completion of the western C-51 project and specifically when S-155A becomes operational. The specific conditions of the MOA are as follows.

1. Operations of the ITID that drain stormwater into C-51 via the M-1 canal will occur in one of three modes: normal, conditional, or emergency as defined below. Maximum allowable discharges from the Amil Gates on the M-1 canal, other operational requirements, and agencies' responsibilities are described in the attached table (Exhibit "A") entitled: OPERATIONAL REQUIREMENTS, MAXIMUM ALLOWABLE DISCHARGES, AND AGENCIES' RESPONSIBILITIES.

Normal Operations

Normal operations are defined as operations that are allowed at all times except times defined in conditional and emergency operations.

During normal operations, ITID will have flexibility and ability to manage its operations independently and required communications and coordination efforts with SFWMD will be minimal.

Conditional Operations

Conditional operations are defined as operations that occur when water levels anywhere in the western C-51 canal reach a level within 0.5 feet below design stage.

During conditional operations, ITID will have reduced flexibility and ability to manage its operations independently and required communications and coordination efforts with SFWMD will be moderate.

Emergency Operations

Emergency operations are defined as operations that occur when one or more of the following exist:

A. S-155A must be closed due to operational criteria set by the Corps of Engineers' in the Western C-51 Design Memorandum;

B. the water level at SFWMD telemetry station known as "WATER" or "WATERVIEW" or "WTVW+STG" at bridge number 934251 on the canal at Congress Avenue exceeds 9.0 feet, NGVD [This elevation will be re-evaluated cooperatively by SFWMD and ITID prior to S-155A becoming operational.];or

C. the water level at any point along the western C-51 (westward of S-155A) exceeds design conditions as specified in the Corps of Engineers' Western C-51 Design Memorandum; or,

D. an emergency has been declared in eastern or western C-51 basin by the Governing Board of the SFWMD pursuant to Sections 120.569(2)(d), 373.119, and 373.439, Florida Statutes, and Rules 40E-4.451 and 40E-1.609(9), Florida Administrative Code.

During emergency operations, ITID operations must be coordinated with other operations in the basin and will require authorization of the SFWMD's Operations Director or the Operations Director's designee. Required communications and coordination efforts with SFWMD will be frequent.

2. At a future date, SFWMD may authorize additional outfall points elsewhere in the system and require that discharges into C-51 be reduced. This is acceptable provided:

A. ITID maintains a discharge equivalent to its permitted discharge from the M-1 Basin.

B. ITID Board of Supervisors agrees.

3. The SFWMD will not tax or assess ITID or its properties or residents to any greater extent than any other properties in the western C-51 basin for flood mitigation provided under this MOA.

4. In order to avoid overdrainage, ITID discharges from the M-1 basin shall not cause violation of control water elevations specified in ITID's SFWMD permits issued pursuant to Part IV, Chapter 373, Florida Statutes.

GENERAL CONDITIONS

This MOA may only be modified upon mutual written agreement by authorized representatives of the parties with approval of their governing bodies.

This MOA is subject to the provisions of Chapter 373, Florida Statutes.

ITID will seek modification of their surface water management permit (permit # 50-00761-S), in accordance with the SFWMD's applicable regulatory criteria, to incorporate provisions of this agreement that relate to surface water regulatory issues. If such modification is not granted within six months of application, this agreement shall become null and void. This six-month modification approval period may be extended upon mutual agreement of the parties. Approval of this MOA does not guarantee issuance of a permit modification.

Nothing contained in this MOA commits the SFWMD to fund any of the elements of the Operational Requirements imposed upon the ITID relative to the allowable discharges from the Amil Gates on the M-1 Canal.

This MOA does not relieve the ITID or the SFWMD of the need to comply with all applicable federal, state, or local laws, rules or ordinances.

During emergency operations, ITID shall comply with emergency operational instructions issued by SFWMD. SFWMD shall issue operational instructions during emergencies to ITID and others in emergency area specifying water levels and discharges required to coordinate emergency operations.

The limiting and special conditions currently placed or as may be modified in the ITID's permits issued pursuant to Part IV, Chapter 373, Florida Statutes, shall remain in full force and effect during the duration of this MOA.

This MOA does not convey any property right to the ITID, or any rights and privileges other than those specified in this MOA.

This MOA and appropriate permit modification incorporates, embodies, and expresses all agreements and understanding between and among the SFWMD and the ITID concerning settlement of case # 97-4050, U. S. Eleventh Circuit Court of Appeals.

ITID will dismiss with prejudice case # 97-4050, U. S. Eleventh Circuit Court of Appeals upon approval of the permit modification.

This MOA may not be altered except as authorized herein.

DONE AND SO ORDERED at West Palm Beach, Palm Beach County, Florida, this 10th day of July, 1997.

SOUTH FLORIDA WATER MANAGEMENT BY ITS GOVERNING BOARD

BY: Michael Slaton
Deputy Executive Director

BOARD OF SOUTH FLORIDA WATER MANAGEMENT DISTRICT · STATE OF FLORIDA · SEAL · Established 1949

ATTEST:

BY: [signature]
Assistant Secretary

ON: 7-10-97

LEGAL FORM APPROVED

By: Thomas R. Wolfe

ON: 7-10-97

INDIAN TRAIL IMPROVEMENT DISTRICT

BY: [signature]
President, Board of Supervisors

INDIAN TRAIL IMPROVEMENT DISTRICT · PALM BEACH COUNTY · FLORIDA · SEAL

ATTEST:

BY: [signature]

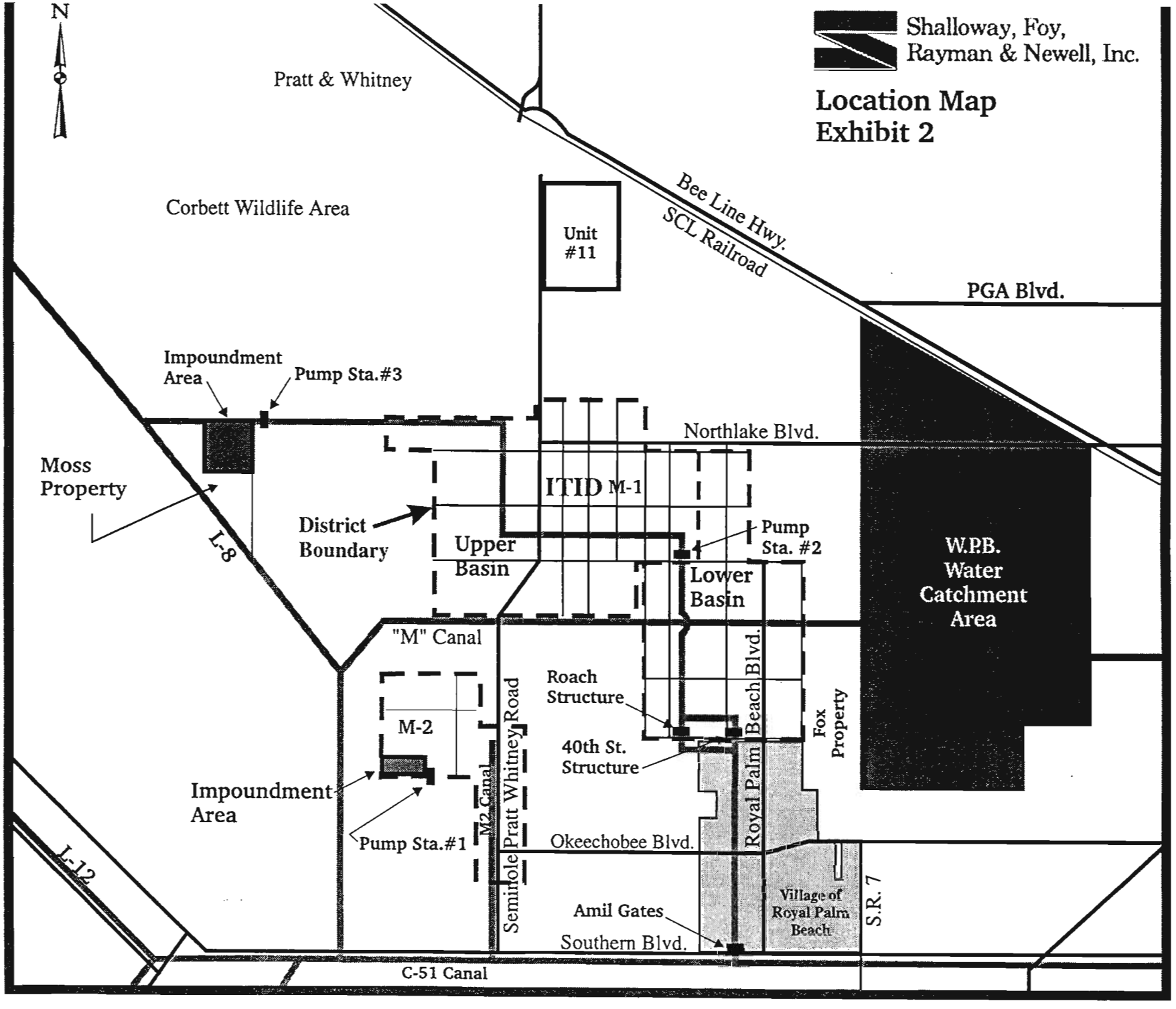
ON: 7/14/97

LEGAL FORM APPROVED

BY: [signature]

ON: 7-14-97

MODE OF OPERATIONS	MAXIMUM ALLOWABLE DISCHARGE FROM M-1 CANAL @ AMIL GATES	ITID RESPONSIBILITIES	SFWMD RESPONSIBILITIES
Normal Operations	1,285 cfs	Distribute maximum allowable discharge between M1 basin and Royal Palm Beach basin in accordance with applicable agreements between the Village of Royal Palm Beach and ITID, permits, and applicable provisions of law.	Monitor overall C-51 conditions. Communicate and coordinate with ITID as necessary. Operate as necessary and in compliance with this MOA, the water control manual, and other requirements: (1) S-155A to make western basin to eastern basin discharges to move M-1 basin discharges to tide as needed, (2) S-155 to make discharges to tide, and (3) S-319 to make discharges to Stormwater Treatment Area 1 East.
Conditional Operations	720 cfs plus the conditional discharge. The conditional discharge is defined as the lesser of: (a) the available hydraulic capacity of S-155A, or (b) 565 cfs. [Conditional discharges will be discharged through S-155A to the eastern C-51 basin and to tide as needed.]	Determine maximum allowable discharge and make distribution between M-1 basin and Royal Palm Beach basin in accordance with applicable agreements between the Village of Royal Palm Beach and ITID, permits, and applicable provisions of law.	
Emergency Operations	Maximum allowable discharge will vary and will be set by SFWMD.	Comply with emergency operational instructions issued by SFWMD.	Issue operational instructions to ITID (and others in emergency area) specifying water levels and discharges required to coordinate emergency operations.
All Operations	See specific mode of operation.	1. Make available in real-time to SFWMD by telemetry discharges (or surrogate measures of discharges) from M-1 basin and Amil Gates. 2. Provide a brief, annual report to SFWMD of all discharges from M-1 basin and Amil Gates. 3. Restrict total discharge from the M-1 basin such that the removal rate does not exceed 1 inch per day unless specifically authorized by SFWMD for purposes such as pre- and post-storm event operations.	Make available in real-time to ITID by telemetry discharges at S-155 and S-155A and water levels at: Congress Avenue bridge, S-155A headwater and tailwater, and stations along western C-51.


N
Shalloway, Foy,
Rayman & Newell, Inc.
Location Map
Exhibit 2
Pratt & Whitney
Corbett Wildlife Area
Unit
#11
Bee Line Hwy.
SCL Railroad
PGA Blvd.
Impoundment
Area
Pump Sta.#3
Northlake Blvd.
Moss
Property
I-8
ITID M-1
District
Boundary
Upper
Basin
Pump
Sta. #2
Lower
Basin
W.P.B.
Water
Catchment
Area
"M" Canal
Roach
Structure
Beach Blvd.
Fox
Property
M-2
40th St.
Structure
Royal Palm
Pratt Whitney Road
Impoundment
Area
M2 Canal
Pump Sta.#1
Okeechobee Blvd.
I-12
Seminole
Amil Gates
Southern Blvd.
Village of
Royal Palm
Beach
S.R. 7
C-51 Canal

NORMAL OPERATIONS SCHEDULE
ITID'S M-1 BASIN
PRIOR TO S-155A BEING OPERATIONAL

CONDITIONS						DISCHARGE TO		
SEASON	MONTHS	IMPOUND -MENT	UPPER BASIN		LOWER BASIN	L-8	C-51	M-CANAL VIA PILOT PUMP OR L-8 PLANS
WET	JUNE-OCT	≤16	≤16	&	≤15	NO	NO	WHEN AUTHORIZED[1]
		>16	≤16	&	≤15	YES	NO	
		>16	16	&/OR	>15	YES	YES IF VRPB <16.5[2] & C-51 <10	
DRY	NOV-APR	≤21	≤17	&	≤17	NO	NO	WHEN AUTHORIZED[1]
		>21	17	&/OR	>17	YES	YES IF VRPB <16.5[2] & C-51 <10	
TRAN-SISTION	MAY	≤21	≤16	&	≤15.5	NO	NO	WHEN AUTHORIZED[1]
		>21	>16	&/OR	>15.5	YES	YES IF VRPB <16.5[2] & C-51 <10	

[1] In accordance with the "L-8 Plan" or the "Pilot Pump Project".
[2] Guideline for ITID's operation of internal water control elevations.

EXHIBIT 3

NORMAL OPERATIONS SCHEDULE
ITID'S M-1 BASIN
AFTER S-155A BECOMES OPERATIONAL

CONDITIONS						DISCHARGE TO		
SEASON	MONTHS	IMPOUND -MENT	UPPER BASIN		LOWER BASIN	L-8	C-51	M-CANAL VIA PILOT PUMP OR L-8 PLANS
WET	JUNE-OCT	≤16	≤16	&	≤15	NO	NO	WHEN AUTHORIZED[1]
		>16	≤16	&	≤15	YES	NO	
		>16	16	&/OR	>15	YES	YES[3] IF VRPB <16.5[2] & C-51 ≤0.5' of Design	
DRY	NOV-APR	≤21	≤17	&	≤17	NO	NO	WHEN AUTHORIZED[1]
		>21	17	&/OR	>17	YES	YES[3] IF VRPB <16.5[2] & C-51 ≤0.5' of Design	
TRAN-SISTION	MAY	≤21	≤16	&	≤15.5	NO	NO	WHEN AUTHORIZED[1]
		>21	>16	&/OR	>15.5	YES	YES[3] IF VRPB <16.5[2] & C-51 ≤0.5' of Design	

1 In accordance with the "L-8 Plan" or the "Pilot Pump Project".
2 Guideline for ITID's operation of internal water control elevations.
3 Normal discharge is 1285 cfs, also see Exhibit 6 for additional discharge restrictions under "Conditional" and "Emergency" Conditions.

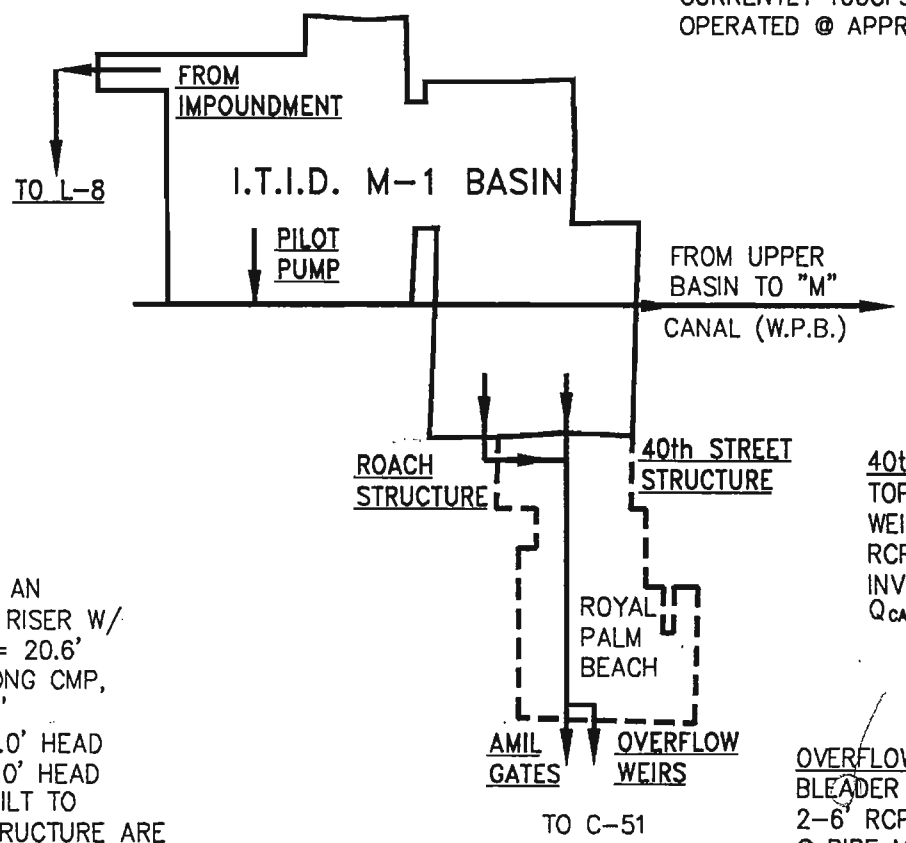
EXHIBIT 4

DISCHARGE FACILITIES FROM: THE UPPER AND LOWER M-1 BASINS AND FROM ROYAL PALM BEACH

FROM IMPOUNDMENT
84" RISERS (2)
WEIR L= 18' @ 24.5'
RECTANGULAR BLEEDER
CENTROID= 21.9', W= 6.75', H= 1.75'
PIPE L= 140', 4.5' DIA., n=0.024
INV.= 15.0'

OPERABLE RISER (1)
WEIR L= 18' @ 24.5'
RECTANGULAR BLEEDER
CENTROID=21.0', W=6.75', H=2.0' (CURRENT)
CENTROID=17.03', W=3.23', H=2.0' (PERMITTED)
$Q_{ALLOWABLE}$ =274 CFS @ EL.= 24.5'

L-8 OUTFALL CANAL DISCHARGE
2- 84" RISERS W/ WEIR CRESTS @ 14.16' EAST & 14.02' WEST. TOP OF RISERS ARE 18.16' EAST & 18.04' WEST. THE DISCHARGE PIPES ARE 100'± 72" CMP EAST & 100'± 84" CMP WEST WITH INV, ELEVATIONS= 8.0'±



PILOT PUMP
Q (TO BE DETERIMINED, CURRENTLY 100CFS PUMPS OPERATED @ APPROX. 75 CFS)

N
N.T.S.

ROACH STRUCTURE
EXISTING STRUCTURE IS AN ALUMINUM 8' DIAMETER RISER W/ WEIR CREST @ 23.4', L= 20.6'
PIPE IS 72" DIA. 68' LONG CMP, n= 0.024, & INV.= 11.7'
$Q_{CAPACITY}$ = 277 CFS @ 4.0' HEAD
= 310 CFS @ 5.0' HEAD
PERMITTED BUT NOT BUILT TO REPLACE THE EXIST. STRUCTURE ARE TWO 84" RCP's, INV.= 7.0' WITH SLUICE GATES.
$Q_{CAPACITY}$ = 655 CFS @ 4.0' HEAD
= 732 CFS @ 5.0' HEAD

40th STREET STRUCTURE
TOP= 19.5'
WEIR LENGTH= 84 FT.
RCP= 5' DIA., L= 76'
INV.= 8.0'
$Q_{CAPACITY}$ = 211 CFS, @ 4.0' HEAD
= 235 CFS @ 5.0' HEAD

OVERFLOW WEIRS
BLEEDER DEVICE
2-6' RCP W/ CONCRETE WEIRS @ PIPE MIDLINE
WEST CREST= 13.42'
EAST CREST= 13.56'

AMIL GATES
1- AUTOMATIC D710
$Q_{ALLOWABLE}$ =720 CFS @ 0.5' HEAD
4- VARIABLE GATES
WIDTH= 5.9' (AVG.), OPEN FROM BOTTOM
$Q_{CAPACITY}$ = 1020 CFS, 4 OPEN @ (13.7'- 9.5') 4.2' HEAD
= 820 CFS, 4 OPEN @ (13.7'- 11.0') 2.7' HEAD

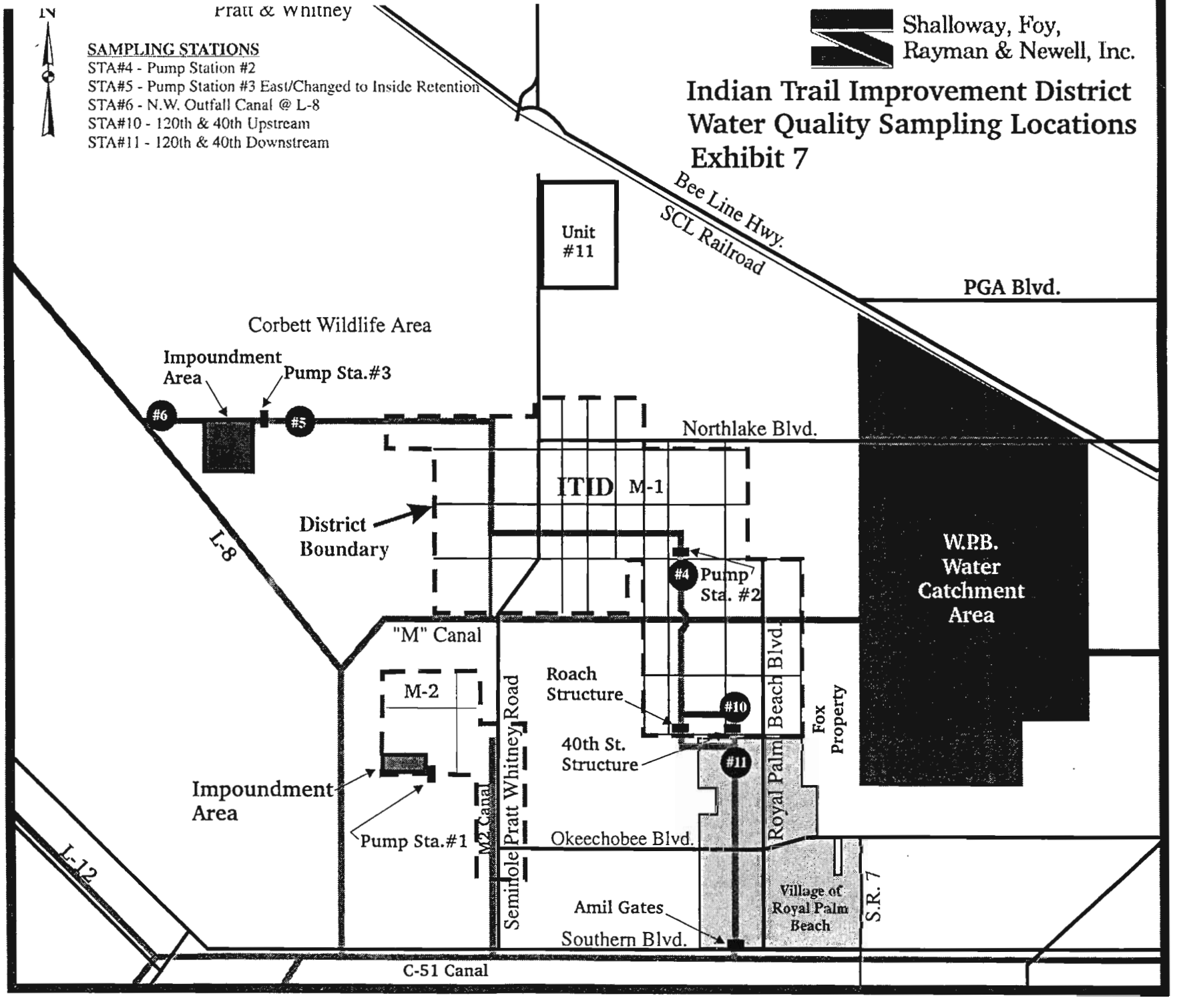
EXHIBIT 5

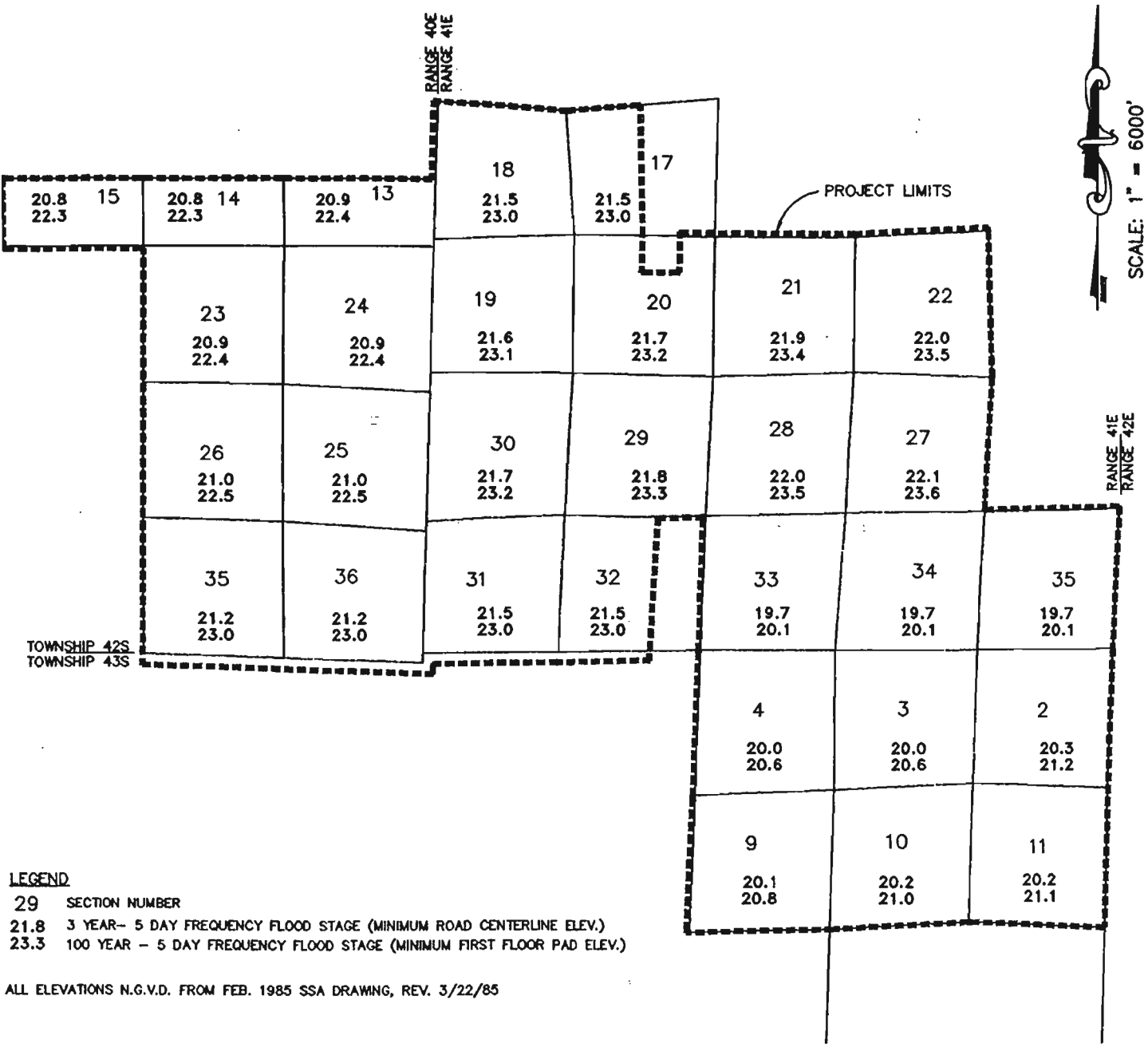
Shalloway, Foy, Rayman & Newell, Inc.
ENGINEERS - PLANNERS - SURVEYORS
1201 BELVEDERE ROAD, WEST PALM BEACH, FLORIDA 33405, (561)655-1151

OPERATIONAL REQUIREMENTS, MAXIMUM ALLOWABLE DISCHARGES, AND AGENCIES' RESPONSIBILITIES AFTER S-155A BECOMES OPERATIONAL

MODE OF OPERATIONS	MAXIMUM ALLOWABLE DISCHARGE FROM M-1 CANAL @ AMIL GATES	ITID RESPONSIBILITIES	SFWMD RESPONSIBILITIES
NORMAL OPERATIONS	1,285 cfs	Distribute maximum allowable discharge between M-1 Basin and Royal Palm Beach Basin in accordance with applicable agreements between the Village of Royal Palm Beach and ITID, permits, and applicable provisions of law.	Monitor overall C-51 conditions. Communicate and coordinate with ITID as necessary. Operate as necessary and in compliance with this MOA, the water control manual, and other requirements: (1) S-155A to make western basin to eastern basin discharges to move M-1 Basin discharges to tide as needed, (2) S-155 to make discharges to tide, and (3) S-319 to make discharges to Stormwater Treatment Area 1 East.
CONDITIONAL OPERATIONS	720 cfs plus the conditional discharge. The conditional discharge is defined as the lesser of: (a) the available hydraulic capacity of S-155A, or (b) 565 cfs. [Conditional discharges will be discharged through S-155A to the eastern C-51 Basin and to tide as needed.]	Determine maximum allowable discharge and make distribution between M-1 Basin and Royal Palm Beach Basin in accordance with applicable agreements between the Village of Royal Palm Beach and ITID, permits, and applicable provisions of law.	
EMERGENCY OPERATIONS	Maximum allowable discharge will vary and will be set by SFWMD.	Comply with emergency operational instructions issued by SFWMD.	Issue operation instructions to ITID (and others in emergency area) specifying water levels and discharges required to coordinate emergency operations.
ALL OPERATIONS	See specific mode of operation.	1. Make available in real-time to SFWMD by telemetry discharges (or surrogate measures of discharges) from M-1 Basin and Amil Gates. 2. Provide a brief, annual report to SFWMD of all discharges from M-1 Basin and Amil Gates. 3. Restrict total discharge from the M-1 Basin such that the removal rate does not exceed 1 inch per day unless specifically authorized by SFWMD for purposes such as pre- and post-storm event operations.	Make available in real-time to ITID by telemetry discharges at S-155 and S-155A and water levels at: Congress Avenue bridge, S-155A headwater and tailwater, and stations along western C-51.

EXHIBIT 6


Pratt & Whitney
SAMPLING STATIONS
STA#4 - Pump Station #2
STA#5 - Pump Station #3 East/Changed to Inside Retention
STA#6 - N.W. Outfall Canal @ L-8
STA#10 - 120th & 40th Upstream
STA#11 - 120th & 40th Downstream
Shalloway, Foy, Rayman & Newell, Inc.
Indian Trail Improvement District
Water Quality Sampling Locations
Exhibit 7
Bee Line Hwy.
SCL Railroad
Unit #11
PGA Blvd.
Corbett Wildlife Area
Impoundment Area
Pump Sta.#3
#6
#5
Northlake Blvd.
ITID M-1
District Boundary
L-8
#4 Pump Sta. #2
W.P.B. Water Catchment Area
"M" Canal
M-2
Roach Structure
#10
Beach Blvd.
Fox Property
40th St. Structure
#11
Royal Palm
Impoundment Area
Pump Sta.#1
M2 Canal
Pratt Whitney Road
Okeechobee Blvd.
Seminole
L-12
Amil Gates
Southern Blvd.
Village of Royal Palm Beach
S.R. 7
C-51 Canal



LEGEND

29 SECTION NUMBER

21.8 3 YEAR– 5 DAY FREQUENCY FLOOD STAGE (MINIMUM ROAD CENTERLINE ELEV.)

23.3 100 YEAR – 5 DAY FREQUENCY FLOOD STAGE (MINIMUM FIRST FLOOR PAD ELEV.)

ALL ELEVATIONS N.G.V.D. FROM FEB. 1985 SSA DRAWING, REV. 3/22/85

EXHIBIT 8

INDIAN TRAIL IMPROVEMENT DISTRICT
M-1 BASIN
DESIGN ELEVATIONS

SFRN #91084.103

7/21/97

Shalloway, Foy,
Rayman & Newell, Inc.
EERS - PLANNERS - SURVEYORS
KISER ROAD, WEST PALM BEACH, FLORIDA 33405, (561)655-1151

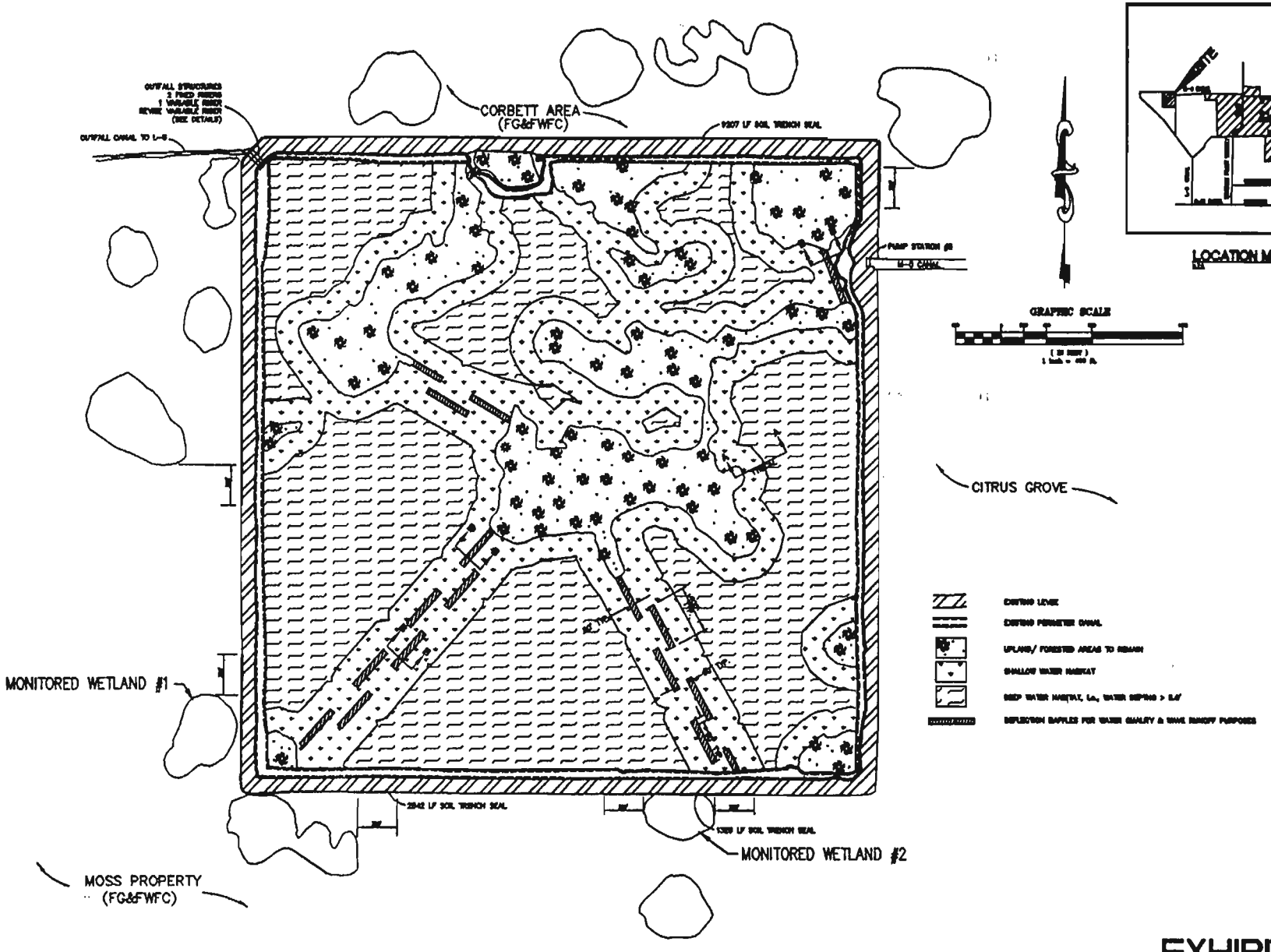


EXHIBIT 9

Shalloway, Poy, Rayman & Newell, Inc.

INDIAN TRAIL WATER CONTROL DISTRICT
M-1 BASIN
IMPOUNDMENT ENHANCEMENT PLAN

AGREEMENT
BY AND BETWEEN
INDIAN TRAIL IMPROVEMENT DISTRICT
AND
PALM BEACH WEST ASSOCIATES I, LLLP

THIS AGREEMENT shall be effective as of the 7th day of February, 2019, and is entered into, by, and between **INDIAN TRAIL IMPROVEMENT DISTRICT**, an Independent Special District of the State of Florida, whose mailing address is 13476 61st Street North, West Palm Beach, Florida 33412, (hereafter referred to as "District"), and **PALM BEACH WEST ASSOCIATES I, LLLP**, a Florida Limited Liability Limited Partnership, whose mailing address is 1600 Sawgrass Corp Pkwy, Suite 400, Sunrise, FL 33323 (hereafter referred to as "Landowner"), its successors and assigns.

RECITALS:

WHEREAS, District is an independent special district and a political subdivision of the State of Florida, originally created pursuant to Chapter 57-646, Laws of Florida, and currently operating according to the provisions of Chapters 2002-330, and Chapter 2008-272, Laws of Florida, as amended and supplemented, the applicable provisions of Chapters 189 and 298 of Florida Statutes, and other General Laws of Florida (collectively hereafter, the "Act"); and

WHEREAS, District may exercise the powers specified in the Act, including but not limited to the power to construct, improve, pave, and maintain roads and all other customary elements integral, accessory and incidental to a modern road system (hereafter, referred to as "District Roads"); and

WHEREAS, District is empowered by the Act to form units of development within the legislative boundaries established in the Act for the purpose of identifying real property using, served by or benefitting from the construction and perpetual maintenance of District Roads (hereafter, the "Benefitted Real Property"), and imposing upon such Benefitted Real Property non-ad valorem special assessments in the manner provided in the Act (hereafter, "Assessments") based on the special benefits conferred by access to and use of District Roads ; and

WHEREAS, Landowner owns approximately 4871 acres of real property more particularly identified in the attached **Exhibit "A"** (hereafter, the "Property"), which Property lies entirely within District's legislative boundaries and is currently the subject of Petition No. PDD-2018-00798 to Palm Beach County (hereafter, "County") requesting zoning approval of a development project styled "Indian Trails Grove Planned Unit Development" (hereafter, "Project"), including, among other uses, 3897 residential dwelling units; and

WHEREAS, upon commencement, the Project will generate vehicular traffic (hereafter, "Project Traffic"), the volume of which will increase as development proceeds to an estimated ±46,732 Average Daily Trips ("ADT") at buildout, approximately 42% of which is projected by Landowner to use District Roads, particularly but not exclusively Orange Boulevard and Hamlin

Boulevard lying generally between Seminole Pratt-Whitney Road and the Project's eastern boundary, more particularly identified in the attached **Exhibit "B"** (hereafter, the "Directly Impacted District Roads"); and

WHEREAS, unimpeded use of District Roads for convenient ingress to and egress from the Project, including but not limited to safely designed and properly constructed Directly Impacted District Roads, will constitute and confer upon Landowner and the Property a significant benefit; and

WHEREAS, in District's opinion, the Directly Impacted District Roads in their present condition are not designed or constructed to accommodate the projected volume and intensity of Project Traffic, but will be capable of doing so if certain capital improvements are made, which capital improvements are identified in general terms in Section 4.5 of this Agreement (hereafter, "Required Road Improvements"); and

WHEREAS, in lieu of paying capital assessments for their construction, Landowner agrees to construct the Required Road Improvements to District standards, and upon completion to convey them at no cost to District, which agreement shall be further assured by its inclusion as a condition of approval in a development order for the Project to be issued, monitored and enforced by Palm Beach County; and

WHEREAS, Required Road Improvements will be constructed to and comply with District standards, Landowner's road construction project will be subject to the terms of a District permit which, among other conditions, will provide for on-going District approval of plans, inspection of construction, and formal acceptance upon completion; and

WHEREAS, Landowner will initiate a particular Required Road Improvement when Project Traffic generation reaches certain threshold levels requiring it, which threshold levels correspond to achievement by Landowner of those Project development milestones identified herein corresponding to issuance by County of a certain number of residential building permits identified herein, which development milestones will also be included in County's development order conditions and terms of a Proportionate Share Agreement between Landowner and County; and

WHEREAS, once the Required Road Improvements are constructed and accepted by District, provisions must be made for their perpetual maintenance, as well as for maintenance of other District Roads used by Landowner and its successors, the assurance of which is provided if Landowner's Property is included in an Active District Unit of Development (as herein defined), thereby allowing District to impose Assessments upon the Property for construction and maintenance of District Roads in accordance with a Plan of Improvements and Report of Engineer, as herein defined, adopted by District in accordance with the Act; and

WHEREAS, Landowner agrees to Activation by District of such unit of development encompassing the Property for the purpose of assessing residential property in the Project its pro rata share of the cost of perpetual maintenance of all paved and/or milling District Roads

accessible to Project residents (hereafter referred to as "Landowner's Maintenance Assessment"); and

WHEREAS, District agrees, subject to certain conditions, to defer the Unit Activation process until it receives a written notice from Landowner to proceed, which notice shall allow District time, as provided herein in Section 4.1, within which to complete the steps required by the Act to form a Unit and adopt a non-appealable Resolution approving a Plan of Improvements and Report of Engineer authorizing levy of a non-ad valorem special benefit assessment for maintenance of District Roads (hereafter, "Unit Activation"), as provided herein; and

WHEREAS, the Parties agree non-residential Property developed in the Project will not generate material traffic impact on District Roads and therefore will not be assessed for road maintenance; and

WHEREAS, District agrees to phase and initiate imposition of the annual Landowner's Maintenance Assessment to correspond to the recording by Landowner of plats for residential parcels within the Property; and

WHEREAS, Landowner agrees to advance funds to District sufficient to cover District's reasonable and necessary expenses and costs associated with Activating a unit of development, including but not limited to professional engineering fees, survey fees, legal fees, permits fees, administrative fees, and required advertising; and

WHEREAS, Landowner agrees to make a direct, annual voluntary cash contribution to District to offset the impact on District Roads generated by traffic from Landowner's agricultural operations on the Property (hereafter, "Annual Agricultural Road Maintenance Fee"); and

WHEREAS, Landowner agrees to make a voluntary cash contribution to compensate District for certain costs and expenses District has incurred to review Landowner's various development plans for the Property; and

WHEREAS, in consideration of and in return for numerous beneficial commitments, both tangible and intangible, made voluntarily herein by Landowner to District, District (upon execution and satisfaction of the terms and conditions of this Agreement) affirms Landowner satisfies all financial obligations it may have regarding initial connection to the Works of the District and declares Landowner, its successors and assigns shall thenceforth have perpetual, unconditional and equal access to District's Road System upon the same basis and extent afforded all District landowners; and

WHEREAS, the Parties hereto also wish to reduce to writing these and certain mutual understandings and commitments regarding Activation and administration of the aforementioned Unit of Development and other matters;

NOW, THEREFORE, for and in consideration of the mutual promises, covenants, commitments, undertakings and other matters contained herein, the receipt and sufficiency of which are hereby confirmed, the Parties agree as follows:

ARTICLE I. RATIFICATION OF RECITALS.

SECTION 1.1. The Parties to this Agreement ratify and acknowledge the Recitals as set forth hereinabove are true and correct to the best of their knowledge and belief and are incorporated herein by this reference.

ARTICLE II. DEFINITIONS.

SECTION 2.1. The following words and phrases shall have the following meanings when used herein:

"Act" means, collectively, Chapter 2002-330, Laws of Florida, as amended and supplemented from time to time, applicable provisions of Chapters 189 and 298, Florida Statutes, and other general and special laws of Florida applicable to District.

"Activation" means formation of a Unit and adoption by District's Board of Supervisors of a non-appealable Resolution approving a Plan of Improvements and Report of Engineer for a property pursuant to the procedures established in the Act allowing District to levy non-ad valorem special benefit assessments upon real property within the Unit. When all required steps in the Activation process have been completed, the Unit is referred to herein as an "Active" or "Activated" Unit.

"Assessment" means all non-ad valorem special benefit assessments levied and assessed by District in accordance with the Act upon real property located within a unit of development, including but not limited to capital construction and maintenance assessments; also referred to in the Act as "Drainage Taxes".

"Board" means District's Board of Supervisors, its governing body.

"County" means Palm Beach County, Florida.

"Directly Impacted District Roads" (for the purposes of this Agreement) means those District Roads providing direct, east-west ingress to and egress from the Project from Seminole-Pratt Whitney Road and impacted by Project traffic, as more particularly identified herein, including but not limited to any ancillary or accessory real property interests.

"District" means Indian Trail Improvement District, an independent special district of the State of Florida, a unit of special purpose local government created and operating pursuant to the Act.

"District Engineer" means the engineer or firm of engineers serving as District's general engineer in accordance with the Act.

"District Roads" or "District Road System" (for the purposes of this Agreement) means only those paved or milling roads (including all customary elements integral, accessory and incidental thereto and to a modern roadway system) under District's exclusive jurisdiction and maintained by District using Assessments, as such paved or milling roads currently exist or as they may subsequently be supplemented or modified in the future (See also 'Directly Impacted District Roads"). For the purpose of this Agreement, District's shellrock roads shall not be considered "District Roads" in preparing the Plan of Improvement and the Report of Engineer for the Unit or in calculating Landowner's Maintenance Assessment (as provided in **Section 3.6**, below),

"Landowner" means such party or parties which have entered into this Agreement with District, including Landowner's successors or assigns. The term "Landowner" shall have the same meaning as the terms "Developer", "Sub-Developer", or any entity having authority to record plats for residential parcels in the Project.

"Person" means a natural person, firms, trusts, estates, associations, corporations, partnerships, business enterprises of any sort and public bodies.

"Plan of Improvements" (a/k/a Water Control Plan, Water Management Plan or Plan of Reclamation) means any and all works, services and improvements of the District to be implemented, constructed or maintained using District Assessments, which Plan of Improvements, including any amendments thereto, is adopted by the District as provided in the Act. For the purposes of this Agreement, the Plan of Improvements for the Property shall not include the Project's onsite infrastructure or District's offsite drainage and park systems.

"PMP" means the "Preliminary Master Plan" approved by Palm Beach County as part the development order approving Zoning Petition No. PDD-2018-00798. for the Project, according to County's Unified Land Development Code, constituting a graphic representation and a controlling document governing land use and other matters affecting physical development of the Project, including but not limited to the location of exterior roadway connections.

"Project" means Indian Trails Grove ("ITG") Planned Unit Development.

"Report of Engineer" means the report prepared by the District Engineer required by the Act to accompany the Plan of Improvements setting forth the benefits and/or damages accruing to lands within a Unit arising out of the implementation and construction of the public improvements identified in the Plan of Improvements.

"Required Road Improvements" includes all those activities and capital investments necessary for the design, permitting, construction and conveyance to District of the Directly Impacted District Roads, identified herein in **Section 4.5**.

"Single Family Residential" means, for the purpose of this Agreement, residential development approved by Palm Beach County on the PMP for the Project in the form of single family detached, zero lot line or townhouse residences.

"State" means the State of Florida.

"Successor Landowner" means any landowner who acquires an interest in the Property who may be assessed in accordance with the Act or this Agreement, including but not limited to successor developers, homeowners, and property owners associations.

"Supervisor" means a member of District's Board of Supervisors elected and serving on its Governing Body pursuant to the Act.

"Unit" or "Unit of Development" means an area within the legislative boundaries of the District designated as an administrative or financial "unit" in a Water Control Plan [a/k/a "Plan of Improvements"] adopted pursuant to the Act. For the purpose of implementing said Water Control Plan and levying non-ad valorem assessment(s) upon real property therein based on the special benefits received therefrom.

"Water Control Plan": see "Plan of Improvements"

ARTICLE III. LANDOWNER RESPONSIBILITIES.

SECTION 3.1 LANDOWNER CONSENTS TO ACTIVATION OF UNIT OF DEVELOPMENT ITG; CONDITION OF ZONING APPROVAL.

A. Landowner consents to Activation by District of Unit of Development ITG encompassing the developable portion of the Property identified in the attached **Exhibit "A"**, specifically excluding therefrom that portion of the Property designated as "Open Space Pod 1" (±640.00 acres) and "Open Space Pod 2" (±1068 acres) on the Project's PMP Sheet 1 accompanying Palm Beach County Zoning Petition No. PDD-2018-00798, a copy of which is attached hereto as **Exhibit "A"**. Activation will follow the procedures established in the Act, (summarized in the attached **Exhibit "E")** and the terms of this Agreement. Final Unit boundaries will be established according to the procedures in the Act at the time Activation is initiated.

B. District will defer initiating Activation of a Unit of Development, subject to the *terms of Section 4.1, below, and subject to the following conditions:*

(1) Landowner shall accept a condition of approval in the Development Order for the Project prohibiting issuance of building permits by Palm Beach County for residential units (model units excepted) until District confirms it has Activated a Unit of Development for the Property. As its beneficiary, Landowner may not modify this condition without the District's consent

(2) Landowner shall record a restrictive covenant applicable to the Property providing record notice of Landowner's agreement, on behalf of itself, its successors and assigns, to include all residential property in a District Unit of Development. Recording shall take place within thirty (30) days of receipt of a non-appealable development order for the Project or prior to any sale or transfer of title to the Property or any portion thereof to persons or entities not wholly owned affiliates or subsidiaries of Landowner, whichever shall first occur. The exact

terms of the restrictive covenant will be agreed by the Parties hereto, but shall include substantially the following terms:

(a) The restrictive covenant shall apply to and be binding on any transferee of Single Family Residential property (or portions or sub-parcels thereof) and their successors and assigns (collectively, "Successor Landowners"); and

(b) The Property is located in the legislative boundaries of Indian Trail Improvement District, an independent special district of the State of Florida, operating pursuant to the provisions of Chapter 298, Florida Statutes, Chapter 2002-330, Laws of Florida (as amended), and other general Florida law (the "District"); and

(c) The Property (or portions or sub-parcels) thereof shall be included in a Unit of Development of the District; and

(d) The purpose of the Unit of Development is to establish a non-ad valorem special benefit assessment for maintenance of District Roads used by owners of platted residential parcels in the Project as provided in this Agreement, which special benefit assessment shall be paid in perpetuity by the owners of platted residential parcels as a component of the parcel's annual real property tax bill; and

(e) In accepting title to the Property (or any portions or sub-parcels thereof platted for Single Family Residential development, a Successor Landowner acknowledges and consents to such non ad-valorem special benefit assessment upon Activation of a Unit of Development applicable to the Property, as defined in this Agreement; and

(f) Prior to expiration, the restrictive covenant shall only be released, in whole or in part, with the consent of District's Board of Supervisors; provided, however, such consent shall not be required to release the covenant affecting any part or portion of the Property identified on the Project's approved PMP for (1) water resources/agriculture (or similar open space uses, such as but not limited to environmental enhancement); or (2) civic sites (such as but not limited to parks, schools or fire-rescue sites). No part or portion of the Property designated on the approved PMP for Single Family Residential development shall be released from the covenant. District shall be notified when a release of covenant occurs, identifying the Project area affected; and

(g) The restrictive covenant shall automatically expire and be of no further force or effect upon Activation of the Unit.

(3) If Landowner sells, assigns or otherwise transfers title to real property in the Project subject to the restrictive covenant prior to Activation of the Unit, Landowner shall so inform District as such transfers occur and assist District as reasonably necessary to assure District's records are complete for the purpose of those notifications to landowners of Unit Activation required by the Act.

SECTION 3.2 VOLUNTARY CASH CONTRIBUTION TO COMPENSATE DISTRICT FOR COSTS AND EXPENSES INCURRED IN REVIEWING LANDOWNER'S PLANS AND PROPOSALS TO DEVELOP THE PROPERTY.

Landowner agrees to make a voluntary cash contribution to District (the "Voluntary Contribution") to compensate District for costs and expenses it incurred in reviewing the impacts of Landowner's proposed alternative development plans on the works of the District. Landowner's Voluntary Contribution shall be in amount of **ONE HUNDRED FIFTY-FIVE THOUSAND AND NO/100 DOLLARS ($155,000.00)**. This sum may be paid to District by cashier's check, wire transfer or other agreed means and shall be tendered by Landowner with executed copies of this Agreement within five (5) business days of initial approval by District's Board of Supervisors. This provision is continuing and shall survive the termination or cancellation of this Agreement.

SECTION 3.3. LANDOWNER TO PAY COSTS AND EXPENSES OF UNIT ACTIVATION AND PREPARATION OF PLAN OF IMPROVEMENTS AND REPORT OF ENGINEER.

A. Landowner shall pay District funds sufficient to cover District's reasonable costs and expenses of Activation and preparation of a Plan of Improvements and Report of Engineer for a Unit of Development including the Property. Such costs and expenses include, but are not limited to, engineering fees, survey fees, legal fees, consultant fees, appraisal fees, administrative fees, permit fees, design costs, survey costs, recording fees, filing fees, public notice and publication costs; and costs and fees related to appeals or challenges pursuant to the Act, if any. District estimates the costs and expenses of Unit Activation will not exceed **THIRTY-FIVE THOUSAND AND NO/100 DOLLARS ($35,000.00)** (the "Estimated Maximum Payment").

B. Landowner's payment for such costs and expenses shall be made to District in an initial advance of **TWENTY-FIVE THOUSAND AND NO/100 DOLLARS ($25,000.00)** (the "Initial Payment"). The Initial Payment shall accompany Landowner's Notice to District to Proceed with Activation, as provided in **Section 4.1**, below. Payment may be made by cashier's check, wire transfer or other agreed means. If necessary thereafter, Landowner shall upon District's written request promptly provide additional funds by similar means.

C. If extraordinary circumstances arise requiring expenditure of funds in excess of the Estimated Maximum Payment, Landowner shall reimburse District for the additional costs and expenses District reasonably incurs. Such extraordinary circumstances shall be limited to the following: (1) additional costs and expenses attributable to Landowner's actions, including but not limited to changes in the Project development plan by Landowner requiring adjustment of the Plan of Improvement and Report of Engineer; (2) significant delays caused by unexpected, unforeseen or unpredictable events, such as weather emergencies (see Section 4.1, below); or (3) appeal of District's approval of the Plan of Improvements and Report of Engineer for the Project in accordance with the Act.

D. Any funds remaining unspent by District upon Activation of the Unit for the Property will be promptly refunded to Landowner upon request.

SECTION 3.4. LANDOWNER TO COOPERATE IN PREPARATION OF PLAN OF IMPROVEMENTS AND REPORT OF ENGINEER.

A. Landowner shall cooperate and coordinate with District to the extent reasonably necessary to prepare the Plan of Improvements and Report of Engineer for Unit of Development ITG in accordance with the Act.

B. Landowner shall in a timely fashion upon reasonable request provide the following documentation and information to District:

- Identification of all fee title owners having an interest in the Property, including names, addresses and ownership interests.
- A signed and sealed boundary survey and legal description of Property, certified to District.
- Copies of County ordinances and development order(s) relating to the Project site development to the extent same are not available on-line through the Palm Beach County website.
- A copy of the master land use plan for the Project approved by County to the extent same is not available on-line through the Palm Beach County website.
- Construction and development phasing schedule(s).
- Project Roadway System Plan showing points of connection to District Roads.
- Landowner's current engineer's traffic report and any revisions thereof to the extent same is not available on-line through the Palm Beach County website.
- Other relevant data and information, upon request, to the extent relevant to and required for preparation of the Plan of Improvements and Report of Engineer.

C. Landowner shall upon reasonable request provide District with written confirmation its final development order has achieved non-appealable status.

SECTION 3.5 LANDOWNER TO DESIGN, PERMIT, CONSTRUCT AND CONVEY TO DISTRICT REQUIRED ROAD IMPROVEMENTS.

A. Landowner shall design, permit and construct and, upon completion and acceptance by District, convey to District without cost the Required Road Improvements on Directly Impacted District Roads (and any ancillary real property interests). The Directly Impacted District Roads are:

(1) Orange Boulevard between 180th Avenue North and SPW Road; and

(2) Hamlin Boulevard between 190th Avenue North and SPW Road.

B. The Required Road Improvements shall be designed, permitted and constructed to District Standards when required in phases, described herein in greater detail in Section 4.5. Landowner shall apply for a standard District Special Permit, including payment of fees therefor, which shall not be unreasonably denied or delayed. Upon completion, the Required Road Improvements shall be conveyed to District without cost and, upon acceptance, become Works of the District pursuant to the Act. Conveyance shall be in the manner provided in Section 4.5.C, below.

C. The development order for the Project shall provide in substantial form Landowner's performance of its commitments to District in this **Section 3.5** will be monitored and enforced by Palm Beach County in the manner provided therein and in County's Unified Land Development Code.

D. If the County Commission approves Zoning Petition No. PDD-2018-00798 but does not require Landowner to construct the Required Road Improvements, District may, but is not required to, assume responsibility for their construction. If this becomes necessary, District may either exercise such powers it has pursuant to the Act or the Parties may negotiate in good faith to amend the terms of this Agreement as necessary.

SECTION 3.6 LANDOWNER TO PAY MAINTENANCE ASSESSMENTS FOR PAVED AND MILLINGS DISTRICT ROADS IN PERPETUITY.

A. For the purpose of this Agreement, District's Road System refers to those paved or millings roads under District's exclusive jurisdiction located generally east and southeast of the Project, as illustrated in the attached **Exhibit "C"**. (Shellrock District Roads shall not be included in calculating Landowner's maintenance assessments.) District is presently responsible for approximately 110.4 miles of paved or millings roads. District Roads are configured as a continuous, interconnected open grid; upon entering the grid, a user generally has unrestricted access to any road in the system. District Roads are currently maintained using annual assessments exclusively upon parcels within District's "active" units of development served by and benefitting from the District Road System. These annual maintenance assessments are included in a benefitted property's annual property tax bill.

B. Landowner agrees, for itself and its successors and assigns, in perpetuity to pay its pro rata share of the annual Maintenance Assessment for the District Road System (hereafter, "Landowner's Maintenance Assessment"). Landowner shall not contribute to maintenance of District facilities for which it receives no benefit, including parks and drainage. Landowner's Maintenance Assessment shall be calculated as established in the Report of Engineer for Unit of Development ITG, but will generally conform to and be consistent with the following guidelines:

(1) Landowner's Maintenance Assessment shall be uniform for all residential development in the Project; and

(2) Because there will be no significant Project Traffic until residential parcels are subdivided and platted, Landowner's Maintenance Assessment shall be deferred until a plat for a residential parcel(s) in the Project is recorded. The Assessment process shall begin when the first residential plat is recorded in the Official Records of Palm Beach County and proceed progressively thereafter as individual residential plats are recorded; and

(3) Landowner's Maintenance Assessment shall apply only to those residential parcels or lots within a particular recorded plat; and

(4) Collection of Landowner's Maintenance Assessment shall be exclusively by and through the Palm Beach County Tax Collector's office annual Unified Real Property Tax Bill, as provided in Section 197.3632, Florida Statutes; and

(5) Platted property designated on the Project's approved Master Plan for any non-residential use shall not be assessed Landowner's Maintenance Assessment. Such non-residential uses include, by way of example and not of limitation, those designated "Conceptual Impoundment Expansion", "Water Resources/Agriculture", "Civic", "Recreation", "Commercial/ Retail & Office", "Open Space", "Water Retention", or similar non-residential uses.

C. As set forth in section 298.28, F.S., assuming all terms and conditions of this Agreement have been satisfied, are due, or are in good standing, upon Activation of the Unit for the Property, Landowner, its successors and assigns, shall be entitled to connection and access to District Roads, which entitlement shall be permanent, unconditional and irrevocable.

D. District affirms Landowner's commitments to District in this Agreement are sufficiently valuable to satisfy any obligation Landowner may have to pay a fee for connection to the Works of the District.

SECTION 3.7 LANDOWNER AGREES TO MAKE A VOLUNTARY ANNUAL CASH CONTRIBUTION TO DISTRICT TO OFFSET IMPACTS OF AGRICULTURAL PRODUCTION USES ON CERTAIN IMPACTED DISTRICT ROADS.

Landowner's Property is currently leased for commercial agricultural production. Agricultural production activities, especially harvesting and off-site transport, impose special maintenance burdens on certain District Roads between the Property and Seminole-Pratt Whitney Road. In lieu of a non-ad valorem Maintenance Assessment, Landowner agrees to pay District an annual fee of **SIX THOUSAND AND NO/100 DOLLARS ($6,000.00)** to offset the additional costs District may incur to maintain District Roads directly affected by agricultural production activities. The fee shall be payable for so long as the Property or any portion thereof is used for commercial agricultural production. The first annual payment shall be due upon the Effective Date of this Agreement. Thereafter, payment shall be due on October 1, 2020 and each anniversary following. The fee shall be paid within thirty (30) days of receipt of an invoice from District requesting payment. Landowner will periodically notify its agricultural production

tenants of their duty take appropriate actions to minimize litter and damage to District roads from harvesting and agricultural production activities.

SECTION 3.8 DEVELOPMENT PROGRESS REPORTS UPON REQUEST.

As Project development advances, upon reasonable request from District, Landowner shall provide to District Manager and District Engineer written reports summarizing: (A) the then current status of initiation of plats; and (B) the progress of development and issuance of building permits for each major parcel in the Project (currently designated on the Project Master Land use Plan as Parcels "A" through "F").

SECTION 3.9 REQUIRED LANDOWNER DISCLOSURES.

Prior to conveying interest to any residential parcel in the Property, Landowner shall include the following disclosure statement(s):

A. **DISCLOSURE IN SALES CONTRACTS.**

(1) All contracts for sale and purchase of residential lots in the Project shall contain and prominently display a disclosure statement by means of a separate paragraph in form and font size substantially as follows:

> ***"INDIAN TRAIL IMPROVEMENT DISTRICT IMPOSES ASSESSMENTS ON THIS PROPERTY THROUGH A SPECIAL TAXING DISTRICT. THESE ASSESSMENTS PAY THE CONSTRUCTION, OPERATION, AND MAINTENANCE COSTS OF DISTRICT ROADS SERVING THE DEVELOPMENT. THESE ASSESSMENTS ARE SET ANNUALLY BY THE GOVERNING BOARD OF THE DISTRICT AND ARE IN ADDITION TO COUNTY AND ALL OTHER TAXES AND ASSESSMENTS PROVIDED FOR BY LAW."***

B. **DISCLOSURE IN** MASTER **DECLARATION OF COVENANTS & RESTRICTIONS.**

Another disclosure statement shall appear in the master homeowner's and/or property owner association documents applicable to the Property (such as Declarations of Covenants). This disclosure statement shall, at a minimum, disclose the following:

(1) The Property is located within a District Unit of Development; and

(2) The general nature and scope of Plan of Improvements and Report of Engineer benefitting the Property, which shall be limited to District roads; and

(3) District's involvement in constructing, operating and/or maintaining the roads identified in the Plan of Improvements and Report of Engineer; and

(4) District will annually levy and collect a Non-Ad Valorem Special Assessments upon the Property for Road Maintenance purposes; and

(5) This Special Assessment for Road Maintenance will be included in the Palm Beach County Tax Collector's annual Unified Real Property Tax Bill applicable to each platted residential lot and collected by the Tax Collector.

C. **RECORDING NOTICE OF TAXING AUTHORITY IN PUBLIC RECORDS.**

Landowner acknowledges and consents to District recording in the Public Records of Palm Beach County a "Notice and Disclosure of Taxing Authority" generally in the format of the attached **Exhibit "D".**

D. **VERIFICATION OF DISCLOSURE INFORMATION.**

At the District's request, Landowner shall provide to the District a copy of the purchase contract disclosure statement and disclosure in the Project's Master Declaration of Covenants & Restrictions, but such request by the District shall be made no more than one time per calendar year.

SECTION 3.10 MATTERS OF COMMUNITY BENEFIT OR CONCERN.

In addition to the Condition of Approval contemplated in **Section 3.5.C**, above, Landowner shall use its best efforts to address the following District and community concerns:

A. **Access to and Use of Project Equestrian Trails**. District residents shall not be denied access to the Project's equestrian trail system during appropriate hours or charged a fee for their use. This provision shall be reflected in the Master Declaration of Covenants for the Property, or its equivalent.

B. **Additional Direct Connections to District Roads.** Landowner's direct connections to District Roads are currently limited to those identified on the Project's PMP for County Zoning Petition No. PDD-2018-00798. Landowner will not initiate a request to amend the Project PMP or development order to add additional direct connection(s) to District Roads without notice to District prior to filing such request. Such Landowner-initiated request shall be limited to existing District roads corresponding to Landowner's recorded "Section Line Easements". Because additional connections will redistribute Project traffic requiring review of the assumptions on which this Agreement was based, the traffic impacts of additional connection(s) shall be reviewed by District and Landowner to determine if improvements to District Roads in addition to or in lieu of those provided in this Agreement are necessary, as provided in **Section 4.6**, below. If additional direct connections to District Roads are required by Palm Beach County or another regulatory entity, Landowner will promptly notify District.

C. **Effect of Incorporation of the Acreage.** Incorporation of the Acreage as a municipality may affect the independent status of the District, but such change in status shall not affect the mutual commitments and obligations of this Agreement.

ARTICLE IV. DISTRICT RESPONSIBILITIES

SECTION 4.1 UNIT FORMATION; UNIT ACTIVATION DEFERRED.

District may form a Unit of Development for the Property in accordance with the procedures established in the Act. District agrees to do so at Landowner's request, provided District shall have sufficient time to complete the Activation process established in the Act (and summarized in attached **Exhibit "E"**) before construction of Required Road Improvements must begin to accommodate Project traffic. Accordingly, District will not initiate Activation of a Unit of Development for the Property until District receives written Notice to Proceed from Landowner, subject to the conditions provided in Section 3.1.C, above.

In requesting deferral of Unit Activation, Landowner acknowledges the following:

- The Unit formation process is subject to uncertainties which are increased by deferral of Activation. These uncertainties are increased by Landowner's request to defer initiation, Landowner acknowledges District may need up to one year to complete Activation from the date it receives Notice to Proceed. Landowner agrees to adjust its Notice and its affairs accordingly, assuming District will need that much time.

- Upon receipt of Notice to Proceed, District will initiate and continuously pursue Activation according to its normal procedures, but District assumes no responsibility for the consequences of delays in completing Activation attributable to Landowner's actions or unexpected, unforeseen or unpredictable events. Such delays may be caused by, but are not limited to, weather emergencies or the possibility third parties may intervene in or otherwise delay Activation.

- Landowner acknowledges it has been made specifically aware of District's concerns regarding the possibility of delays resulting from Landowner's sale of parcels in the Project prior to Activation to entities or individuals not party to this Agreement. Landowner acknowledges it assumes the risks associated with delays in construction of residential development in the Project attributable to these and other unexpected, unforeseen or unpredictable events.

At any time after Landowner receives a non-appealable development order for the Project, District may, but is not required, to initiate Activation on its own initiative if County for any reason issues residential building permits (other than model units).

SECTION 4.2 PREPARATION OF PLAN OF IMPROVEMENTS AND REPORT OF ENGINEER.

A. District shall prepare the Plan of Improvements and Report of Engineer for Unit of Development ITG, subject to the requirements of the Act and the terms of this Agreement.

B. The Plan of Improvements and, where necessary, the Report of Engineer shall state the nature and extent of District's and Landowner's objectives as to the design, construction,

supervision, operation, maintenance, estimated costs and financing of the specific Road Improvements described therein.

C. At such time as the design and preparation of the Plan of Improvements and Report of Engineer are concluded, it may, at District's discretion, be submitted to the Board for consideration.

SECTION 4.3 ADOPTION OF PLAN OF IMPROVEMENTS AND REPORT OF ENGINEER.

A. The procedures to adopt the Plan of Improvements and Report of Engineer shall be as provided in the Act.

B. Once the Plan of Improvements and Report of Engineer are approved by the Board, Landowner shall be responsible for obtaining all necessary required approvals or permits from the other governmental regulatory agencies or entities needed to construct the Improvements authorized therein.

C. District shall file the Plan of Improvements and Report of Engineer in accordance with the Act.

D. Upon adoption by District of a Plan of Improvements and Report of Engineer for the Property, Landowner and District shall not limit or restrict any Successor Property Owner's usage of and benefit from Plan Improvements.

SECTION 4.4 FORMULATION OF PLAN OF IMPROVEMENTS AND REPORT OF ENGINEER.

In preparing the Plan of Improvements and Report of Engineer for Unit of Development ITG, the District Engineer will consider and include the following factors and concerns as appropriate:

A. The Unit may be designated as District's "Unit of Development ITG".

B. The initial Unit boundary will encompass all that area of the Project identified on its PMP Master Plan for development, generally identified as the outer boundaries of Pods A through F (non-assessable Civic Pods dedicated to public use may also be excluded). All area of the Project designated for "Water Resource/Agriculture" use shall be excluded from the Unit (further identified on the Project's PMP as "Open Space Pod 1" and "Open Space Pod 2).

C. The provisions and intent of this Agreement.

SECTION 4.5 CONSTRUCTION OF REQUIRED ROAD IMPROVEMENTS.

A. District Standards. All construction plans for Required Road Improvements shall be prepared by Landowner according to "District Standards" as provided by District

including all applicable ADA, County, and State requirements. The road sections are generally summarized as follows:

(1) **Orange and Hamlin Boulevards** shall be improved for approximately two (2) miles between 180th Avenue North and Seminole Pratt Whitney Road within a minimum 80-foot right-of-way. Improvement shall include a District-approved 3-lane roadway section. Acquisition of additional right-of-way may be required. Improvement shall consist of and include:

(a) Three (3) Traffic Lanes, each 11 feet wide (33 feet total), consisting of two (2) through lanes and one center turn lane.

(b) Pavement Sections consisting of 2-1/2" asphalt, 8" thick base and 12" stabilized subgrade, or equivalent structural number (see below)
- Existing pavement may be utilized by milling and resurfacing. The widened and reconstructed pavement shall obtain a structure number of 3.50 or greater.
- A 4-foot wide, unpaved, 18" stabilized shoulder shall be provided on both sides.
- A 5-foot wide asphalt sidewalk shall be provided on one side of the road, consisting of 1" thick asphalt with 4" thick compacted shellrock or lime rock.

(c) Driveway adjustments shall be made along the route.

(d) Raised entry medians shall be provided on the north and south sides of Orange and Hamlin Boulevards at the following three (3) intersections:
- Mandarin Boulevard
- Banyan Boulevard
- 180th Avenue North
- Medians must meet Palm Beach County Standards and are subject to an ITID Special Permit.

(e) Drainage improvements shall consist of:
- Swales on both sides of the road, no deeper than 2.0' in depth from edge of road grade.
- Retention for stormwater mitigation. Piping will be necessary to provide safe slopes.
- It may be necessary to acquire lots along the roadway to provide stormwater retention sufficient to meet District, Palm Beach County and SFWMD requirements of equal compensating storage and water quality.
- All culvert crossings shall be constructed to the ultimate right-of-way width providing required clear zone safety criteria in accordance with the FDOT Green Book (latest edition) and canal accessibility needs for maintenance by ITID. All culverts will be inspected prior to issuance of an ITID Special Permit to ascertain if they need to be replaced.

(f) Necessary signage, striping and other finishing improvements required by the FDOT Green Book.

(2) **Hamlin Boulevard** shall be improved between 190th Avenue North and 180th Avenue North within a minimum 80-foot right-of-way. Improvement shall include a new, District-approved 3-lane roadway section. Acquisition of additional right-of-way will be required. The provisions of Section 4.5(1)(a), (b), (c), (e), and (f), above, shall also apply as to design and construction.

B. **Construction Phasing**. Construction of Required Road Improvements will proceed in two (2) phases to assure improved District Roads are available when needed. A construction phasing schedule will be reflected in the Project's development order conditions. Phasing depends on the timing of residential development in the Project.

(1) **Orange Boulevard**: Construction of Orange Boulevard shall commence no later than issuance of the 1228th residential building permit.

(2) **Hamlin Boulevard**: Construction of Hamlin Boulevard shall commence no later than issuance of the 2576th residential building permit

C. **Permitting, Inspection and Conveyance of Completed Improvements and Related Real Property Interests**. Design and construction of Required Road Improvements shall be subject to standard District permits. The District Engineer will provide construction inspection and related services, the reasonable costs of which shall be billed to and reimbursed to District by Landowner. Upon completion and certification by the District Engineer, each Directly Impacted District Road (including any additional rights-of-way and accessory or accessory surface water drainage parcels) shall be conveyed to and accepted by District, which acceptance shall not be unreasonably refused or denied. Conveyance will include a one year construction warranty from date of acceptance. Additional terms and conditions of construction and acceptance may be specified in District permits. Conveyance to District of interests in real property related to or arising from Required Road Improvements shall conform to customary procedures and requirements for such transfers of real property to a public entity, the details of which will be provided to Landowner by District at the time of permitting. If a construction permit cannot be issued for the Required Road Improvements, or if Palm Beach County declines to grant Landowner Proportionate Share Credit for all or any portion of the Improvements, the parties agree to negotiate in good faith to review and, as necessary, revise construction plans, as provided in Section 4.6.

D. **Eminent Domain**. District shall exercise its powers of eminent domain to acquire additional interests in real property if and to the extent necessary to effect required road improvements. Provided Landowner receives a Proportionate Share credit for such advance, the reasonable expenses of eminent domain shall be advanced to District by Landowner. If such credit is not provided or eminent domain fails or is denied, the Parties shall negotiate in good faith to review and, as necessary, revise plans and permits for Required Road Improvements, as provided in Section 4.6.

SECTION 4.6 CHANGES IN PROJECT DEVELOPMENT PLANS.

A. **Development Order Amendments Materially Impacting Traffic On District Roads.** This Agreement is made in reliance upon the assumption Landowner's Petition for Zoning Approval No. PDD-2018-00798 (including its accompanying PMP) will be approved as submitted as to such matters as Project land use, density, intensity, traffic generation, development phasing and location of uses on the Property. The impacts of such approved development on the Works of the District have been evaluated accordingly. If the County development order for the Project is amended, the following actions may be taken:

(1) If the development order amendment does not, individually or cumulatively, materially impact traffic volume or redistribute traffic impacts on Directly Impacted District Roads, such amendment shall not require revision of this Agreement or obligate either Party to renegotiate or modify its terms.

(2) If the development order amendment, individually or cumulatively, materially impacts traffic on Directly Impacted District Roads, the Parties agree to negotiate in good faith to revise the terms of this Agreement as necessary to assure necessary road improvements can be made.

(3) For the purpose of this **Section 4.6.A**: (A) a "change in traffic impacts on Directly Impacted District Roads" shall initially be determined by comparing the traffic analysis submitted to the County pursuant to the development order amendment with the final traffic analysis accepted by Palm Beach County as part of Zoning Petition PDD-2018-00798; and (B) a "material impact" shall be a development order amendment (or series of amendments) increasing or redistributing Project traffic on the Directly Impacted District Roads by more than five percent (5%). After an initial determination, the traffic analysis approved for the development order amendment shall establish the base of the next succeeding traffic impact analysis.

(4) Landowner shall provide District Engineer with a copy of traffic studies or analyses it intends to submit with a development order amendment and given a reasonable opportunity to comment with respect to impact on the Directly Impacted District Roads.

(5) The reasonable costs incurred by District attributable to review of the impact of changes to Project development plans initiated by Landowner, including but not limited to professional legal and engineering review fees, shall be Landowner's responsibility.

B. **Development Order Changes Affecting the Active Unit of Development**. Once the Unit of Development is Activated, changes in Project development plans affecting the adopted Plan of Improvements (a/k/a Water Control Plan) shall comply with the applicable amendment requirements of Chapter 298, Florida Statutes. Changes, including but not limited to adjustments of unit boundaries to detach lands therefrom, not requiring: (1) replacement, relocation, reconstruction, or improvement and upgrade of district facilities and operations; or (2) increasing assessments beyond the maximum amount authorized by law; or (3) increasing the Unit's total assessment of benefits, shall be considered "minor amendments", as provided in Section 298.225(8), Florida Statutes. The reasonable costs of Water Control Plan amendments

incurred by District, including but not limited to professional legal and engineering review fees, shall be Landowner's responsibility. Upon a request from Landowner, District agrees to amend or adjust a unit boundary to delete or detach land therefrom, which shall be considered a "minor amendment", provided the land to be detached or deleted from the unit is designated on the Project's approved PMP for "water resources/agriculture" (or similar open space uses, such as but not limited to environmental enhancement) or "civic site" (such as but not limited to parks, schools or fire-rescue sites).

ARTICLE V. MISCELLANEOUS PROVISIONS.

SECTION 5.1. Landowner understands any Landowner improvements, encroachments, connections or discharges onto or into any District lands, property interests, or facilities requires a District permit prior to implementation, installation or construction.

SECTION 5.2 All notices or other communications required or desired to be given or made under this Agreement shall be in writing and be either: (A) personally delivered, (B) sent by Federal Express, (C) faxed, (D) E-Mailed (receipt confirmed), or (E) sent by certified mail, return receipt requested or registered mail with postage prepaid. All notices or other written communications shall be addressed as follows:

As to District:	**INDIAN TRAIL IMPROVEMENT DISTRICT**
	13476 61st Street North
	West Palm Beach, Florida 33412-1915
Attention:	Robert Robinson, Manager
Phone:	(561) 793-0874
Facsimile:	(561) 793-3716
E-Mail	rrobinson@indiantrail.com
As to Landowner:	**PALM BEACH WEST ASSOCIATES I, LLLP**
	1600 Sawgrass Corp Pkwy, Suite 400
	Sunrise, FL 33323
Attention:	Larry Portnoy
Phone:	(954) 753-1730
Facsimile:	(954) 575-5371
E-Mail	larry.portnoy@glhomes.com

If either party changes its mailing address, phone number, fax number or its designated recipient for notices, such change shall be communicated in writing to the other party within thirty (30) days of the change.

All notices personally delivered shall be deemed given or made upon actual receipt by the party, its agent or employee, to whom delivered; and all notices sent by Federal Express shall be deemed given or made on the date Federal Express delivers its communications; all notices sent by fax shall be deemed given on the date faxed, and if the date faxed is a holiday or weekend, on the next immediate business day after the date faxed; and all notices sent by Certified or Registered Mail shall be deemed delivered on the earlier of (i) actual receipt by the party, its

agent or employee or (ii) five (5) business days after deposit in U.S. Mail in accordance with the foregoing.

SECTION 5.3 Upon satisfaction of all or any of the obligations of the parties under this Agreement, the parties shall execute and exchange such documents as they deem necessary to evidence that all or any such obligations have been satisfied and fulfilled.

SECTION 5.4 This Agreement may be amended or modified at any time and in all respects by an instrument in writing executed by all of the parties to this Agreement.

SECTION 5.5 All of the terms and provisions of this Agreement shall be binding upon and inure to the benefit of and be enforceable by the parties, their heirs, executors, administrators, successors and assigns.

SECTION 5.6 Neither Party shall assign this Agreement or any portion hereof, without the prior written consent of the other Party, which consent shall not be unreasonably withheld or delayed; provided, however, this prohibition shall not apply to transfers by Landowner to wholly owned subsidiaries or affiliates of Landowner or to end purchasers of platted residential, commercial or civic lots.

SECTION 5.7 If any provision of this Agreement shall be held or deemed to be or shall, in fact, be illegal, inoperative or unenforceable in any context, the same shall not affect any other provision herein or render any other provision invalid, inoperative or unenforceable to any extent whatsoever. Further, this Agreement shall be construed and enforced as though said provision had not been contained herein and the Agreement shall be given full force and effect to the extent reasonably practicable.

SECTION 5.8 With the exception of any rights herein expressly conferred, nothing expressed or mentioned in or to be implied from this Agreement is intended or shall be construed to give any person other than the parties hereto, any legal or equitable right, remedy or claim under or with respect to this Agreement since this Agreement is intended to be for the sole and exclusive benefit of the parties hereto.

SECTION 5.9 Any prior agreements between the parties in conflict with the provisions contained herein are, to the extent of any such conflict, hereby superseded and repealed by this Agreement.

SECTION 5.10 This Agreement may be executed in several counterparts, all or any of which shall be regarded for all purposes as one original and which together shall constitute but one and the same instrument.

SECTION 5.11 The headings contained in this Agreement are for convenience of reference only and shall not limit or otherwise effect in any way the meaning or interpretation of this Agreement.

SECTION 5.12 The parties intend the laws of the State of Florida shall govern the validity

of this Agreement, the construction of its terms, and the interpretation of the rights and duties of the parties.

SECTION 5.13 In the event litigation should arise regarding this Agreement, venue shall be in the Fifteenth Judicial Circuit in and for Palm Beach County, Florida.

SECTION 5.14 The parties hereto agree, in the event it becomes necessary for either party to defend or institute legal proceedings as a result of the failure of either party to comply with the terms and provisions of this Agreement, each party in such litigation shall bear its own costs and expenses incurred and expended in connection therewith including, but not limited to, reasonable attorneys' fees and court costs through all trial and appellate levels.

SECTION 5.15 Notwithstanding any provision of this Agreement, the parties agree and confirm the terms of this Agreement shall not constitute a waiver of or limitation on any duty, power, responsibility or obligation of the District established in the Act, including but not limited to the power to allocate the costs of constructing and maintaining District Works using non ad-valorem special benefit Assessments in the manner provided in the Act.

SECTION 5.16 The parties acknowledge, pursuant to Section 20.055(5), Florida Statutes, state officers, employees, agencies, special districts, boards, commissions, contractors, and subcontractors must cooperate with Inspector General(s) of the State of Florida in regard to any investigation, audit, inspection, review, or hearing and agrees to comply accordingly.

SECTION 5.17 This Agreement may be terminated by either party by written notice thereof if Landowner's currently pending Petition No. PDD-2018-00798 for rezoning the Property is: (A) denied by Palm Beach County and its accompanying Proportionate Share Agreement is repealed or otherwise becomes ineffective; or (B) is withdrawn in its entirety by Landowner without recourse; or (C) Palm Beach County Ordinance 2016-041 is repealed by Palm Beach County in its entirety and the Property's land use designation(s) revert to their status quo ante. If Landowner's zoning petition is approved, this Agreement shall remain in full force and effect and may not be terminated except by mutual written consent of the Parties so long as a Proportionate Share Agreement by and between Landowner and Palm Beach County is in effect for the Property or any portion thereof.

SECTION 5.18 **No** provision of this Agreement shall constitute or be interpreted as District's acknowledgement, consent to or agreement with any purported claim or assertion of a right or privilege by another governmental entity to connect, directly or indirectly, to the Works of the District without District permission.

SECTION 5.19 This Agreement shall be effective as of the last date it has been executed by all parties.

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IN WITNESS WHEREOF, the parties have hereunto set their hands and seals on the date hereinafter set forth.

Executed by **DISTRICT** this 7th day of February, 2019

ATTEST:

By: _____
Its: Secretary

(DISTRICT SEAL)

INDIAN TRAIL IMPROVEMENT DISTRICT PALM BEACH COUNTY FLORIDA SEAL

INDIAN TRAIL IMPROVEMENT DISTRICT, an Independent Special District of the State of Florida

By: _____
Betty Argue

As: President of Its Board of Supervisors

STATE OF FLORIDA)
COUNTY OF PALM BEACH)

The foregoing instrument was executed before me by Betty Argue, as President of INDIAN TRAIL IMPROVEMENT DISTRICT, an Independent Special District and Political Subdivision of the State of Florida. She is X personally known to me or has produced _____ as identification and did (did not) take an oath.

WITNESS my hand and official seal, this 7th day of February, 2019.

(NOTARY SEAL

–

Notary Public State of Florida
Scarlet Lea Cantley
My Commission GG 101331
Expires 05/04/2021

Scarlet Lea Cantley
Notary Signature

Scarlet Lea Cantley
Name Printed

Executed by LANDOWNER this 6 day of FEBRUARY, 2019.

PALM BEACH WEST ASSOCIATES I, LLLP, a Florida Limited Liability Limited Partnership

By: **PALM BEACH WEST 1 CORPORATION**, a Florida Corporation
Its: General Partner

By: _____

Its: Vice President

(CORPORATE SEAL)

ATTEST:

By: _____, Secretary

Steven Helfman

Its: Secretary

STATE OF FLORIDA)
COUNTY OF BROWARD)

The foregoing instrument was executed before me by RICHARD NORWALK, as _____ President of Palm Beach West I Corporation, the General Partner of Palm Beach West Associates I, LLLP, a Florida Limited Liability Limited Partnership, who is ✓ personally known to me or has produced _____ (type of identification) as identification and did (did not) take an oath.

WITNESS my hand and official seal, this 6 day of FEBRUARY, 2019.

_____
Notary Signature

TERRY LILLIAN
Name Printed

(NOTARY'S SEAL)

TERRY KAPLAN LILLIAN
Commission #FF908316
My Commission Expires
September 7, 2019

EXHIBIT "A"
GENERAL IDENTIFICATION OF THE PROPERTY

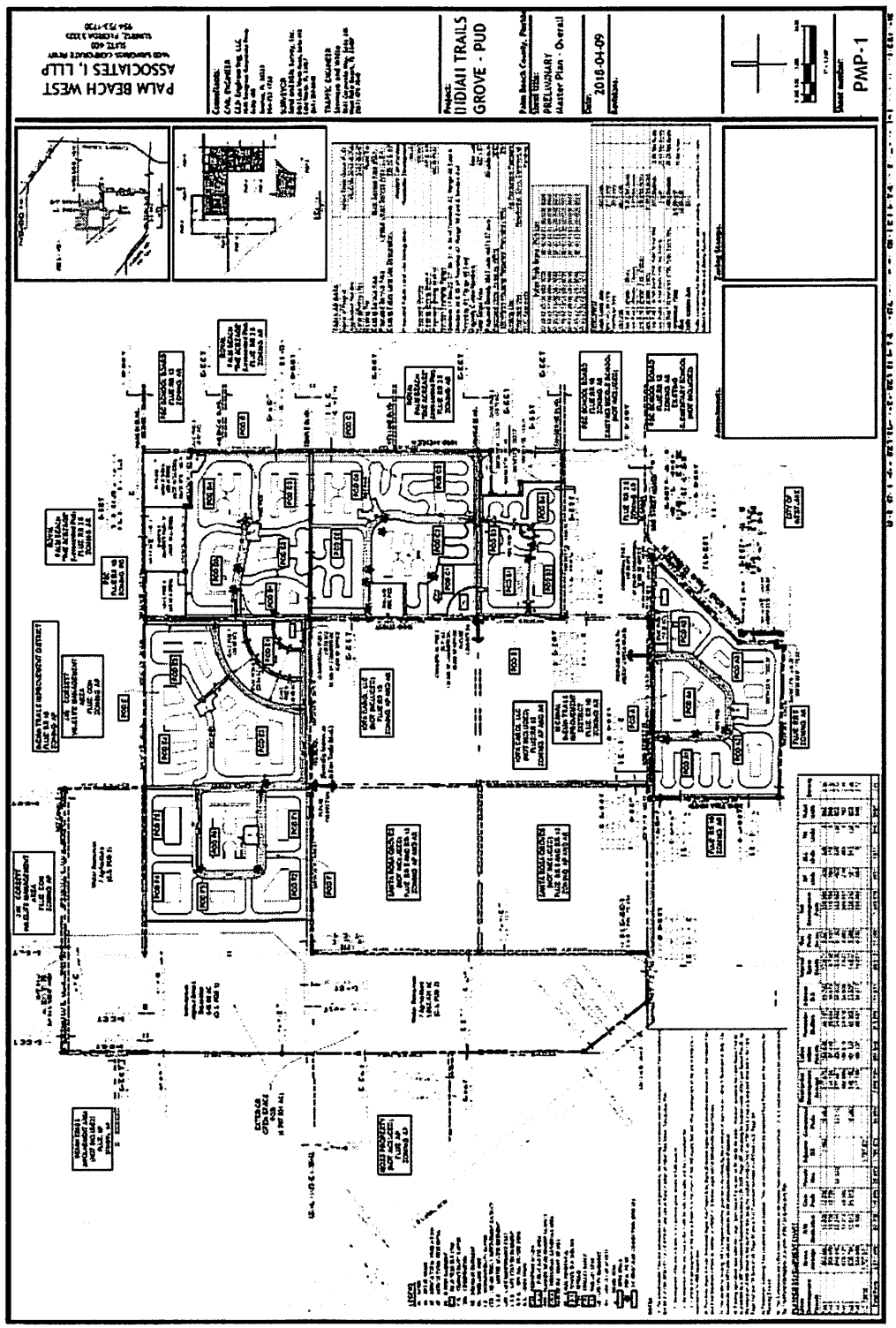

EXHIBIT "B"

THE DIRECTLY IMPACTED DISTRICT ROADS

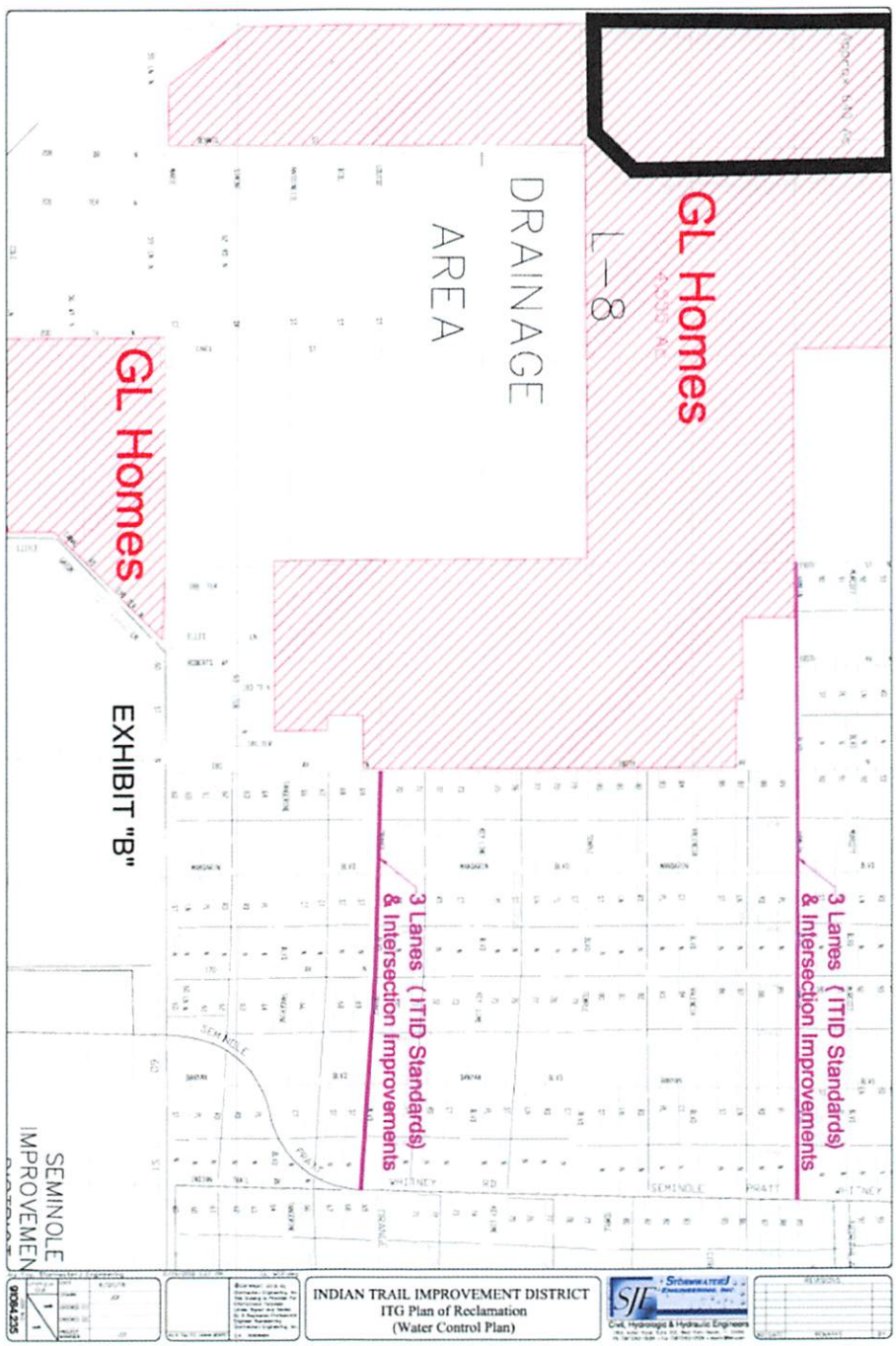

EXHIBIT "C"

THE DISTRICT ROAD SYSTEM

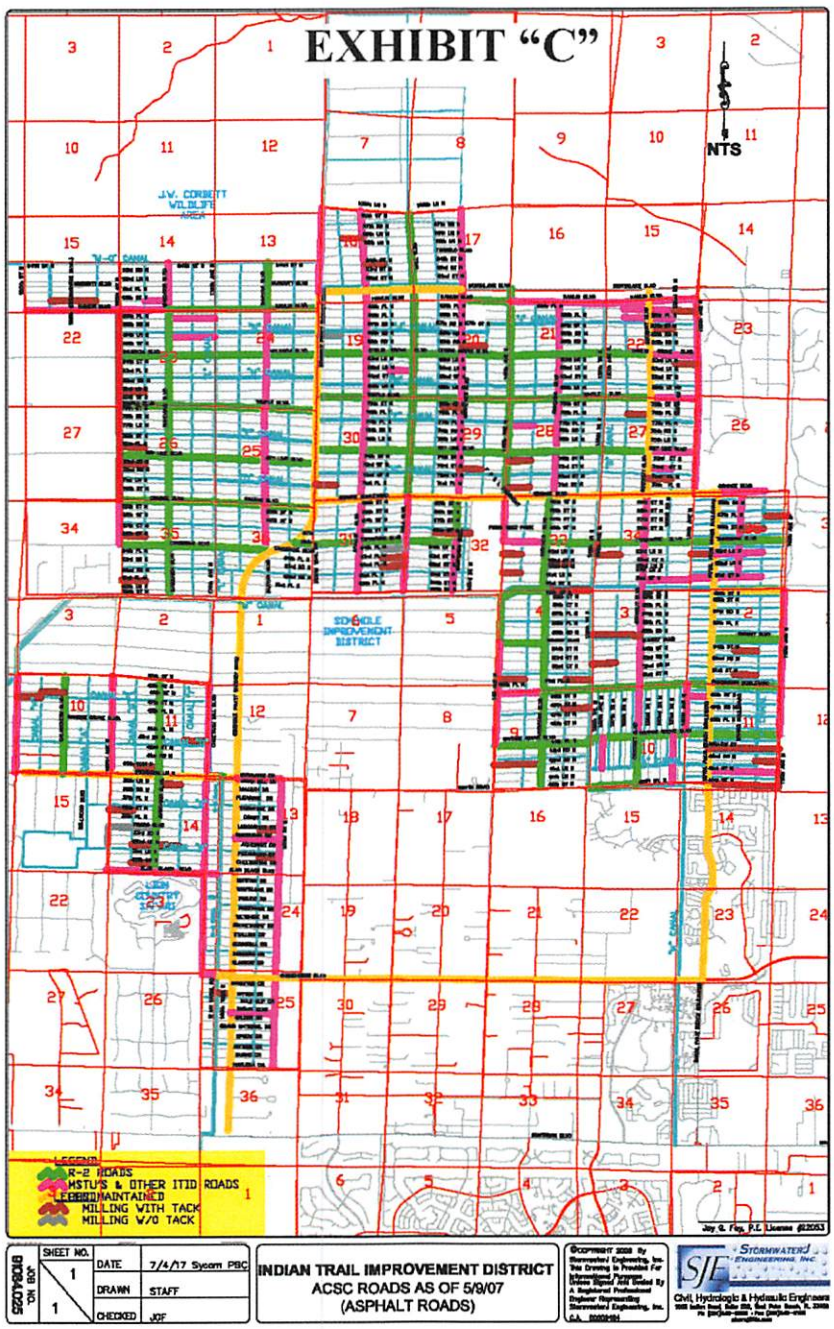

EXHIBIT "D"

NOTICE AND DISCLOSURE OF TAXING AUTHORITY

This Instrument Prepared by
and to be Returned to:

CALDWELL PACETTI EDWARDS SCHOECH & VIATOR LLP
1555 Palm Beach Lakes Blvd, Suite 1200
West Palm Beach, FL 33401

NOTICE AND DISCLOSURE OF TAXING AUTHORITY
BY
INDIAN TRAIL IMPROVEMENT DISTRICT
(Unit of Development Number ITG)

INDIAN TRAIL IMPROVEMENT DISTRICT (INDIAN TRAIL), an independent special district and political subdivision of the State of Florida, has or intends to construct and/or maintain public facilities and improvements for the benefit of the real property described in attached **Exhibit A,** which real property comprises INDIAN TRAIL's Unit of Development No. ITG (the Unit).

As a result of INDIAN TRAIL's construction and/or maintenance of these public facilities and improvements, INDIAN TRAIL advises all present and future owners of real property within the Unit that they will be required to annually pay an amount to INDIAN TRAIL for the cost of constructing and/or maintaining these public facilities and improvements.

INDIAN TRAIL's annual bill to the owners of real property within the Unit will be shown, in addition to real property taxes and charges of other governmental entities, on the Real Property Tax Bill sent out around November of each year by the Palm Beach County Tax Collector.

If you should have any questions regarding this notice or your obligation to pay these charges, please write to INDIAN TRAIL IMPROVEMENT DISTRICT at 13476 61st Street North, West Palm Beach, Florida 33412-1915 or call Indian Trail's Manager at 561-793-0874.

Executed this _____ day of _____, 20__.

[DISTRICT SEAL]

INDIAN TRAIL IMPROVEMENT DISTRICT, an Independent Special District of the State of Florida

ATTEST:

By: _____
_____, Secretary

By: _____
Its: President

STATE OF FLORIDA)
) ss:
COUNTY OF PALM BEACH)

The foregoing instrument was executed before me this _____day of _____, 20__, by _____, as President of INDIAN TRAIL IMPROVEMENT DISTRICT, who is personally known to me.

[Notary Seal]

_____
Notary Signature

_____
Notary Public, State of Florida
Commission Number:
My Commission Expires:

EXHIBIT "A"
LEGAL DESCRIPTION OF THE PROPERTY

[INSERT LEGAL AT THIS LOCATION]

EXHIBIT "E"
SUMMARY OF UNIT ACTIVATION PROCESS

CALDWELL PACETTI
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MEMORANDUM

SUBJECT: Procedures to Form a Unit of Development, Approval of a Water Control Plan

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The District is required to comply with the following procedures to construct a Water Control Plan for the District. This would involve the creation of a separate Unit of Development. The District would be required to go through the Water Control Plan approval process in accordance with Section 298.301, F.S., to approve the Plan. This Section provides that "notice, hearing and final adoption of a proposed water control plan or plan amendment must comply with the provisions of this Chapter".

The process for Unit Development and the Adoption of a Water Control Plan must be followed. This process includes the following:

I. Unit of Development: Formal creation of Unit of Development.

a. Request to Form Unit of Development

b. Board Meeting
- Adopt Resolution of Intent to form Unit

c. Advertise for Objections

d. Board Meeting
- Receive objections to formation of Unit
- Adopt Resolution Approving and Confirming Creation of Unit
- Authorization to prepare water control plan

II. Approval of Water Control Plan:

a. Engineer submits proposed Plan at Board of Supervisor's Meeting at which time the Board adopts the Resolution to consider adoption of the Plan.

b. Notice of Public Hearing on Proposed Plan is published following adoption of the Plan. (Once a week for three (3) consecutive weeks.)

c. Plan is delivered to South Florida Water Management District for review and comment which has sixty (60) days to comment.

d. Chapter 298.301 Notices are issued. Mail Notice to landowners. South Florida Water Management District, County Commission of County and any municipality in which District is located.

e. Public Hearing on Plan is conducted by the Board of Supervisors. Following the Public Hearing on the Plan, the Board would direct the Engineer to prepare the Engineer's Report.

f. Engineer prepares and circulates draft of the Engineer's Report.

g. Following completion of the Engineer's Report it is filed with the Secretary of the District.

h. Notice is published of the Public Hearing of Filing Engineer's Report and Plan. (Once a week for two (2) consecutive weeks with a twenty (20) day response period from date of last publication.)

i. A Public Hearing is held by the Board of Supervisors on the Report and Plan. South Florida Water Management comments are considered, if applicable.

j. Approval of Engineer's Report and Plan by Board of Supervisors.

We hope this information is helpful to you. Please let us know if you have any questions concerning the above.

INDIAN TRAIL
IMPROVEMENT DISTRICT
Est. 1957

March 7, 2022

Dear Ms. Natalie Kraft, via email: nkraft@sfwmd.gov
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406

RE: SFWMD Draft Loxahatchee River Rule

Indian Trail Improvement District is an independent special taxing district of the State of Florida originally created by Chapter 57-646, Laws of Florida. Indian Trail is empowered to construct and maintain public facilities providing water and sanitary sewer, natural gas, drainage, roadways, and parks and recreation services.

MINIMAL BACKGROUND, note: no backup is attached:
Indian Trail has a long and complex history of drainage issues. The largest Unit of Development, the M-1 Basin is the subject of discussion herein as it relates to the proposed Loxahatchee River Rule by the SFWMD.

1. Memorandum of Agreement (MOA) between Indian Trail Improvement District and South Florida Water Management District (SFWMD). This 7/14/97 Agreement was to settle a dispute on allowable discharges. Note the SFWMD has not to date completed STA 1-E resulting in Indian Trail not receiving the full benefits of the MOA.
2. North Palm Beach County Plan (and all of its FKA). This CERP project included 1"/day discharge for Indian Trail as well as other environmental and water supply benefits. The NPBC Plan was usurped by the decision to utilize the L-8 Reservoir as a Flow Equalization Basin to settle the Everglades lawsuit.
3. Moss Property Pilot Program, ERP EI 50-0164073-001. The physical facilities are built, and test pumping will soon commence. The Moss Property (triangle south of the west portion of the JW Corbett Wildlife Management Area) is badly underhydrated as demonstrated in the NPBC Plan. This project is to rehydrate the Moss Property with use of excess discharges from Indian Trail.

4. 2018 Agreement for Donation of Real Property from Palm Beach West Associates I, LLLP to Indian Trail Improvement District. As part of the development of a site plan for Indian Trail Groves by GL Homes, GL Homes agreed to donate 640 acres of land to Indian Trail Improvement District for surface storm water management, drainage, and other ancillary purposes. Indian Trail is budgeting a revision to its Water Control Plan in FY22-23 to make this area into a stormwater impoundment.
5. Most of the approximately 20,000 acre M-1 Basin is served by septic tanks and wells for its typical 1.25 acre Agricultural Residential lots. Fire protection is mostly by withdraws from Indian Trail canals.

Loxahatchee River Rule Comments:

1. There were two SFWMD meetings to receive comments on the draft rule: 1/25/22 and 2/22/22. No representative from Indian Trail was available to attend the 1/25/22 meeting. The District Engineer did participate in the 2/22/22 webinar. The Indian Trail Board has not met since nor been advised of this proposed rule. These comments are therefore from the Indian Trail District Engineer without the opportunity to present the importance of this rule to the Board and receive feedback in a public meeting. The timeline is inconsistent with the importance of the rule and should therefore be extended for at least 6 months.
2. Section 3.7 addresses “Existing Legal Users”. I was assured in the 2/22/22 meeting that exempt users such as single family residential uses and fire protection are protected. Although not in the document I was told the assurance is as of 2006 for existing users. These exempt users have little say in the CUP process. They will have to depend on the regulator (SFWMD) and the applicants analyses to make determinations about their exempt uses. I realize there is a public input process, but these users are disconnected to the process with little to no representation. Exempt users need perpetual protection. Is a single family residence built after 2006 no longer exempt with the adoption of this rule?
3. The Loxahatchee River Plan includes use of Indian Trail’s M-0 Canal and delivery of excess stormwater via a pump to the C-18 Reservoir. The Indian Trail Board has not agreed to this nor been approached by SFWMD or the Corps regarding this to date. The District Engineer has actively participated in the Plans that affect Indian Trail, but no legal or institutional communications exist. The Indian Trail Board should at least be approached by SFWMD or the Corps prior to adoption of this rule.
4. The Loxahatchee River Plan includes the addition of a pump station from Indian Trail’s Lower M-1 Basin into the City of West Palm Beach’s “M” Canal for the delivery of excess stormwater.

INDIAN TRAIL
IMPROVEMENT DISTRICT
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The Indian Trail Board previously rejected this pump station when proposed by the City. The Indian Trail Board should at least be approached by SFWMD or the Corps prior to adoption of this rule.

5. In response to a question at the 2/22/22 meeting I was informed the Loxahatchee River Plan would apply the "savings clause" conditions (Existing Legal Users) and pumping below permitted stages would not be allowed. There is nothing in the proposed rule that give certainty to this stage declaration. I fact, Indian Trail purposefully tries to hold stages slightly higher than control elevations in the dry season for protection of the water resources and fire flow. As verbally stated with no written confirmation, the rule could negatively affect the existing and future water resources protection the District provides to its residents.
6. Indian Trail is actively pursuing providing more hydration to the Moss property. The proposed rule does not address this permitted and potential future increase in water use. The rule could therefore negatively affect the rehydration of the Moss Property and needs to be revised to include protection of current and future deliveries of excess surface waters to this area.
7. Indian Trail is actively pursuing addition of a 640 acre Impoundment adjacent to its existing 720 acre M-1 Impoundment, has met with SFWMD, and intends to use the additional impoundment for storage of excess waters in the dry season to assist its efforts in keeping surface water stages at or above control elevations for fire protection. This rule is in conflict with Indian Trail's continuing efforts to be self-sufficient. The rule needs to include provisions for Indian Trail to operate its proposed 640 acre Impoundment addition for the benefit of those that are required to pay for it. Special Districts are "benefit assessed" and cannot pay for benefits to others.
8. The supporting maps have some type of divide along Seminole Pratt Whitney Road from 100th Lane North south to the "M" Canal that has no technical meaning. How was this delineation made?

Very Truly Yours

Jay G. Foy, P.E.
District Engineer
Indian Trail Improvement District

Indian Trail Improvement District
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April 4, 2022

Natalie Kraft
Lead Scientist, Applied Science Bureau
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33406

SUBJECT: PALM BEACH COUNTY COMMENTS ON RULEMAKING TO PROTECT WATER MADE AVAILABLE BY THE LOXAHATCHEE RIVER WATERSHED RESTORATION PROJECT

Dear Ms. Kraft:

Palm Beach County (County) continues to support South Florida Water Management District (SFWMD or District) efforts to advance Comprehensive Everglades Restoration Projects (CERP) and the ongoing rulemaking to protect water made available by the Loxahatchee River Watershed Restoration Project (LRWRP). Following the County's March 31, 2022 comment letter, SFWMD provided the County with additional revisions to Section 3.2.1.G of the Applicant's Handbook for Water Use Permit Applications (Applicant's Handbook) on April 1, 2022. The County has evaluated not only SFWMD's revisions to Applicant's Handbook Section 3.2.1.G but also the City of West Palm Beach's (City) counter-proposed revisions submitted on April 1, 2022 and provides this comment letter following its review of both documents. Below are the County's recommendations:

1) While the County appreciates the District's attempt to move quickly in response to stakeholder feedback, the County believes the proposed April 1, 2022, revisions to Applicant's Handbook Section 3.2.1.G could be improved with further refinement. The County recognizes SFWMD's attempt to differentiate restrictions for the Upper Floridan Aquifer and the Avon Park Permeable Zone beneath the C-18W Reservoir, however,

the proposed revisions include new changes and terms of art that create uncertainty instead of providing clarity. Because of the precedential nature of these proposed groundwater restrictions, the County believes stakeholders and the regulated community deserve a clear understanding on what groundwater will be restricted from consumptive uses and what groundwater will be available to future applicants and consumptive use permittees. The City's April 1, 2022 submittal echoes this observation. The County is supportive of the City's April 1, 2022 counter-proposed revisions, specifically the inclusion of two groundwater buffer zones in Figure 3-5, and believes these refinements should be incorporated into the final rule.

2) The County also recognizes the District's desire to advance this rulemaking effort, especially considering its federal obligations to the United States Army Corps of Engineers and the pending notice deadline for the April 14, 2022, Governing Board business meeting. While the need to move quickly is understandable, the County reiterates a recommendation from its February 7, 2022, comment letter: public engagement and the quality of the final rule language should not be scarified to meet arbitrary administrative deadlines. Overall, the County is appreciative that the District has taken the time during this rulemaking effort to thoughtfully review stakeholder comment letters, to meet with stakeholders to discuss raised concerns, and to revise the draft Applicant's Handbook and draft Technical Document following those engagements — this positive momentum should not be scarified to meet an arbitrary deadline. Instead, a brief 30-day extension will provide additional time to complete ongoing stakeholder discussions and give District staff enough time to ensure that there are no inconsistencies between the final Applicant's Handbook and final Technical Document before presenting a Notice of Proposed Rule & Rule Adoption to the District's Governing Board at its May business meeting.

The County hopes SFWMD will take the time to review these written comments and incorporate the City's proposed revisions, submitted on April 1, 2022, into the final Applicant's Handbook criteria. The County appreciates District staff's ongoing commitment to this rulemaking effort and looks forward to its continuing partnership and mutually beneficial working relationship to maintain and enhance Loxahatchee River watershed as well as South Florida's water resources.

Sincerely,

Deborah Drum, Department Director
Environmental Resources Management, Palm Beach County

cc: Drew Bartlett, South Florida Water Management District
Lawrence Glenn, South Florida Water Management District
Sky Notestein, South Florida Water Management District
Jay Steinle, South Florida Water Management District
Jennifer Brown, South Florida Water Management District
Simon Sunderland, South Florida Water Management District
Patrick Rutter, Assistant County Administrator, Palm Beach County
Todd Bonlarron, Assistant County Administrator, Palm Beach County
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