

Southwest Florida Water Management District



FDOT MITIGATION PLAN

JANUARY 29, 2008

Southwest Florida Water Management District
Resource Regulation Division
Regulation Performance Management Department
2379 Broad Street
Brooksville, Florida 34604-6899

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The District does not discriminate based on disability. Anyone requesting reasonable accommodations as provided for in the ADA should contact Regulation Performance Management Department at (352) 796-7211, (800) 423-1476, or TDD 231-6103.

Cover: Cockroach Bay – Saltwater (SW 75). The Cockroach Bay Aquatic Preserve is a 651-acre area owned and managed by Hillsborough County. With the assistance of the WMD-SWIM program, construction activities at the tract has resulted in a mosaic of upland and wetland habitat creation, restoration and enhancement. The FDOT mitigation program funded construction of two wetland creation projects, including 34 acres of palustrine marsh habitat (SW 56- Cockroach Bay – Freshwater) and the 15-acre braided tidal wetland creation depicted in the cover photograph. Construction and planting of this wetland completed in 2005 and in the subsequent two years, the vegetation has successfully generated and recruited to produce high quality habitat conditions.

ATTACHMENTS - FDOT MITIGATION PROJECTS

Yellow – Existing Projects, **Blue** – New Projects for 2008)

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- 21 - SW 65 - Rutland Ranch – South Tract (WMD - Land Resources)
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- 35 – SW 82 – Ekker Tract (Hills. Co. Parks / WMD-SWIM)**
- 36 – SW 83 - Little Manatee River – Lower Tract (Hills. Co. Parks)**
- 37 – SW 84 – Colt Creek State Park (FDEP – Parks / WMD-Land Res.)**
- 38 – SW 85 - Peace River Mitigation Bank (Private Mitigation Bank)**
- 39 – SW 86 – Mobbly Bayou Preserve (Pinellas Co. / WMD-SWIM)**
- 40 – SW 87 – Alligator Lake Management Area (Pinellas. Co. / WMD-SWIM)**
- 41 – SW 88 – Curry Creek Regional Mitigation Project (Sarasota County)**
- 42 – SW 89 – Myakka Mitigation Bank (Private Mitigation Bank)**
- 43 – SW 90 – Brooker Creek Buffer Preserve (Hills. Co. Parks)**
- 44 – SW 91 – Upper Coastal Mitigation Bank (Private Mitigation Bank)**
- 45 – SW 92 – Halpata Tastanaki Preserve (WMD- Land Resources)**

INTRODUCTION

The Florida Department of Transportation (FDOT) historically conducted mitigation for wetland impacts associated with roadway construction. The majority of these mitigation activities were primarily associated with creation and enhancement of limited habitat acreage adjacent to the roadway facilities. With commercial, industrial and residential development of property along roadways, constructed mitigation areas have to endure many limitations and risks to provide the desired ecosystem benefits to compensate for the unavoidable wetland impacts. In addition, such development has resulted in fewer opportunities and substantially more costs to acquire property and conduct appropriate and adequate mitigation to compensate for the anticipated wetland impacts.

In order to conduct regional and ecologically significant mitigation activities rather than on a project-by-project basis, the State Legislature approved the FDOT Mitigation Program in 1996 (Section 373.4137, Florida Statutes). The statute language is located in this report after the listing of FDOT projects and before the Figures. The program is administered through the state's Water Management Districts, with collaboration and coordination with various regulatory and resource agencies. This mitigation plan has been developed by the Southwest Florida Water Management District (SWFWMD) in accordance with the program's statute requirements.

The FDOT has provided annual statewide inventories of projected construction related impacts to wetlands since commencement of the program in 1996. In July, 2007 the FDOT identified and provided projected impacts for roadway construction projects

planned in Fiscal Years 2008 through 2013, and revised information pertaining to modifications to previously identified projects. In addition, advance information was provided for several projects scheduled beyond this planning horizon so that appropriate mitigation projects can be developed and avoid deferring wetland impacts back for FDOT to implement mitigation. For each roadway project, FDOT provides information related to the location, acreage, habitat type and quality of wetlands proposed for impact.

Based on the provided information, adequate and appropriate mitigation options are located and nominated for inclusion into the mitigation program to offset the wetland impacts anticipated within the SWFWMD geographic area. Proposed mitigation projects are intended to meet State (ERP) and Federal (Section 404) permitting criteria pertaining to wetland mitigation. These mitigation projects are required to adequately compensate for the loss of the associated wetland habitats with similar enhanced, restored and created habitat functions and values. In addition, the proposed mitigation-related activities are conducted within the same regional watershed basin where the projected wetland impacts are anticipated by FDOT. Figure 1 depicts the various regional watersheds in the SWFWMD.

Selection of mitigation projects is conducted in consultation with staff from the U.S. Army Corps Engineers (USACOE), U.S. Environmental Protection Agency (USEPA), U.S. Fish & Wildlife Service (USFWS), National Marine Fisheries Commission (NMFC), Florida Department of Environmental Protection (FDEP), Florida Fish & Wildlife Conservation Commission (FFWCC), and Florida Department of Transportation (FDOT). Other interested local and state agencies and the public, including representatives of private mitigation banks, also provide input during the nomination and selection process.

It should be noted this plan does not represent approval from the SWFWMD or any of the participating regulatory agencies for the wetland impacts identified in the inventory or any other impacts that may be related to the inventoried FDOT projects. These agencies reserve their authority to fully evaluate permit applications for each of the FDOT construction projects according to applicable rules at the time of application.

This mitigation plan is not specifically designed to offset impacts to any State or Federally-listed species or any secondary impacts that may be incurred as a result of road construction. However, this does not mean the mitigation projects included herein could not be used for such purposes if subsequent analysis determine mitigation activities are appropriate and adequate to meet this requirement and need for compensation.

This plan attempts to provide sufficient flexibility to account for subsequent revisions that maybe necessary to address specific permitting needs of the FDOT. Annual updates are conducted to add FDOT projects planned for future years and to revise previously inventoried projects. Revisions are required to address changes to construction start dates, inventoried projects, wetland impact information, and various mitigation activities. Revisions are also necessary to provide any additional mitigation that may be required by federal regulatory agencies.

WETLAND IMPACTS

Since the inception of the FDOT mitigation program in 1996, FDOT Districts 1 (Bartow), 5 (Deland), 7 (Tampa), and Turnpike (Orlando) have currently proposed 173 construction projects with wetland impacts be mitigated through the program. An additional 45 roadway projects with minimal wetland impacts were also submitted and the SWFWMD located and designated mitigation through the program. However, those projects were ultimately permitted without wetland impacts and/or mitigation being required by the agencies. The FDOT projects on the inventory have anticipated construction schedules through at least 2013 with additional large roadway projects scheduled through 2016. Distributed over 12 drainage basins and covering 16 counties, the total wetland impact acreage projected by FDOT by all these projects is 735 acres. These impacts are associated with all the construction projects currently on the impact inventory (Table 1). Figure 1 portrays the watershed basins within the SWFWMD, Figures 2 and 3 depict the proposed FDOT project locations relative to those basins.

Within this year's plan, FDOT has proposed an increase of six new roadway projects with an anticipated six acres of wetland impacts. With the impact revisions of previously submitted FDOT projects, there is a cumulative wetland impact decrease of 24 acres compared to last year's plan. The decrease is primarily associated with fewer impacts anticipated from long-term Interstate-75 improvements in Hillsborough and Pasco Counties. Tables 4-5 list the amended and new anticipated wetland impacts. Potential mitigation options for five of the 173 FDOT projects are being evaluated and final selection will be deferred until future mitigation plans.

MITIGATION PROJECTS

The District mitigation plan incorporates mitigation projects developed by various agencies, including a few SWFWMD departments. The SWFWMD Departments involved with the majority of nominations include the Land Resources Department (LAND) and Surface Water Improvement & Management Section (SWIM). The SWIM-related projects primarily include restoration activities conducted on property owned by FDEP or County Governments. The majority of the LAND-related projects include property owned by the SWFWMD, but several of these tracts are co-owned and/or managed by other State (e.g. FDOF, FDEP, FFWCC) and County agencies. Mitigation nominations submitted from other entities typically include the FDEP, County Governments, and private mitigation banks. These potential mitigation options are submitted and reviewed by the previously mentioned environmental regulatory and commenting agencies as to whether they appropriately compensate for the loss of the wetland habitat functions and values associated with the FDOT construction projects. There are three new mitigation projects adopted in the 2008 mitigation plan. The following information summarizes each of the new mitigation projects.

Brooker Creek Buffer Preserve (SW 90) is a 423-acre tract owned and managed by Hillsborough County. The tract is within the northwest area of the County, bordering the 7,500-acre Brooker Creek Preserve in Pinellas County. Some of the wetland habitat has been hydrologically altered by approximately three miles of large rim ditches historically dredged along the perimeter of the wetlands. The proposed objectives of the mitigation activities include filling the ditches to create forested wetland habitat, restore

contributing hydrology to the existing wetlands, and buffer these wetlands with the restoration of upland habitat from the adjacent ruderal pastures graded to the ditches. The combination of created wetland and restored upland habitat will provide a valuable resource for wildlife access and use, including vegetative cover and corridor connection to other habitats within the property and adjacent Brooker Creek Preserve. These proposed habitat improvements will provide mitigation for anticipated wetland impacts associated with the nearby expansion of Turnpike's Veteran's Expressway.

Upper Coastal Mitigation Bank (SW 91) is a 149-acre tract located in northwest Citrus County. This recently permitted private mitigation bank is located within a regionally significant and critical habitat and wildlife corridor; representing a key parcel of the only remaining native habitat that can provide a terrestrial connection between large public land tracts in the region. Due to the high value and functions of habitat and water resources, the tract was previously targeted for public land acquisition through the State's Florida Forever program. The primary goals of the mitigation bank include the preservation and enhancement of ecologically significant wetland habitat (84 acres) and upland habitat (65 acres) to provide sustainable high-quality wetland habitat and protection of an on-site spring that discharges into the Homosassa River. This habitat corridor provides a critical link for Florida black bears and other wildlife species. The mitigation bank proposes to provide mitigation for a few acres of long-range wetland impacts associated with SR 50 and US 19 improvements (construction 2011-2015), with the majority of the anticipated impacts located within a few miles of the bank.

Halpata Tastanaki Preserve (SW 92) is an 8,090-acre tract owned and managed by the SWFWMD. Located along the Withlacoochee River and the boundary of Marion and Citrus County, the property is within the vicinity of thousands of acres of other public lands. An elevated berm was historically constructed on the property to provide vehicle access through River's wetland floodplain. The berm has altered the drainage patterns and hydroperiods of the adjacent wetland habitat. The goal includes removing some of the berm fill and replacing with Geoweb and rock material. This will provide a wet road crossing for periodic vehicle use as well as maintain an access corridor used by wildlife. The construction will result in the desired goal of restoring surface water hydrology to enhance the ecological value and benefits of the wetland habitat. A few acres of long-range wetland impacts (construction 2014-2016) associated with SR 200 and US 41 are proposed for mitigation at Halpata, with the majority of anticipated impacts located within a couple miles of the wetland enhancement activities.

The District is conducting feasibility studies to evaluate habitat enhancement opportunities on several public land tracts in the region, particularly related to hydrologic restoration of ditched and drained wetland systems. These studies will provide valuable information as to which portions of these tracts can be nominated for enhancement and restoration through the mitigation program. There are also a few potential private mitigation banks at various stages of evaluation and planning. If and when any of these banks are permitted, the District will evaluate the ecological benefits these projects can possibly provide to compensate for the anticipated FDOT wetland impacts.

As noted on Table 3, to date the mitigation projects propose a cumulative 11,008 acres and 43 mitigation bank credits of various mitigation activities to compensate for 661 acres of the proposed wetland impacts anticipated with the FDOT construction activities. Figure 4 depicts the selected mitigation projects relative to their associated

basin. A basin-by-basin summary of wetland impacts and the designated mitigation projects is provided below and on Table 1. Tables 2 & 3 summarize the various mitigation activities and acreage associated with each mitigation project. Information (narratives, location maps, aerials, designs) concerning the 45 designated mitigation projects is provided as separate project attachments.

MODIFICATIONS TO PREVIOUS MITIGATION PLANS

Minor impact revisions are anticipated for the majority of the FDOT projects, but in some cases the revisions can also be substantial. For the majority of the projects, the anticipated wetland impacts decrease as the roadway design proceeds from planning, project development, and design phases prior to permitting. Modifications proposed in this plan are required to adjust projected impact acreage to account for design revisions by FDOT, and reconcile anticipated versus permitted impact acreage following issuance of state and federal wetland permits. These modifications also include and update mitigation options, designs, and activities based on ecological attributes and options incorporated into the mitigation projects. As previously noted, many FDOT projects with minimal wetland impacts (typically less than 0.1 acre for each project) were designated mitigation but ultimately dropped from the program since the impacts could be avoided and/or mitigation was not required during the permitting process. In many cases, the mitigation credit available for those dropped roadway projects can provide appropriate mitigation for other FDOT wetland impacts. Impact revisions of the FDOT projects and associated mitigation activities are so noted where they occur in the plan.

REPAYMENT OF ADVANCE FUNDING

Pursuant to Section 373.4137, F.S., the FDOT provided \$12 million in advance mitigation funding. These funds were distributed statewide to various projects listed in each of the Water Management Districts' SWIM plans and to specific aquatic and exotic plant control projects. To the extent these projects offset the wetland impacts identified in the inventory, the FDOT received mitigation credit. Of the \$12 million distributed statewide, the SWFWMD received \$1.9 million designated toward planning and design activities associated with several SWIM-sponsored projects selected for the mitigation program. The savings from cost-effective mitigation projects (i.e. projects costing less than the available funding based on impact acreage) remain in the FDOT Comptroller's escrow account and credited toward the advance funding.

The advanced statewide funding is required reimbursement to FDOT. Through 2007, the SWFWMD has officially closed sufficient FDOT projects to reimburse \$4 million of the program's debt. This is more than twice the advanced funding received by the SWFWMD. As of December, 2007, there is approximately \$3 million remaining of the statewide debt.

Thank you for your support and interest in the FDOT Mitigation Program. If you have any questions, comments, requests or recommendations on the program or any of the designated mitigation projects, please feel free to contact the FDOT Mitigation Program Manager & Senior Environmental Scientist (Mark Brown, PWS, CPSS):

Southwest Florida Water Management District
Regulation Performance Management Department – M. Brown
2379 Broad Street
Brooksville, FL 34609-6899

1-800-423-1476 or (352) 796-7211, ext. 4488
SunCom 628-4150, FAX (352) 544-2328
e-mail: mark.brown@swfwmd.state.fl.us

The following information lists all the FDOT projects with wetland impacts requiring mitigation since inception of the program in 1996, including proposed roadway construction dates, wetland impact acreage, associated mitigation projects, and any project revisions from the previous annual mitigation plan. This information is also summarized on Table 1.

Alafia River Basin

Project: SR 563 – Pipkin Road to SR 572 (Drane Field Road)
FM#: 1973941
Date: October 2014
Impacts: 11.80 acres
Mitigation: Balm Boyette – Stallion Hammock Restoration (SW 81)
Status: -6.3 acres from 2007

Project: US 301 – Balm Road to Gibsonton Drive
FM#: 4154891
Date: October, 2007
Impacts: 0.3 acre – Alafia Basin
 11.5 acres – Tampa Bay Basin
Mitigation: Alafia Basin - Balm Boyette – Stallion Hammock (SW 81)
 Tampa Bay Basin – Ekker Tract (SW 81)
Status: No revisions

Project: McMullen Road – Balm Riverview to Boyette Road
FM#: 4131361
Date: 2008/09
Impacts: 0.2 acre – Alafia Basin
Mitigation: Balm Boyette – Stallion Hammock (SW 81)
Status: New project

Hillsborough River Basin

Project: Interstate-4, County Line to Memorial Blvd., Sec. 1
FM#: 2012081
Date: October, 1997
Impacts: 13.55 acres
Mitigation: Upper Hillsborough 4 & 5 (SW 55)
Status: No revisions

Project: SR 54 - US 41 to Cypress Creek
FM#: 2563431
Date: October, 2000
Impacts: 14.2 acres
Mitigation: Lake Thonotosassa Restoration Project (SW 34)
Status: No revisions

Project: US 41 - Bell Lake to Tower Rd.
FM#: 2563151
Date: June, 2001
Impacts: 1.1 acres
Mitigation: Hillsborough River Corridor (SW 63)
Status: No revisions

Project: Bruce B. Downs Bike Path - Amberly Dr. to Hunter's Green
FM#: 2578071
Date: October, 1999
Impacts: 0.5 acre
Mitigation: Jennings Tract, Cypress Ck. Preserve (West) (SW 61)
Status: No revisions

Project: Interstate - 4, W. of Memorial Blvd. To W. of US 98 (Section 2)
FM#: 2012171
Date: September, 2002
Impacts: 4.3 acres
Mitigation: Jennings Tract, Cypress Ck. Preserve (West) (SW 61)
Status: No revisions

Project: SR 39, Blackwater Creek Bridge Replacement
FM#: 2555361
Date: August, 2001
Impacts: 2.1 acres
Mitigation: Jennings Tract, Cypress Ck. Preserve (West) (SW 61)
Status: No revisions

Project: SR 56 – SR 54 to Bruce B. Downs Blvd.
FM#: 2587341
Date: July, 1999
Impacts: 5.3 acres
Mitigation: Jennings Tract, Cypress Ck. Preserve (SW 61)
Status: No revisions

Project: Bruce B. Downs Bikepath - Tampa City Limits to Amberly Drive
FM#: 2578072
Date: February, 2002
Impacts: 0.2 acre
Mitigation: Jennings Tract, Cypress Ck. Preserve (West) (SW 61)
Status: No revisions

Project: SR 678 (Bearss Avenue) - Florida Ave. to Nebraska
FM#: 2558591
Date: November, 2002
Impacts: 0.1 acre
Mitigation: Jennings Tract, Cypress Ck. Preserve (West) (SW 61)
Status: No revisions

Project: Alexander Street - US 92 to Interstate-4
FM#: 2578391
Date: September, 2004
Impacts: 2.6 acres
Mitigation: Jennings Tract, Cypress Ck. Preserve (West) (SW 61)
Status: No revisions

Project: Alexander Street - On-Ramp to Westbound Interstate-4
FM# 2584491
Date: September, 2004
Impacts: 1.70 acres
Mitigation: Jennings Tract, Cypress Ck. Preserve (West) (SW 61)
Status: No revisions

Project: Interstate-275 - US 41 to Pasco County Line
FM# 2584131
Date: December, 2015
Impacts: 7.6 acres
Mitigation: Jennings Tract, Cypress Ck. Preserve (West) (SW 61)
Status: No revisions

Project: Interstate-75 Off-Ramp at Bruce B. Downs
FM# 4084602
Date: December, 2001
Impacts: 0.5 acre
Mitigation: Jennings Tract, Cypress Ck. Preserve (West) (SW 61)
Status: No revisions

Project: SR 39 (Alexander St.), Interstate-4 to Knights Griffin Road
FM# 2555851
Date: January, 2014
Impacts: 13.6 acres
Mitigation: Colt Creek State Park (SW 84)
Status: No revisions

Project: Interstate-75 - CR 581(BB Downs) to SR 56
FM# 4218311
Date: October, 2009
Impacts: 35.0 acres
Mitigation: Colt Creek State Park (SW 84)
Status: -15.9 acres from 2007

Project: Interstate-75 - Fowler Ave. to CR 581
FM# 4084592
Date: 2015
Impacts: 16.8 Acres
Mitigation: Colt Creek State Park (SW 84)
Status: -1.0 acres from 2007

Project: US 301 (SR 41) - Tampa Bypass to Fowler
FM# 2557931
Date: January, 2015
Impacts: 0.5 acre
Mitigation: Colt Creek State Park (SW 84)
Status: No revisions

Project: US 92 – Eureka Springs to Thonotassassa Road
FM# 4113371
Date: September, 2007
Impacts: 1.6 acres – Hillsborough River Basin
 0.2 acre – Tampa Bay Drainage Basin
Mitigation: Hillsborough Basin - Colt Creek State Park (SW 84)
 Tampa Bay Basin – Ekker Tract (SW 82)
Status: No revisions

Project: SR 39 @ Hillsborough River
FM# 4089321
Date: February, 2009
Impacts: 0.5 acres
Mitigation: Colt Creek State Park (SW 84)
Status: -7.3 acres from 2007

Project: Interstate-75 – S of CR 54 to N of CR 54
FM# 4218314
Date: December, 2008
Impacts: 17.3 acres
Mitigation: Colt Creek State Park (SW 84)
Status: -23.6 acres from 2007;
 also 2.4 acres of upland mitigated at Colt Creek

Project: Interstate -75 - CR 54 to SR 52
FM# 2587362
Date: October, 2016
Impacts: 10.2 acres
Mitigation: Colt Creek State Park (SW 84)
Status: No revisions

Project: Park Road - Interstate-4 to Sam Allen Road
FM# 2578622
Date: October, 2009
Impacts: 0.6 acre
Mitigation: Colt Creek State Park (SW 84)
Status: +0.2 acre from 2007

Project: US 301 (SR 41) - SR 39 to South of CR 54
FM# 2564222
Date: December, 2013
Impacts: 0.1 acre
Mitigation: Colt Creek State Park (SW 84)
Status: No revisions

Project: SR 52 - CR 581 to Old Pasco Road
FM# 2562432
Date: April, 2014
Impacts: 0.8 acre
Mitigation: Colt Creek State Park (SW 84)
Status: No revisions

Project: Sam Allen Road - Alexander St. to Park Rd.
FM# 2578623
Date: May, 2015
Impacts: 1.7 acres
Mitigation: Colt Creek State Park (SW 84)
Status: No revisions

Project: CR 54 - Interstate-75 to US 301
FM# 4165611
Date: Construction schedule undetermined
Impacts: Impact acreage not available
Mitigation: Colt Creek State Park (SW 84)
Status: No revisions

Project: Interstate-75 Rest Areas
FM# 4079441 & 4079442
Date: August, 2008
Impacts: 8.9 acres
Mitigation: Colt Creek State Park (SW 84)
Status: No revisions

Project: Interstate-75 - SR 52 to Pasco/Hernando Co. Line
FM# 4110142
Date: 2016
Impacts: 6.1 acres – Hillsborough Basin
 16.7 acres – Upper Coastal Basin
 4.3 acres – Withlacoochee Basin
Mitigation: Hillsborough - Colt Creek State Park (SW 84)
 Upper Coastal – Defer mitigation selection to future
 Withlacoochee – Colt Creek State Park (SW 84)
Status: New roadway project for 2007

Project: SR 52 - Old Pasco Road to Interstate-75
FM# 2562433
Date: April, 2014
Impacts: 1.5 acres
Mitigation: Colt Creek State Park (SW 84)
Status: No revisions

Project: SR 52 - US 41 to CR 581
FM# 2563341
Date: April, 2015
Impacts: 39.1 acres – Hillsborough River Basin
 13.7 acres – Upper Coastal Basin
Mitigation: Hillsborough Basin - Colt Creek State Park (SW 84)
 Upper Coastal – deferred mitigation selection
Status: No revisions

Kissimmee River Basin

Project: US 27 - Lake Glenada to Hal McRae Rd.
FM# 1945101
Date: September, 2001
Impacts: 0.39 acre
Mitigation: Reedy Creek Mitigation Bank (SW 49)
Status: No revisions

Project: Interstate-4 - CR 557 to Osceola County (Seg. 6-7, 9)
FM# 2012041
Date: September, 2002
Impacts: 2.35 acres – Kissimmee Basin
 3.88 acres – Withlacoochee Basin
 4.0 acres – Ocklawaha Basin
Mitigation: Kissimmee - Reedy Creek Mitigation Bank (SW 49)
 Withlacoochee – Hampton Tract (SW 59)
 Ocklawaha – Lake Lowery Tract (SW 76)
Status: No revisions

Little Manatee River Basin

Project: US 301 - Sun City Center to Balm Road
FM#: 4154893
Date: October, 2010
Impacts: 0.8 acre – Little Manatee Basin
 7.5 acres – Tampa Bay Basin
Mitigation: Little Manatee – Little Manatee River, Lower Tract (SW 85)
 Tampa Bay – Ekker Tract (SW 82)
Status: No revisions; additional 2.9 impact acres being mitigated w/in on-site FDOT floodplain compensation area constructed w/in adjacent Hillsborough County ELAPP property

Lower Coastal Basin

Project: SR 789 - Ringling Causeway Bridge
FM#: 1979421
Date: June, 2001
Impacts: 0.27 acre
Mitigation: Curry Creek Regional Mitigation Project (SW 79)
Status: No revisions

Project: US 41 Bus. (SR 45) - Venice Ave. to US 41 Bypass
FM#: 1980051
Date: September, 2000
Impacts: 0.32 acre
Mitigation: Curry Creek Regional Mitigation Project (SW 79)
Status: No revisions

Project: Interstate-75 – N. River Road (CR 577) to SR 681
FM#: 4063143
Date: April, 2010
Impacts: 8.0 acres - Lower Coastal Basin
 0.3 acre – Myakka Basin
Mitigation: Lower Coastal - Fox Creek Regional Mitigation (SW 79)
 Lower Coastal – Curry Creek Regional Mitigation (SW 88)
 Myakka – Myakka Mitigation Bank (SW 89)
Status: + 2.0 acres from 2007

Project: US 301 – Wood Street to University Avenue
FM#: 1980104, 1980105
Date: October, 2011
Impacts: 0.12 acre
Mitigation: Fox Creek Regional Mitigation Project (SW 79)
Status: No revisions

Project: US 41 (Venice Bypass) - Center Road to US Bus. 41 North
FM#: 1980172
Date: October, 2011
Impacts: 0.2 acre
Mitigation: Fox Creek Regional Mitigation Project (SW 79)
Status: No revisions

Manatee River Basin

Project: US 301 (Ellenton) - 60th Ave. to Erie Rd.
FM#: 1960581
Date: October, 2000
Impacts: 0.59 acres
Mitigation: Terra Ceia (SW 50)
Status: No revisions

Project: SR 64 (Segment 1) – Interstate-75 to Lena Road
FM#: 1960221
Date: December, 2001
Impacts: 2.42 acres
Mitigation: Rutland Ranch (SW 65)
Status: No revisions

Project: SR 64 (Segment 2) – Lena to Lakewood Ranch Road
FM#: 1960223
Date: September, 2006
Impacts: 0.8 acre
Mitigation: Rutland Ranch (SW 65)
Status: No revisions

Project: SR 64 (Segment 3) – Lakewood Ranch to Lorraine
FM#: 1960224
Date: September, 2006
Impacts: 4.0 acres
Mitigation: Hidden Harbour (SW 80)
Status: No revisions

Project: SR 70 (Segment 1) – Interstate-75 to Lakewood Ranch Road
FM#: 1961211
Date: July, 2005
Impacts: 0.90 acre
Mitigation: Rutland Ranch (SW 65)
Status: No revisions

Project: SR 70 (Segment 2) – Lakewood Ranch Road to Lorraine Road
FM#: 4043232
Date: September, 2004
Impacts: 3.80 acres
Mitigation: Rutland Ranch (SW 65)
Status: No revisions

Project: Upper Manatee River Road – SR 64 to US 301
FM#: 1996682
Date: August, 2012
Impacts: 6.30 acres
Mitigation: Hidden Harbour (SW 80)
Status: No revisions

Myakka River Basin

Project: SR 776 - CR 771 to Willow Bend Rd.
FM#: 1937941
Date: July, 1999
Impacts: 11.0 acres
Mitigation: 8.9 acres - Cattle Dock Point (SW 31)
 2.1 acres - Little Pine Island Mitigation Bank (SW 52)

Project: SR 72 - Deer Prairie to Big Slough
FM#: 1980131
Date: September, 1999
Impacts: 0.87 acre
Mitigation: Myakka River State Park (SW 51)
Status: No revisions

Project: SR 72 - Big Slough to Desoto County line
FM#: 1979251
Date: January 1999
Impacts: 1.49 acres
Mitigation: Myakka River State Park (SW 51)
Status: No revisions

Project: SR 72 - Myakka River to Big Slough
FM#: 4138871
Date: October, 2006
Impacts: 5.0 acres
Mitigation: Myakka River State Park (SW 51)
Status: No revisions

Ocklawaha River Basin

Project: SR 500 (US 27) - Levy Co. Line to CR 326
FM#: 238641
Date: September, 2002
Impacts: 3.5 acres
Mitigation: Ledwith Lake (SW 58)
Status: No revisions

Project: SR 500 (US 27) - CR 464 to CR 225a
FM#: 238679
Date: September 1999
Impacts: 1.09 acres
Mitigation: Ledwith Lake (SW 58)
Status: No revisions

Project: SR 40 - CR 328 to SW 80th
FM#: 238719
Date: June, 2004
Impacts: 0.08 acre
Mitigation: Ledwith Lake (SW 58)
Status: No revisions

Project: US 27 - SR 544 to Blue Heron Bay
FM# 1976791
Date: June, 2003
Impacts: 0.46 acre - Ocklawaha Basin
 1.50 acres - Peace Basin
Mitigation: Ocklawaha - Lake Lowery Tract (SW 76)
 Peace – Circle B Bar Reserve (SW 66)
Status: No revisions

Project: US 27 - Blue Heron Bay to CR 547
FM# 4038901
Date: August, 2003
Impacts: 1.9 acres
Mitigation: Lake Lowery Tract (SW 76)
Status: No revisions

Project: US 27 - CR 546 to SR 544
WPI# 4110391
Date: October, 2010
Impacts: 1.0 acre – Ocklawaha Basin
 5.7 acres - Peace Basin
Mitigation: Ocklawaha – Lake Lowery Tract (SW 76)
 Peace – Circle B Bar Reserve (SW 66)
Status: No revisions

Project: SR 40 - SR 45 (US 41) to CR 328
FM#: 238720
Date: October, 2011
Impacts: 0.11 acre
Mitigation: Ledwith Lake (SW 58)
Status: New roadway project, 2007

Peace River Basin

Project: Interstate-4 - US 98 to SR 33 (Section 3-5)
FM#: 2012092
Date: October 2002
Impacts: 1.88 acres – Peace Basin
 18.95 acres - Withlacoochee
Mitigation: Peace - Tenoroc/Saddle Creek Restoration (SW 47),
 Withlacoochee – Hampton Tract (SW 59)
Status: No revisions

Project: Ft. Green/Ona Rd. (Segment 1) - SR 62 to N. of Vandolah Rd.
FM#: 1986401
Date: May, 1999
Impacts: 2.08 acres
Mitigation: Boran Ranch Mitigation Bank (SW 53)
Status: No revisions

Project: SR 72 - Sarasota County Line to SR 70
FM#: 1938880
Date: October, 2000
Impacts: 1.19 acres
Mitigation: Boran Ranch Mitigation Bank (SW 53)
Status: No revisions

Project: US 17 (SR 35) - SR 64 to North of Peace River Bridge
FM#: 1111286
Date: February, 2001
Impacts: 2.3 acres
Mitigation: Boran Ranch Mitigation Bank (SW 53)
Status: No revisions

Project: SR 540 - Thornhill Rd. to Recker Hwy.
FM#: 1974751
Date: July 2000
Impacts: 5.87 acres
Mitigation: Tenoroc/Saddle Creek Restoration Project (SW 47)
Status: No revisions

Project: SR 540 (Cypress Gardens) - 9th St. to Overlook
FM#: 1974711
Date: November 2000
Impacts: 0.41 acre
Mitigation: Tenoroc/Saddle Creek Restoration Project (SW 47)
Status: No revisions

Project: US 17 (SR 35) - North of CR 74 to CR 764
FM#: 1937911
Date: October 2000
Impacts: 0.27 acre
Mitigation: Boran Ranch Mitigation Bank (SW 53)
Status: No revisions

Project: Trabue Harborwalk Bike Path
FM#: 1984711
Date: October 2000
Impacts: 0.16 acres
Mitigation: Little Pine Island Mitigation Bank (SW 53)
Status: No revisions

Project: Ft. Green/Ona Rd. (Segment 2) - Vandolah to North of Vandolah
FM#: 1986381
Date: October 2000
Impacts: 7.22 acres
Mitigation: Boran Ranch Mitigation Bank (SW 53)
Status: No revisions

Project: Ft. Green/Ona Rd. (Segment 3) - SR 64 to Vandolah
FM#: 1986371
Date: October 2003
Impacts: 5.23 acres
Mitigation: Boran Ranch Mitigation Bank (SW 53)
Status: No revisions

Project: US 17 (SR 35) - CR 764 South to CR 764 North
FM#: 1937981
Date: October 2002
Impacts: 3.60 acres
Mitigation: Boran Ranch Mitigation Bank (SW 53)
Status: No revisions

Project: I-75 Bridge Widening over Peace River
FM#: 4046971
Date: January, 2002
Impacts: 3.6 acres
Mitigation: Peace River Restoration (SW 69)
 Little Pine Island Mitigation Bank (SW 52)
Status: No revisions

Project: US 27 – Towerview Rd. to SR 540
FM#: 1975331
Date: June, 2003
Impacts: 3.9 acres
Mitigation: Circle B Bar Reserve (SW 66)
Status: No revisions

Project: US 17 (SR 35) - Peace River to Tropicana Rd.
FM#: 1940931
Date: October, 2002
Impacts: 4.42 acres
Mitigation: Circle B Bar Reserve (SW 66)
Status: No revisions

Project: US 17 (SR 35) - Livingston to Hardee County Line
FM#: 1938991
Date: September, 2002
Impacts: 11.59 acres
Mitigation: Circle B Bar Reserve (SW 66)
Status: No revisions

Project: SR 60A (Van Fleet Drive) - CR 555 to Broadway Avenue
FM#: 1971681
Date: August, 2002
Impacts: 0.46 acres
Mitigation: Circle B Bar Reserve (SW 66)
Status: No revisions

Project: US 27 – SR 540 to SR 542
FM#: 1977061
Date: October, 2011
Impacts: 1.77 acres
Mitigation: Circle B Bar Reserve (SW 66)
Status: No revisions

Project: US 27 – SR 542 to CR 546
FM#: 1977071
Date: July, 2007
Impacts: 0.55 acres
Mitigation: Circle B Bar Reserve (SW 66)
Status: No revisions

Project: US 98 – Carpenter’s Way to Daugherty Road
FM#: 1976381
Date: August, 2003
Impacts: 0.1 acre
Mitigation: Circle B Bar Reserve (SW 66)
Status: No revisions

Project: US 27 – SR 60 to Towerview Road
FM#: 1977051
Date: July, 2006
Impacts: 0.19 acre
Mitigation: Circle B Bar Reserve (SW 66)
Status: No revisions

Project: US 98 – Manor Drive to CR 540A
FM#: 4082682
Date: July, 2011
Impacts: 4.0 acres
Mitigation: Circle B Bar Reserve (SW 66)
Status: No revisions

Project: US 98 – CR 540A to SR 540
FM#: 4082683
Date: January, 2014
Impacts: 1.9 acres
Mitigation: Circle B Bar Reserve (SW 66)
Status: No revisions

Project: US 17 – Charlotte C.L. to SW Collins
FM#: 4154901
Date: June, 2009
Impacts: 4.3 acres
Mitigation: Boran Ranch (SW 53)
 Peace River Mitigation Bank (SW 85)
Status: -1.6 acres from 2007

Project: US 17 – CR 760A to Heard Street
FM#: 1938982
Date: June, 2012
Impacts: 4.0 acres
Mitigation: Boran Ranch Mitigation Bank (SW 53)
 Peace River Mitigation Bank (SW 85)
Status: No revisions

Project: US 17 – SW Collins to CR 760A
FM#: 4178761
Date: March, 2018
Impacts: 8.0 acres
Mitigation: Peace River Mitigation Bank (SW 85)
Status: +6.3 acres from 2007

Tampa Bay Drainage

Project: SR 676 - Maritime Blvd. To SR 60
FM#: 2557341
Date: January, 2001
Impacts: 1.5 acres
Mitigation: Gateway Restoration (SW 45)
Status: No revisions

Project: US 19 (SR 55) - Drew St. to Railroad
FM#: 2569571
Date: September, 2002
Impacts: 0.50 acre
Mitigation: Cockroach Bay - Freshwater (SW 56)
Status: No revisions

Project: Interstate 275 - Roosevelt to Big Island Gap
FM#: 2588701
Date: May, 2002
Impacts: 9.10 acres
Mitigation: Gateway Restoration (SW 45)
Status: No revisions

Project: SR 679 (Bayway), Bunces Pass Bridge #150
FM#: 2569051
Date: February, 2000
Impacts: 0.60 acre
Mitigation: Gateway Restoration (SW 45)
Status: No revisions

Project: US 19 - CR 816 (Alderman) to SR 582 (Tarpon)
FM#: 4037701
Date: April, 2002
Impacts: 0.10 acre
Mitigation: Boyd Hill Nature Park (SW 67)
Status: No revisions

Project: US 19 - Coachman Rd. to Sunset Point
FM#: 2568881
Date: February, 2003
Impacts: 0.50 acre
Mitigation: Boyd Hill Nature Park (SW 67)
Status: No revisions

Project: SR 686 (Roosevelt) at 49th Street
FM#: 4062531
Date: November, 2003
Impacts: 0.20 acre
Mitigation: Gateway Restoration (SW 45)
Status: No revisions

Project: SR 60 - Cypress St. to Fish Creek
FM#: 2557031
Date: August, 2004
Impacts: 16.6 acres
Mitigation: Tappan (SW 62), Cockroach Bay-Fresh (SW 56),
 Cockroach Bay-Salt (SW 75), Apollo Beach (SW 67)
Status: No revisions

Project: Interstate-275 - Howard Franklin to Himes Avenue
FM#: 2583981 and 2583982
Date: August, 2006
Impacts: 1.50 acres
Mitigation: Gateway Tract (SW 49)
Status: No revisions

Project: SR 60 - Courtney Campbell to Fish Creek
FM#: 2556301
Date: August, 2004
Impacts: 12.2 acres
Mitigation: Gateway Restoration (SW 45)
 0.2 acre of seagrass impacts has on-site mitigation by FDOT
Status: No revisions

Project: US 301 – Sligh Avenue to Tampa Bypass Canal
FM#: 2558881
Date: October, 2005
Impacts: 11.30 acres
Mitigation: Boyd Hill Nature Park (SW 67),
 Cockroach Bay – Freshwater (SW 56)
Status: No revisions

Project: Ulmerton Road – US 19 to 49th Street
FM#: 2571391
Date: September, 2005
Impacts: 0.10 acre
Mitigation: Cockroach Bay – Saltwater (SW 75)
Status: No revisions

Project: Himes Avenue to Hillsborough Avenue
FM#: 4082011
Date: September, 2003
Impacts: 0.10 acre
Mitigation: Boyd Hill Nature Park (SW 71)
Status: No revisions

Project: East-West Trail - Coopers Bayou to Bayshore
FM#: 4062561
Date: November, 2003
Impacts: 0.10 acre
Mitigation: Boyd Hill Nature Park (SW 71)
Status: No revisions

Project: US 19 – 49th St. to 118th Avenue
FM#: 2570701
Date: July, 2006
Impacts: 0.10 acre
Mitigation: Boyd Hill Nature Park (SW 71)
Status: No revisions

Project: CR 296 Connector - 40th St. to 28th St.
FM#: 2569941
Date: February, 2009
Impacts: 1.0 acre
Mitigation: Cockroach Bay – Freshwater (SW 56)
Status: +0.3 acre from 2006

Project: SR 676 (Causeway Blvd.) – US 301 to US 41
FM#: 2555991
Date: August, 2007
Impacts: 1.4 acres
Mitigation: Cockroach Bay – Freshwater (SW 56)
 Boyd Hill Nature Park (SW 71)
Status: No revisions

Project: SR 686 – Interstate - 275 to 9th Street
FM#: 2569981
Date: October, 2012
Impacts: 2.8 acres
Mitigation: Mobbly Bayou Wilderness Preserve (SW 86)
Status: No revisions

Project: Gandy Blvd. (SR 694) - US 19 to 4th Street
FM#: 2569311
Date: Undetermined
Impacts: 0.6 acre
Mitigation: Boyd Hill Nature Park (SW 71)
Status: No revisions

Project: Tampa International Airport (TIA)
 (Full Build-Out, 17 Construction Phases)
FM#: 4143481
Date: 2007 through post-2025
Impacts: 35.05 acres
Mitigation: Bahia Beach (SW 78)
Status: +2.84 acres from 2007

Project: US 19 (SR 55) – Seville Dr. to SR 60
FM#: 2568812
Date: October, 2009
Impacts: 0.2 acre
Mitigation: Cockroach Bay- Freshwater (SW 56)
Status: No revisions

Project: SR 686 (Roosevelt) – Ulmerton Rd. to 40th St.
FM#: 2569951
Date: January, 2013
Impacts: 2.10 acres
Mitigation: Transfer proposed mitigation from Boyd Hill Nature Park (SW 71) to Mobbly Bayou Wilderness Preserve (SW 86)
Status: No revisions

Project: CR 296 Connector – Northbound I-275 (Ramp P) to Westbound SR 692
FM#: 2569942
Date: October, 2009
Impacts: 1.1 acres
Mitigation: Cockroach Bay – Freshwater (SW 56)
Status: No revisions

Project: US 19 (SR 55) – Whitney Rd. to Seville Drive
FM#: 2568811
Date: January, 2009
Impacts: 0.5 acre
Mitigation: Mobbly Bayou Wilderness Preserve (SW 86)
Status: -0.3 acre from 2007

Project: SR 686 (Roosevelt) – 49th St. Bridge to Ulmerton Rd.
FM#: 2569971
Date: October, 2017
Impacts: 0.3 acre
Mitigation: Mobbly Bayou Wilderness Preserve (SW 86)
Status: No revisions

Project: SR 688 (Ulmerton Rd.) – Lake Seminole to Wild Acres
FM#: 4091551
Date: October, 2012
Impacts: 1.8 acres
Mitigation: Mobbly Bayou Wilderness Preserve (SW 86)
Status: No revisions

Project: Interstate-4 @ Selmon Expressway
FM#: 2584151
Date: December, 2009
Impacts: 6.3 acres
Mitigation: Mobbly Bayou Wilderness Preserve (SW 86)
Status: No revisions

Project: Dale Mabry Sidewalks
FM#: 4152341
Date: October, 2007
Impacts: 0.03 acre
Mitigation: Mobbly Bayou Wilderness Preserve (SW 86)
Status: No revisions

Project: US 41 - 15th Terrace to Bull Frog Creek
FM#: 4133991
Date: October, 2007
Impacts: 0.20 acre
Mitigation: Mobbly Bayou Wilderness Preserve (SW 86)
Status: No revisions

Project: SR 60 (Adamo Drive) – US 301 to East of Falkenberg
FM#: 4055252
Date: December, 2015
Impacts: 2.0 acres
Mitigation: Mobbly Bayou Wilderness Preserve (SW 86)
Status: No revisions

Project: Roosevelt Blvd. and 49th Street
FM#: 2569961
Date: January, 2014
Impacts: 3.1 acres
Mitigation: Mobbly Bayou Wilderness Preserve (SW 86)
Status: No revisions

Project: Gandy Blvd. (SR 694) - 9th Street to 4th Street North
FM#: 2569312
Date: October, 2012
Impacts: 3.3 acres
Mitigation: Transfer mitigation from Mobbly Bayou Wilderness Preserve (SW 86) to Alligator Lake Management Area (SW 87)
Status: -1.0 acres from 2007

Project: Veteran's Expressway - Memorial Hwy. to Anderson Road
FM#: 4061511
Date: July, 2010
Impacts: 3.43 acres
Mitigation: New mitigation project – Brooker Creek Buffer Preserve (SW 90)
Status: Deferred mitigation selection in 2007

Project: Veteran's Expressway – Anderson to Gunn Highway
FM#: 4061511
Date: July 2010
Impacts: 11.23 acres
Mitigation: New mitigation project – Brooker Creek Buffer Preserve (SW 90)
Status: Deferred mitigation selection in 2007

Project: US 301 – Uncle Tom to Bloomingdale Road
FM#: 4168411
Date: March, 2009
Impacts: 0.2 acre
Mitigation: Mobbly Bayou Wilderness Preserve (SW 86)
Status: No revisions

Project: SR 688 (Ulmerton Road) - 38th to I-275
FM#: 2571471
Date: October, 2010
Impacts: 0.2 acre
Mitigation: Alligator Lake Management Area (SW 87)
Status: No revisions

Project: SR 574 (MLK) - Queen Palm Dr. to Williams Rd.
FM#: 2558935
Date: January, 2010
Impacts: 0.2 acre
Mitigation: Alligator Lake Management Area (SW 87)
Status: No revisions

Project: SR 60 - Interstate-75 to Spruce St.
FM#: 4125311
Date: December, 2014
Impacts: 1.0 acre
Mitigation: Mobbly Bayou Wilderness Preserve (SW 86)
Status: No revisions

Project: Dale Mabry Avenue - Veteran's Expressway to US 41
FM#: 4209331
Date: Undetermined construction date
Impacts: 0.2 acre
Mitigation: Mobbly Bayou Wilderness Preserve (SW 86)
Status: Deferred mitigation selection from 2007

Project: Tampa Bay Intermodal Center – Gateway Site
FM#: 4153481
Date: Undetermined construction date
Impacts: 0.9 acre
Mitigation: Alligator Lake Management Area (SW 87)
Status: Deferred mitigation selection from 2007

Project: US 301 – Falkenburg to MLK Blvd,
FM#: 4168421
Date: February, 2010
Impacts: 0.5 acre
Mitigation: Alligator Lake Management Area (SW 86)
Status: New roadway project, 2008

Project: US 92 (SR 600/Gandy) – Pelican Sound to Gandy Bridge
FM#: 4168381
Date: January, 2010
Impacts: 0.4 acre
Mitigation: Mobbly Bayou Wilderness Preserve (SW 86)
Status: New roadway project, 2008

Project: CR 296 – US 19 to Roosevelt / CR 296
FM#: 4136222
Date: November, 2016
Impacts: 4.1 acres
Mitigation: Mobbly Bayou Wilderness Preserve (SW 86)
Status: New roadway project, 2008

Upper Coastal Basin

Project: SR 54 - Mitchell to Gunn Hwy.
FM#: 2563361
Date: January, 2004
Impacts: 6.6 acres
Mitigation: Anclote Parcel (SW54)
Status: No revisions

Project: SR 54 – North Suncoast to West of US 41
FM#: 2563391
Date: January, 2003
Impacts: 7.00 acres
Mitigation: Anclote Parcel (SW54)
Status: No revisions

Project: Suncoast Parkway / Ridge Road Interchange
FM#: 2589581
Date: February, 2005
Impacts: 11.82 acres
Mitigation: Serenova Extension (SW 60)
Status: No revisions

Project: SR 60 - Clearwater Harbor Bridge Replacement
FM#: 2570931
Date: January, 2002
Impacts: 1.50 acres
Mitigation: Gateway Restoration (SW 45) &
 on-site mangrove restoration by FDOT
Status: No revisions

Project: US 19 – Republic Drive to CR 816 (Alderman)
FM#: 4037711
Date: April, 2002
Impacts: 0.10 acre
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: US 98 – Hernando Co. Line to US 19
FM#: 2571741
Date: August, 2003
Impacts: 1.40 acres
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: SR 688 (Ulmerton Road) - Oakhurst Rd. to 119th Street
FM#: 2570501
Date: May, 2004
Impacts: 0.20 acre
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: SR 52 – Moon Lake to Suncoast Parkway
FM#: 2563221
Date: February, 2006
Impacts: 6.5 acres
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: SR 54 - Rowan Rd. to Mitchell Bypass
FM#: 2563321
Date: July, 1996
Impacts: 3.60 acres
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: SR 586 (Curlew Road) – CR 1 to Fisher Road
FM#: 2568151
Date: July, 2004
Impacts: 0.10 acre
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: SR 52 – Hicks to Moon Lake
FM#: 2563161
Date: November, 1996
Impacts: 1.60 acres
Mitigation: Serenova 2,3,4,8 (SW 75)
Status: No revisions

Project: SR 682 (Bayway Bridge) - SR 679 to West Toll Plaza
FM#: 2569031
Date: September, 2003
Impacts: 0.80 acre
Mitigation: Ft. DeSoto Park (SW 70)
Status: No revisions

Project: SR 679 (Bayway) - Intercoastal to Bridge
FM#: 2571521
Date: October, 2009
Impacts: 0.30 acre
Mitigation: Ft. DeSoto Park (SW 70)
Status: No revisions

Project: US 41 (SR 45) – Tower Rd. to Ridge Road
FM#: 2563241
Date: October, 2010
Impacts: 14.1 acres
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: SR 699 (Gulf Blvd.) – 192nd Avenue to Walsingham/Ulmerton Road
FM#: 2570831
Date: June, 2011
Impacts: 0.2 acre
Mitigation: Ft. DeSoto Park (SW 70)
Status: No revisions

Project: SR 688 (Ulmerton Rd.) – Wild Acres to El Centro/Ranchero Blvd.
FM#: 4091541
Date: October, 2010
Impacts: 0.2 acre
Mitigation: Ft. DeSoto Park (SW 70)
Status: No revisions

Project: CR 578 (County Line Rd.) – East Rd. to Mariner Blvd.
FM#: 2572983
Date: April, 2015
Impacts: 0.4 acre
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: CR 485 (Cobb Rd.) - SR 50 to US 98
FM#: 2572992
Date: April, 2016
Impacts: 6.2 acres
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: SR 54 – Gunn Highway to Suncoast Parkway
FM#: 2563371
Date: September, 2002
Impacts: 6.0 acres
Mitigation: Conner Preserve (SW 77), additional mitigation conducted by FDOT with on-site wetland creation adjacent to SR 54
Status: No revisions

Project: CR 578 (County Line Rd.) – Suncoast Parkway to US 41
FM#: 2572985
Date: January, 2015
Impacts: 0.2 acre
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: SR 52 (County Line Rd.) – Suncoast Parkway to US 41
FM#: 2563231
Date: December, 2014
Impacts: 4.2 acres
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: US 19 (SR 55) – Green Acres to Jump Ct.
FM#: 4058222
Date: November, 2015
Impacts: 0.24 acre
Mitigation: Transfer mitigation from Conner Preserve (SW 77) to new mitigation project, Upper Coastal Mitigation Bank (SW91)
Status: No revisions

Project: CR 578 (County Line Rd.) – US 19 to East Rd.
FM#: 2572982
Date: July, 2008
Impacts: 0.6 acres
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: US 19 (SR 55) – Sunray Blvd. to Mariner Parkway (Sidewalks)
FM#: 4188601
Date: October, 2010
Impacts: 0.20 acre
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: US 19 (SR 55), West Jump Court to CR 44
FM#: 4059223
Date: July, 2014
Impacts: 2.8 acres
Mitigation: Upper Coastal Mitigation Bank (SW91)
Status: No impact revisions, deferred mitigation selection from 2007

Project: SR 50, Mariner to Suncoast
FM#: 4079512
Date: June, 2014
Impacts: 0.10 acre
Mitigation: Upper Coastal Mitigation Bank (SW91)
Status: No impact revisions, deferred mitigation selection from 2007

Project: Suncoast Parkway 2
FM#: 4052701
Date: July, 2011
Impacts: 16.0 acres
Mitigation: Defer mitigation selection to future years
Status: No revisions

Project: SR 679 (Pinellas Bay Structure E) at Intercoastal Waterway
FM#: 4107551
Date: Undetermined construction date
Impacts: 1.0 acre
Mitigation: Ft. DeSoto Park (SW 70)
Status: No revisions

Project: US 41 – Ridge Road to SR 52
FM#: 2563242
Date: May, 2014
Impacts: 9.5 acres
Mitigation: Defer mitigation selection to future years
Status: New roadway project, 2007

Project: SR 52 – US 41 to CR 581
FM#: 2563242
Date: April, 2015
Impacts: 9.5 acres
Mitigation: Defer mitigation selection to future years
Status: No revisions

Project: US 19 (SR 55) – SR 580 to CR 95
FM#: 2567742
Date: April, 2015
Impacts: 0.9 acre
Mitigation: Defer mitigation selection to future years
Status: No revisions

Project: SR 50 – US 19 to Mariner Blvd.
FM#: 4079513
Date: October, 2011
Impacts: 0.2 acre
Mitigation: Upper Coastal Mitigation Bank (SW 91)
Status: New roadway & mitigation project, 2008

Withlacoochee River Basin

Project: SR 44 - CR 470 to County Line
FM#: 2571641
Date: December, 2002
Impacts: 13.90 acres
Mitigation: Baird Tract (SW 64)
Status: No revisions

Project: SR 44 - US 41 to CR 470
FM#: 2571631
Date: August, 2002
Impacts: 7.90 acres
Mitigation: Baird Tract (SW 64)
Status: No revisions

Project: Interstate -75 Bridge Widening over Lake Panasoffkee
FM#: 4063291
Date: November, 2000
Impacts: 5.93 acres
Mitigation: Lake Panasoffkee Restoration (SW 57)
Status: No revisions

Project: US 41 (SR 45) – Watson Street to SR 44 East
FM#: 2571841
Date: November, 2004
Impacts: 0.10 acre
Mitigation: Baird Tract (SW 64)
Status: No revisions

Project: CR 470 (Gospel Isle)
FM#: 4092071
Date: November, 2004
Impacts: 0.3 acre
Mitigation: Baird Tract (SW 64)
Status: No revisions

Project: US 41 (SR 45), SR 44 to SR 200
FM#: 2571651
Date: December, 2014
Impacts: 0.70 acre
Mitigation: Transfer mitigation from Baird Tract (SW 64) to new project, Halpata Tastanaki Preserve (SW 92)
Status: No impact revisions

Project: SR 200 – US 41 to Marion County Line
FM#: 2571882
Date: October, 2016
Impacts: 3.1 acres
Mitigation: Halpata Tastanaki Preserve (SW 92)
Status: -1.9 acres from 2007, deferred mitigation selection from 2007

Project: Interstate 75 – SR 50 to Hernando/Sumter Co. Line
FM#: 4110122
Date: Undetermined construction
Impacts: 3.5 acres
Mitigation: Colt Creek State Park (SW 84)
Status: New roadway project, 2007

Project: Interstate 75 – Pasco/Hernando Co. Line to SR 50
FM#: 4110112
Date: July, 2013
Impacts: 0.6 acre
Mitigation: Colt Creek State Park (SW 84)
Status: No impact revisions, deferred mitigation selection from 2007

Project: Interstate 75 – Hernando Co. Line to SR 470
FM#: 2426262
Date: Undetermined construction date
Impacts: 0.4 acre
Mitigation: Baird Tract (SW 64)
Status: No impact revisions, deferred mitigation selection from 2007

Project: Interstate 75 – SR 470 to Turnpike
FM#: 2426263
Date: Undetermined construction date
Impacts: 13.8 acres
Mitigation: Baird Tract (SW 64)
Status: No impact revisions, deferred mitigation selection from 2007

Project: SR 48 - Interstate 75 to CR 475
FM#: 2404182
Date: Undetermined construction date
Impacts: 0.15 acre
Mitigation: Baird Tract (SW 64)
Status: No impact revisions, deferred mitigation selection from 2007

Project: SR 44 @ CSX R/R Overpass
FM#: 4116653
Date: Undetermined construction date
Impacts: 1.0 acre
Mitigation: Baird Tract (SW 64)
Status: No impact revisions, deferred mitigation selection from 2007

Select Year: 2005

The 2005 Florida Statutes

[Title XXVIII](#)
NATURAL RESOURCES; CONSERVATION, RECLAMATION, AND
USE

[Chapter 373](#)
WATER
RESOURCES

[View Entire
Chapter](#)

373.4137 Mitigation requirements for specified transportation projects.--

(1) The Legislature finds that environmental mitigation for the impact of transportation projects proposed by the Department of Transportation or a transportation authority established pursuant to chapter 348 or chapter 349 can be more effectively achieved by regional, long-range mitigation planning rather than on a project-by-project basis. It is the intent of the Legislature that mitigation to offset the adverse effects of these transportation projects be funded by the Department of Transportation and be carried out by the water management districts, including the use of mitigation banks established pursuant to this part.

(2) Environmental impact inventories for transportation projects proposed by the Department of Transportation or a transportation authority established pursuant to chapter 348 or chapter 349 shall be developed as follows:

(a) By July 1 of each year, the Department of Transportation or a transportation authority established pursuant to chapter 348 or chapter 349 shall submit to the water management districts a copy of its adopted work program and an environmental impact inventory of habitats addressed in the rules adopted pursuant to this part and s. 404 of the Clean Water Act, 33 U.S.C. s. 1344, which may be impacted by its plan of construction for transportation projects in the next 3 years of the tentative work program. The Department of Transportation or a transportation authority established pursuant to chapter 348 or chapter 349 may also include in its environmental impact inventory the habitat impacts of any future transportation project. The Department of Transportation and each transportation authority established pursuant to chapter 348 or chapter 349 may fund any mitigation activities for future projects using current year funds.

(b) The environmental impact inventory shall include a description of these habitat impacts, including their location, acreage, and type; state water quality classification of impacted wetlands and other surface waters; any other state or regional designations for these habitats; and a survey of threatened species, endangered species, and species of special concern affected by the proposed project.

(3)(a) To fund development and implementation of the mitigation plan for the projected impacts identified in the environmental impact inventory described in subsection (2), the Department of Transportation shall identify funds quarterly in an escrow account within the State Transportation Trust Fund for the environmental mitigation phase of projects budgeted by the Department of Transportation for the current fiscal year. The escrow account shall be maintained by the Department of Transportation for the benefit of the water management districts. Any interest earnings from the escrow account shall remain with the Department of Transportation.

(b) Each transportation authority established pursuant to chapter 348 or chapter 349 that chooses to participate in this program shall create an escrow account within its financial structure and deposit funds in the account to pay for the environmental mitigation phase of projects budgeted for the current fiscal year. The escrow account shall be maintained by the authority for the benefit of the water management districts. Any interest earnings from the escrow account shall remain with the authority.

(c) Except for current mitigation projects in the monitoring and maintenance phase and except as allowed by paragraph (d), the water management districts may request a transfer of funds from an escrow account no sooner than 30 days prior to the date the funds are needed to pay for activities associated with development or implementation of the approved mitigation plan described in subsection (4) for the current fiscal year, including, but not limited to, design, engineering, production, and staff support. Actual conceptual plan preparation costs incurred before plan approval may be submitted to the Department of Transportation or the appropriate transportation authority each year with the plan. The conceptual plan preparation costs of each water management district will be paid from mitigation funds associated with the environmental impact inventory for the current year. The amount transferred to the escrow accounts each year by the Department of Transportation and participating transportation authorities established pursuant to chapter 348 or chapter 349 shall correspond to a cost per acre of \$75,000 multiplied by the projected acres of impact identified in the environmental impact inventory described in subsection (2). However, the \$75,000 cost per acre does not constitute an admission against interest by the state or its subdivisions nor is the cost admissible as evidence of full compensation for any property acquired by eminent domain or through inverse condemnation. Each July 1, the cost per acre shall be adjusted by the percentage change in the average of the Consumer Price Index issued by the United States Department of Labor for the most recent 12-month period ending September 30, compared to the base year average, which is the average for the 12-month period ending September 30, 1996. Each quarter, the projected acreage of impact shall be reconciled with the acreage of impact of projects as permitted, including permit modifications, pursuant to this part and s. 404 of the Clean Water Act, 33 U.S.C. s. 1344. The subject year's transfer of funds shall be adjusted accordingly to reflect the acreage of impacts as permitted. The Department of Transportation and participating transportation authorities established pursuant to chapter 348 or chapter 349 are authorized to transfer such funds from the escrow accounts to the water management districts to carry out the mitigation programs. For a mitigation project that is in the maintenance and monitoring phase, the water management district may request and receive a one-time payment based on the project's expected future maintenance and monitoring costs. Upon disbursement of the final maintenance and monitoring payment, the escrow account for the project established by the Department of Transportation or the participating transportation authority may be closed. Any interest earned on these disbursed funds shall remain with the water management district and must be used as authorized under paragraph (4) (c).

(d) Beginning in the 2005-2006 fiscal year, each water management district shall be paid a lump-sum amount of \$75,000 per acre, adjusted as provided under paragraph (c), for federally funded transportation projects that are included on the environmental impact inventory and that have an approved mitigation plan. Beginning in the 2009-2010 fiscal year, each water management district shall be paid a lump-sum amount of \$75,000 per acre, adjusted as provided under paragraph (c), for federally funded and nonfederally funded transportation projects that have an approved mitigation plan. All mitigation costs, including, but not limited to, the costs of preparing conceptual plans and the costs of design, construction, staff support, future maintenance, and monitoring the mitigated acres shall be funded through these lump-sum amounts.

(4) Prior to March 1 of each year, each water management district, in consultation with the Department of Environmental Protection, the United States Army Corps of Engineers, the Department of Transportation, transportation authorities established pursuant to chapter 348 or chapter 349, and other appropriate federal, state, and local governments, and other interested parties, including entities operating mitigation banks, shall develop a plan for the primary purpose of complying with the mitigation requirements adopted pursuant to this part and 33 U.S.C. s. 1344. In developing such plans, the districts shall utilize sound ecosystem management practices to address significant water resource needs and shall focus on activities of the Department of Environmental Protection and the water management districts, such as surface water improvement and management (SWIM) projects and lands identified for potential acquisition for preservation, restoration or enhancement, and the control of invasive and exotic plants in wetlands and other surface waters, to the extent that such activities comply with the mitigation requirements adopted under this part and 33 U.S.C. s. 1344. In determining the activities to be included in such plans, the districts shall also consider the purchase of credits from public or private mitigation banks permitted under s. [373.4136](#) and associated federal

authorization and shall include such purchase as a part of the mitigation plan when such purchase would offset the impact of the transportation project, provide equal benefits to the water resources than other mitigation options being considered, and provide the most cost-effective mitigation option. The mitigation plan shall be submitted to the water management district governing board, or its designee, for review and approval. At least 14 days prior to approval, the water management district shall provide a copy of the draft mitigation plan to any person who has requested a copy.

(a) For each transportation project with a funding request for the next fiscal year, the mitigation plan must include a brief explanation of why a mitigation bank was or was not chosen as a mitigation option, including an estimation of identifiable costs of the mitigation bank and nonbank options to the extent practicable.

(b) Specific projects may be excluded from the mitigation plan, in whole or in part, and shall not be subject to this section upon the agreement of the Department of Transportation, or a transportation authority if applicable, and the appropriate water management district that the inclusion of such projects would hamper the efficiency or timeliness of the mitigation planning and permitting process. The water management district may choose to exclude a project in whole or in part if the district is unable to identify mitigation that would offset impacts of the project.

¹(c) Surface water improvement and management or invasive plant control projects undertaken using the \$12 million advance transferred from the Department of Transportation to the Department of Environmental Protection in fiscal year 1996-1997 which meet the requirements for mitigation under this part and 33 U.S.C. s. 1344 shall remain available for mitigation until the \$12 million is fully credited. When these projects are used as mitigation, the \$12 million advance shall be reduced by \$75,000 per acre of impact mitigated. To the extent the cost of developing and implementing the mitigation plans is less than the funds placed in the escrow account pursuant to subsection (3), the difference shall be retained by the Department of Transportation and credited towards the \$12 million advance until the Department of Transportation is fully refunded for this advance funding. After the \$12 million advance funding is fully credited, any funds not directed to implement the mitigation plan should, to the greatest extent possible, be directed to fund invasive plant control within wetlands and other surface waters, SWIM projects, or other water resource projects approved by the governing board of the water management district which may be appropriate to offset environmental impacts of future transportation projects. The water management districts may request these funds upon submittal of the final invoice for each road project.

(5) The water management district shall be responsible for ensuring that mitigation requirements pursuant to 33 U.S.C. s. 1344 are met for the impacts identified in the environmental impact inventory described in subsection (2), by implementation of the approved plan described in subsection (4) to the extent funding is provided by the Department of Transportation, or a transportation authority established pursuant to chapter 348 or chapter 349, if applicable. During the federal permitting process, the water management district may deviate from the approved mitigation plan in order to comply with federal permitting requirements.

(6) The mitigation plans shall be updated annually to reflect the most current Department of Transportation work program and project list of a transportation authority established pursuant to chapter 348 or chapter 349, if applicable, and may be amended throughout the year to anticipate schedule changes or additional projects which may arise. Each update and amendment of the mitigation plan shall be submitted to the governing board of the water management district or its designee for approval. However, such approval shall not be applicable to a deviation as described in subsection (5).

(7) Upon approval by the governing board of the water management district or its designee, the mitigation plan shall be deemed to satisfy the mitigation requirements under this part for impacts specifically identified in the environmental impact inventory described in subsection (2) and any other mitigation requirements imposed by local, regional, and state agencies for these same impacts. The approval of the governing board of the water management district or its designee shall authorize the activities proposed in the mitigation plan, and no other state, regional, or

local permit or approval shall be necessary.

(8) This section shall not be construed to eliminate the need for the Department of Transportation or a transportation authority established pursuant to chapter 348 or chapter 349 to comply with the requirement to implement practicable design modifications, including realignment of transportation projects, to reduce or eliminate the impacts of its transportation projects on wetlands and other surface waters as required by rules adopted pursuant to this part, or to diminish the authority under this part to regulate other impacts, including water quantity or water quality impacts, or impacts regulated under this part that are not identified in the environmental impact inventory described in subsection (2).

(9) The process for environmental mitigation for the impact of transportation projects under this section shall be available to an expressway, bridge, or transportation authority established under chapter 348 or chapter 349. Use of this process may be initiated by an authority depositing the requisite funds into an escrow account set up by the authority and filing an environmental impact inventory with the appropriate water management district. An authority that initiates the environmental mitigation process established by this section shall comply with subsection (6) by timely providing the appropriate water management district with the requisite work program information. A water management district may draw down funds from the escrow account as provided in this section.

History.--s. 1, ch. 96-238; s. 36, ch. 99-385; s. 1, ch. 2000-261; s. 93, ch. 2002-20; s. 39, ch. 2004-269; s. 30, ch. 2005-71; s. 12, ch. 2005-281.

¹Note.--

A. As amended by s. 12, ch. 2005-281. For a description of multiple acts in the same session affecting a statutory provision, see preface to the *Florida Statutes*, "Statutory Construction." Section 30, ch. 2005-71, also amended paragraph (4)(c), and that version reads:

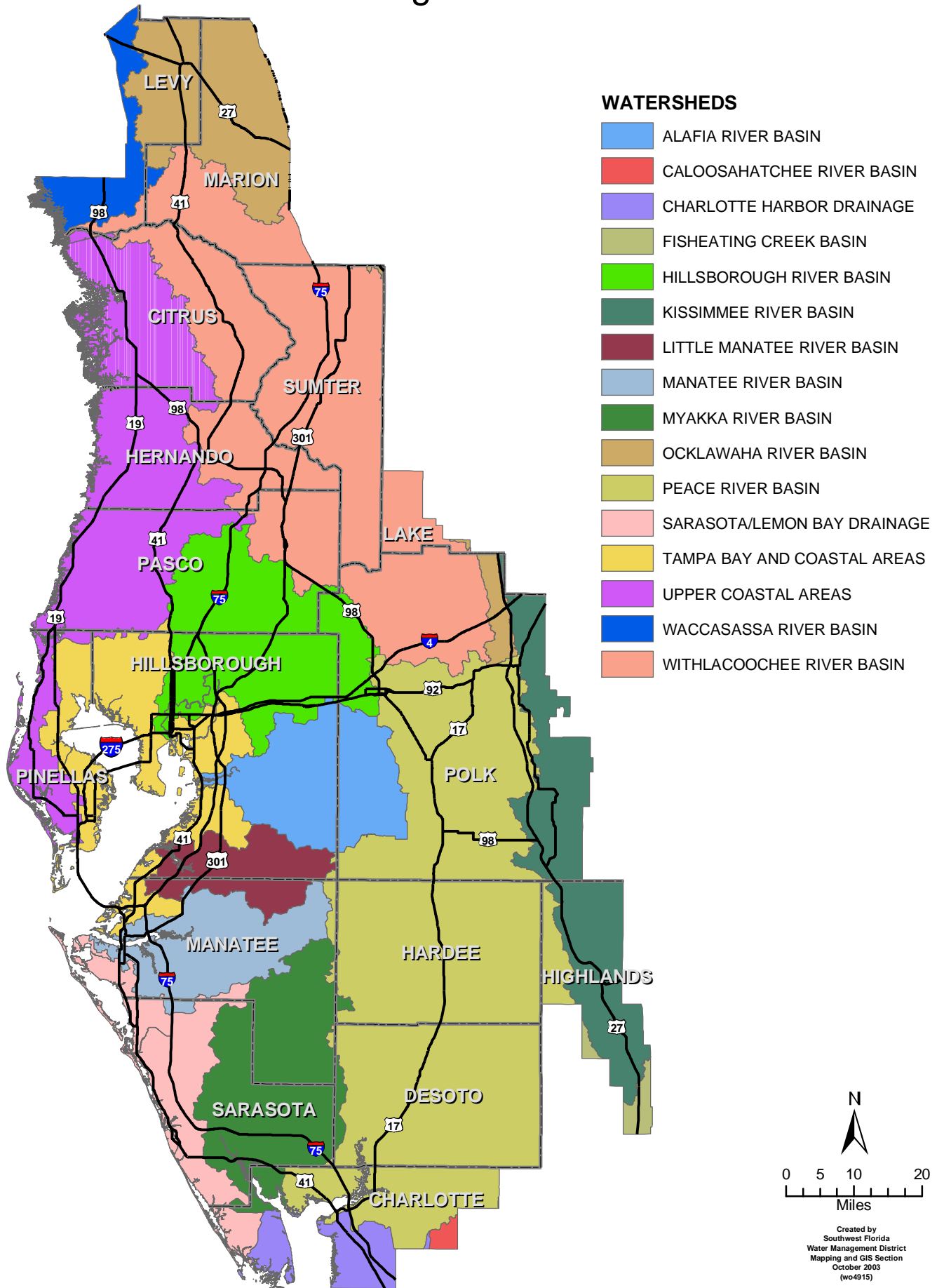
(c) Surface water improvement and management or invasive plant control projects undertaken using the \$12 million advance transferred from the Department of Transportation to the Department of Environmental Protection in fiscal year 1996-1997 which meet the requirements for mitigation under this part and 33 U.S.C. s. 1344 shall remain available for mitigation until the \$12 million is fully credited up to and including fiscal year 2006-2007. When these projects are used as mitigation, the \$12 million advance shall be reduced by \$75,000 per acre of impact mitigated. For any fiscal year through and including fiscal year 2006-2007, to the extent the cost of developing and implementing the mitigation plans is less than the amount transferred pursuant to subsection (3), the difference shall be credited towards the \$12 million advance. Except as provided in this paragraph, any funds not directed to implement the mitigation plan should, to the greatest extent possible, be directed to fund invasive plant control within wetlands and other surface waters.

B. Section 30, ch. 2005-71, amended paragraph (4)(c) "[i]n order to implement Specific Appropriations 1697-1722 of the 2005-2006 General Appropriations Act." Some specific appropriations and some proviso language relating to this appropriation were vetoed. See ch. 2005-70, the 2005-2006 General Appropriations Act.

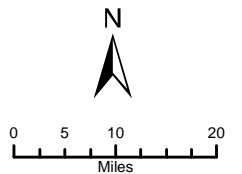
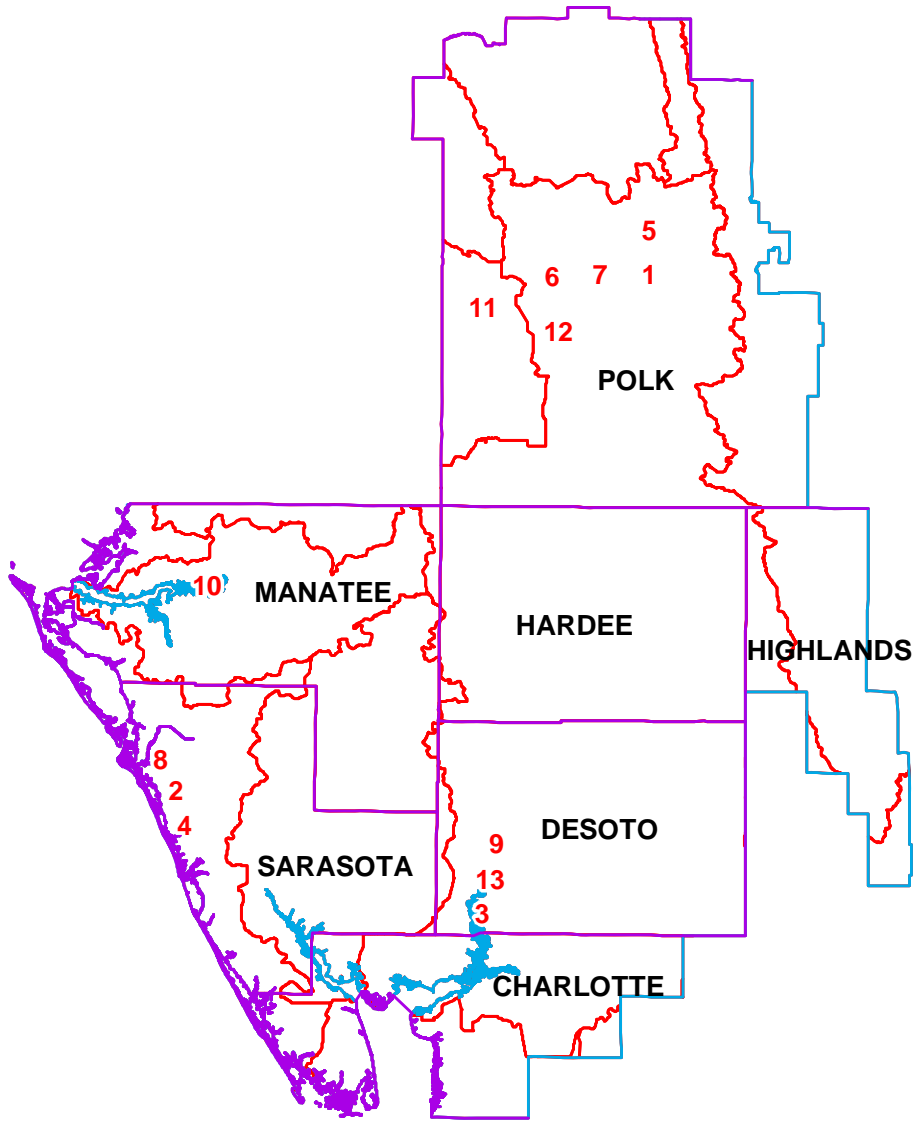
C. Section 54, ch. 2005-71, provides that "[a] section of this act that implements a specific appropriation or specifically identified proviso language in the 2005-2006 General Appropriations Act is void if the specific appropriation or specifically identified proviso language is vetoed. A section of this act that implements more than one specific appropriation or more than one portion of specifically identified proviso language in the 2005-2006 General Appropriations Act is void if all the specific appropriations or portions of specifically identified proviso language are vetoed." Not all specific appropriations or portions of specifically identified proviso language relating to the amendment of s. 373.4137(4)(c) were vetoed.

ERP Watersheds/Basins in the S.W.F.W.M.D.

Figure 1



**FDOT Wetland Impact Inventory
(District 1)
Anticipated Construction Commencement
2007-2013
Figure 2**



**FIGURE 2 – FDOT Project Location
 FDOT Wetland Impact Inventory (District 1 – 13 Projects)
 Anticipated Construction Commencement Dates – 2007 through 2013**

Map#	County	Project Number & Name	Const.
1	Polk	1977071 - US 27, SR 542 to CR 546	July - 2007
2	Sarasota	1980101 – US 301, Wood St. to University Pkwy.	Oct - 2008
3	DeSoto	4154901 – US 17, Charlotte C.L. to SW Collins	June - 2009
4	Sarasota	4063143 – I-75, N. River Rd. to SR 681	Oct – 2009
5	Polk	4110391 – US 27 – SR 546 to SR 544	Oct – 2009
6	Polk	4082683 – US 98, CR 540A to SR 540	May – 2009
7	Polk	1977061 – US 27, SR 540 to SR 542	Oct - 2010
8	Sarasota	1980172 – US 41, Center Rd. to US 41 Bus. North	March -2011
9	DeSoto	1938982 – US 17, CR 760 to Heard Street	Jan – 2011
10	Manatee	1996682 – Upper Manatee River, SR 64 to US 301	Aug – 2011
11	Polk	1973941 – SR 563, Pipkin Rd. to SR 572	Oct –2011
12	Polk	4082662 – US 98, Manor Drive to CR 540A	July - 2011
13	DeSoto	4178761 – US 17, SW Collins to CR 760A	March – 2013

**FDOT Wetland Impact Inventory
(District 5, District 7, Turnpike)
Anticipated Construction Commencement
2007-2015
Figure 3**

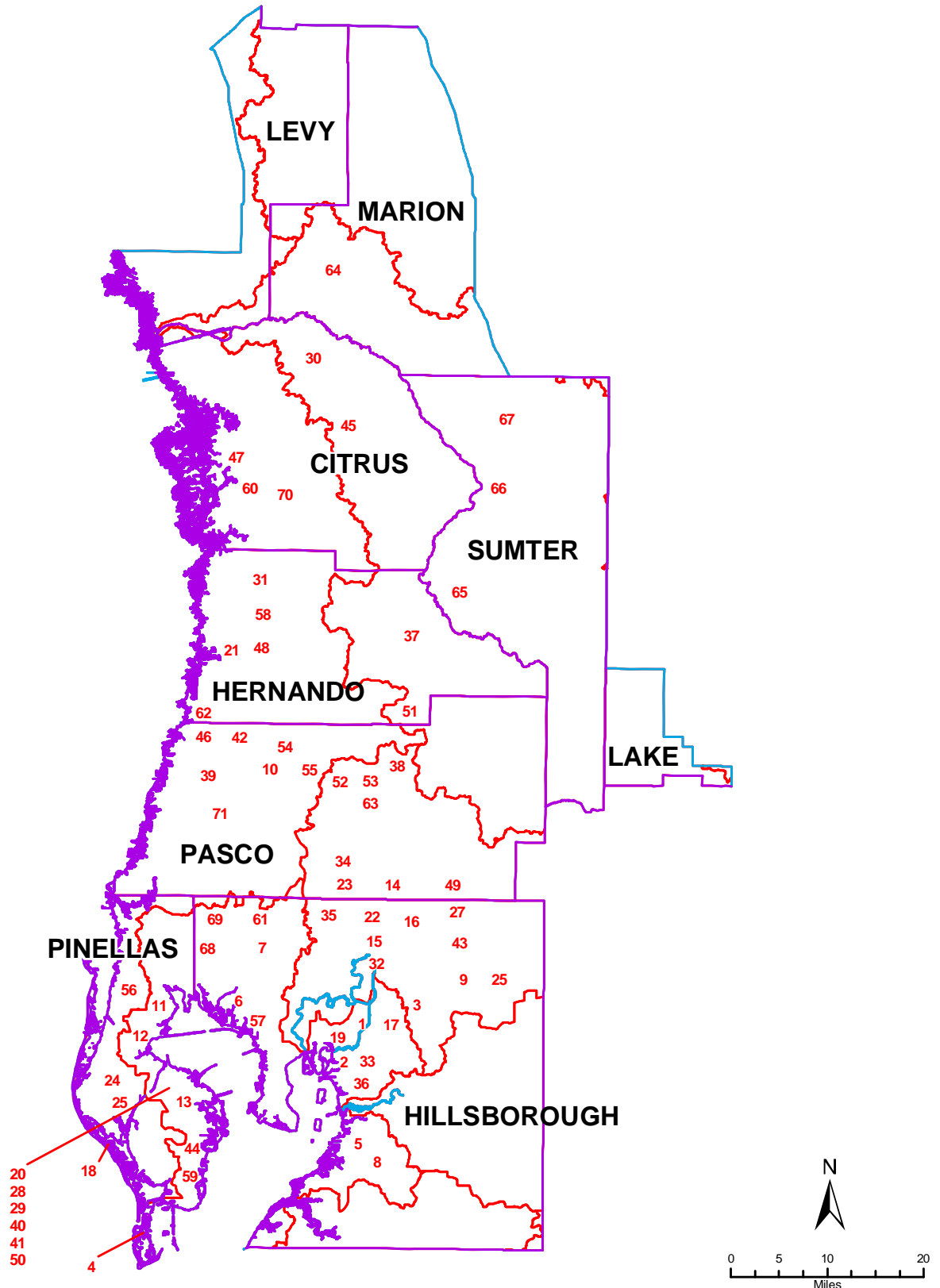


FIGURE 3 – FDOT Project Location
FDOT Wetland Impact Inventory (District 5 – 4 Projects,
District 7- 63 Projects, Turnpike – 4 Projects)
Anticipated Construction Commencement Dates – 2007 through 2015

Map#	County	Project Number & Name	Const.
District 7			
1	Pinellas	2569941 - CR 296 Connector, 40 th St. to 28 th St.	April-2008
2	Hillsborough	2555991 – SR 676 (Causeway), US 301 to US 41	Aug - 2007
3	Hillsborough	4113371 – US 92, Eureka Springs to Thonotassassa	July – 2007
4	Pinellas	2571521 - SR 679 (Bayway), Intercoastal to Bridge	Nov – 2007
5	Hillsborough	4133991 – US 41, 15 Terrace to Bullfrog Creek	Oct - 2007
6	Hillsborough	4143481 - Tampa Int. Airport (TIA), Runway 17-35	Nov -2007
7	Hillsborough	4152341 – SR 580, Dale Mabry Sidewalks	March - 2007
8	Hillsborough	4154891 – US 301, Sun City to Gibsonton Dr.	Oct – 2007
9	Hillsborough	2578622 – Park Rd., I-4 to Sam Allen Rd.	Aug – 2009
10	Pasco	2563241 - US 41, Tower Rd. to Ridge Rd.	March – 2009
11	Pinellas	2568811 – US 19, Whitney Rd. to Seville Dr.	Dec – 2008
12	Pinellas	2568812 - US 19 (SR 55), Seville Dr. to SR 60	Mar -2009
13	Pinellas	2569942 – CR 296 Connector, NB I-275 (Ramp P) to WB SR 692	Oct - 2008
14	Pasco	4079441 – I-75 Rest Areas	Sept - 2008
15	Hillsborough	4084592 - I-75, Fowler Ave. to CR 581	Mar -2009
16	Hillsborough	4089321 – SR 39 @ Hillsborough River	Feb – 2009
17	Hillsborough	4168411 – US 301, Uncle Tom Dr. to Bloomingdale	Oct – 2008
18	Pinellas	4107551 – SR 679 (Structure E) @ Intercoastal	March – 2009
19	Hillsborough	2584151 – Interstate – 4 at Selmon Expressway	Sept - 2009
20	Pinellas	2571471 – SR 688 (Ulmerton), 38 th St. to I-275	Oct - 2010
21	Hernando	4079513 – SR 50, US 19 to Mariner	May - 2011
22	Hillsborough	4084593 - I-75, CR 581 to SR 54	Oct -2010
23	Pasco	4084594 – I-75, Hills./Pasco Co. Line to CR 54	Dec – 2010
24	Pinellas	4091541 – SR 688 (Ulmerton), Wild Acres Rd. to El Centro/Ranchero	June - 2011
25	Pinellas	4188601 – US 19, Sunray Drive to Marine Parkway	Oct - 2010
26	Hillsborough	2555851 - SR 39, I-4 to Knights Griffin Rd.	Oct -2011
27	Hillsborough	2564222 – US 301, SR 39 to CR 54	Jan - 2012
28	Pinellas	2569981 – SR 686, I-275 to 9 th Street	Oct – 2011
29	Pinellas	2569961 – Roosevelt Blvd. and 49 th Street	Nov – 2011
30	Citrus	2571882 - SR 200, US 41 to Marion County Line	Jan – 2012
31	Hernando	4050172 - US 98, CR 485 (Cobb Rd.) to CR 491	Dec – 2011
32	Hillsborough	2557931 – US 301, Tampa Bypass to Fowler	Jan – 2013
33	Hillsborough	2558935 – SR 574 (MLK), Queen Palm to Williams	Oct - 2012
34	Pasco	2587362 – I-75, CR 54 to SR 52	Oct - 2012
35	Hillsborough	2584131 - SR 93 (I-275), US 41 to Pasco C.L.	Oct -2012
36	Hillsborough	4055252 – SR 60, US 301 to Falkenburg	Aug - 2013

Figure 3 (continued) - Wetland Impact Inventory (Districts 5, 7, Turnpike)

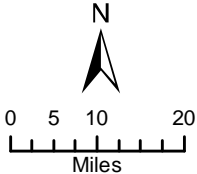
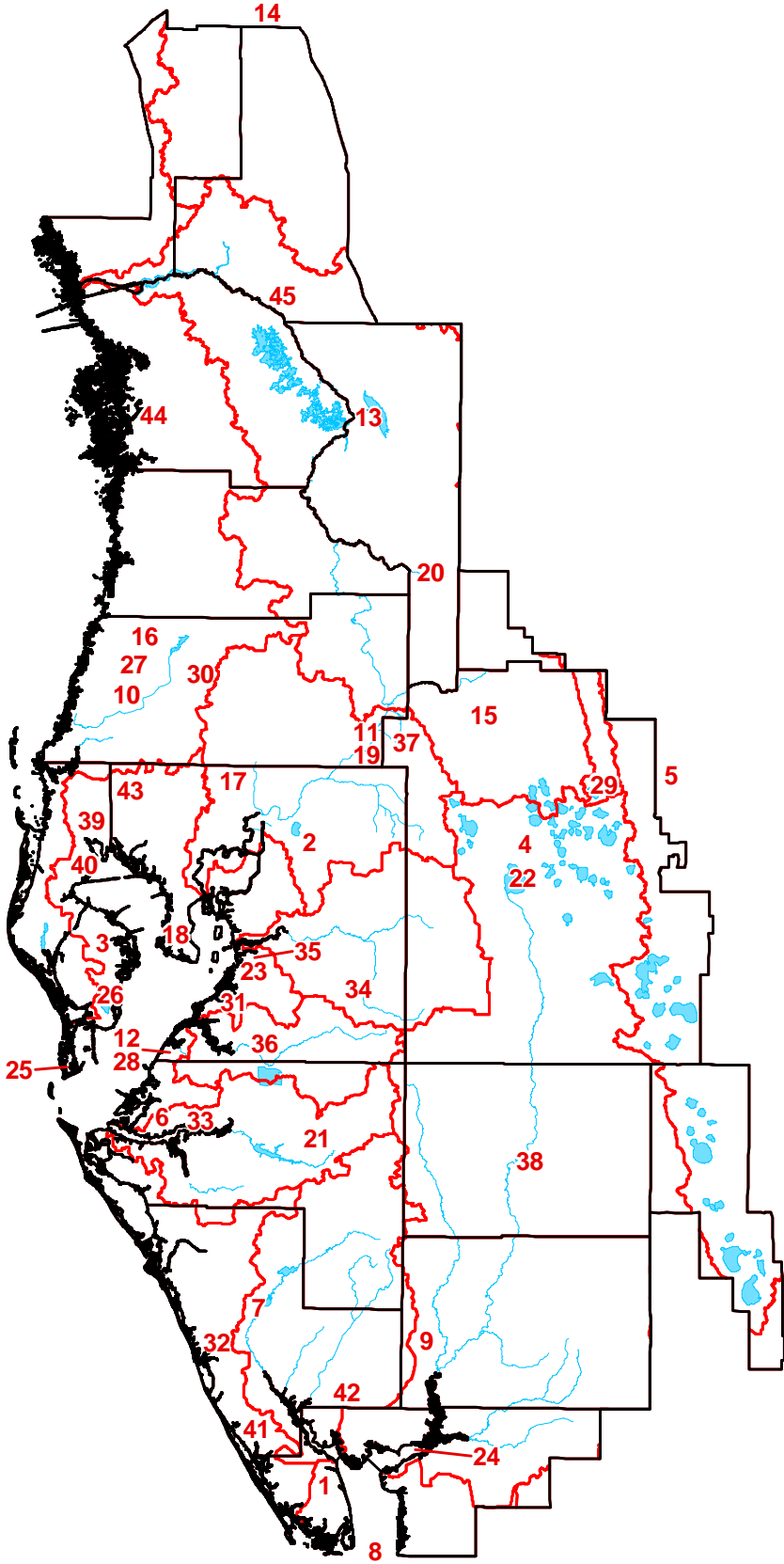
Map#	County	Project Number & Name	Const.
37	Hernando	4110122 – I-75, SR 50 to Hernando/Sumter C.L.	June – 2012
38	Pasco	4110142 – I-75, SR 52 to Pasco/Hernando C.L.	Oct - 2012
39	Pasco	2563231 – SR 52, Suncoast Parkway to US 41	June – 2014
40	Pinellas	2569951 - SR 686 (Roosevelt), Ulmerton to 40 th	May – 2014
41	Pinellas	2569971 – SR 686, 49 th St. Bridge to Ulmerton Rd.	Aug – 2014
42	Pasco	2572985 – CR 578 (County Line Rd.) Suncoast Parkway to US 41	Jan - 2014
43	Hillsborough	2578623 – Sam Allen Rd., Alexander St. to Park Rd.	April – 2014
44	Pinellas	2569312 – Gandy Blvd., 9 th Street to 4 th Street	May – 2014
45	Citrus	2571651 – US 41, SR 44 to SR 200	Dec – 2013
46	Pasco	2572983 – CR 578 (County Line Rd.), East Road to Mariner Blvd.	June – 2014
47	Citrus	4058222 – US 19, Green Acres to Jump Court	June – 2014
48	Hernando	4079512 – SR 50, Mariner to Suncoast Parkway	June – 2014
49	Hillsborough	4080741 – SR 56, Wesley Chapel to Morris Bridge	June – 2014
50	Pinellas	4091551 – SR 688 (Ulmerton), Lake Seminole to Wild Acres	June – 2014
51	Hernando	4110112 – I-75, Pasco/Hernando to SR 50	July – 2013
52	Pasco	2562432 – SR 52, CR 581 to Old Pasco Rd.	Oct – 2014
53	Pasco	2562433 – SR 52, Old Pasco Rd. to I-75	July – 2014
54	Pasco	2563242 – US 41, Ridge Rd. to SR 52	May – 2014
55	Pasco	2563341 – SR 52, US 41 to CR 581	April – 2015
56	Pinellas	2567742 – US 19, SR 580 to CR 95	April – 2015
57	Hillsborough	4125311 – SR 60, I-75 to Spruce	Dec - 2014
58	Hernando	2572992 - CR 485 (Cobb Rd.), SR 50 to US 98	April –2016
59	Pinellas	2569311 - Gandy Blvd. (SR 694), US 19 to 4 th St.	Undetermined
60	Citrus	4059223 – US 19, West Jump Ct. to CR 44	Undetermined
61	Hillsborough	4209331 – Dale Mabry, Veteran's Exp. to US 41	Undetermined
62	Pasco	2572982 – CR 578 (County Line Road) US 19 to East Road	Undetermined
63	Pasco	4165611 – CR 54, I-75 to US 301	Undetermined
District 5			
64	Marion	2387201 – SR 40, US 41 to CR 328	Oct - 2011
65	Sumter	2426262 – I-75, Hernando C.L. to SR 470	Undetermined
66	Sumter	2426263 – I-75, SR 470 to Turnpike	Undetermined
67	Sumter	2404182 – SR 48, I-75 to CR 475	Undetermined

Figure 3 (continued) - Wetland Impact Inventory (Districts 5, 7, Turnpike)

Map#	County	Project Number & Name	Const.
Turnpike			
68	Hillsborough	4061511 – Veteran's Expressway Memorial Hwy. to Linebaugh Ave.	July, 2010
69	Hillsborough	4061511 – Veteran's Expressway Linebaugh Ave. to Dale Mabry	Undetermined, Possibly 2014
70	Citrus	4052701 – Suncoast Parkway 2	July, 2011
71	Hernando	2589581 – Suncoast 1 & Ridge Road Interchange	Undetermined

FDOT Mitigation Projects

Figure 4



Created by
Southwest Florida
Water Management District
Mapping and GIS Section
November 2007
(w04915)

FIGURE 4 - FDOT Mitigation Projects

- 1 SW 31 - Cattle Dock Point (DEP / WMD – SWIM)
- 2 SW 34 - Lake Thonotasassa (WMD – SWIM)
- 3 SW 45 - Gateway Restoration (Pinellas Co. / WMD – SWIM)
- 4 SW 47 - Tenoroc / Saddle Creek (DEP / FFWCC)
- 5 SW 49 - Reedy Creek Mitigation Bank (Private Mitig. Bank)
- 6 SW 50 - Terra Ceia Restoration (DEP / WMD – SWIM)
- 7 SW 51 - Myakka River State Park (DEP - Parks)
- 8 SW 52 - Little Pine Island Mitigation Bank (Private Mitig. Bank)
- 9 SW 53 - Boran Ranch Mitigation Bank (Private Mitig. Bank)
- 10 SW 54 - Anclote Parcel (WMD – Land Resources)
- 11 SW 55 - Upper Hillsborough 4&5 (WMD – Land Resources)
- 12 SW 56 - Cockroach Bay, Freshwater (Hills. Co. Parks / WMD – SWIM)
- 13 SW 57 - Lk. Panasoffkee Restoration (WMD - SWIM)
- 14 SW 58 - Ledwith Lake (Alachua County)
- 15 SW 59 - Hampton Tract (WMD – Land Resources)
- 16 SW 60 - Serenova Extension (WMD - Land Resources)
- 17 SW 61 - Cypress Ck. Preserve, Jennings Tract (Hills. County Parks)
- 18 SW 62 - Tappan Tract (City of Tampa / WMD – SWIM)
- 19 SW 63 - Hillsborough River Corridor (WMD - Land Resources)
- 20 SW 64 - Baird Tract (DEP / DOF)
- 21 SW 65 - Rutland Ranch (WMD - Land Resources)
- 22 SW 66 – Circle B Bar Reserve (Polk County / WMD – Land Res.)
- 23 SW 67 – Apollo Beach (Hills Co. Parks / WMD – SWIM)
- 24 SW 69 – Peace River Bridge Restoration (DOT/ WMD)
- 25 SW 70 - Fort DeSoto Park (Pinellas County / WMD – SWIM)
- 26 SW 71 - Boyd Hill Nature Park (City of St. Petersburg)
- 27 SW 74 - Serenova Preserve, Sites 2,3,4,8 (WMD – Land Resources)
- 28 SW 75 – Cockroach Bay – Saltwater (Hills. Co. Parks / WMD-SWIM)

FIGURE 4 - FDOT MITIGATION PROJECTS (Continued)

- 29 SW 76 - Lake Lowery Tract (Polk Co. / WMD – Land Resources)**
- 30 SW 77 – Conner Preserve (WMD – Land Resources)**
- 31 SW 78 - Bahia Beach (Hills. Co. Parks & EPC / WMD-SWIM)**
- 32 SW 79 – Fox Creek Regional Mitigation Project (Sarasota County)**
- 33 SW 80 – Hidden Harbour (Manatee County / WMD)**
- 34 SW 81 - Balm Boyette (Hills. Co. Parks & EPC / WMD-SWIM)**
- 35 SW 82 – Ekker Tract (Hills. Co. Parks / WMD-SWIM)**
- 36 SW 83 - Little Manatee River – Lower Tract (Hills. Co. Parks)**
- 37 SW 84 – Colt Creek State Park (FDEP – Parks / WMD-Land Res.)**
- 38 SW 85 – Peace River Mitigation Bank (Private Mitigation Bank)**
- 39 SW 86 – Mobbly Bayou Preserve (Pinellas Co. / WMD-SWIM)**
- 40 SW 87 – Alligator Lake Management Area (Pinellas Co. / WMD-SWIM)**
- 41 SW 88 – Curry Creek Regional Mitigation Project (Sarasota County)**
- 42 SW 89 – Myakka Mitigation Bank (Private Mitigation Bank)**
- 43 SW 90 – Brooker Creek Buffer Preserve (Hills. Co. Parks)**
- 44 SW 91 – Upper Coastal Mitigation Bank (Private Mitigation Bank)**
- 45 SW 92 – Halpata Tastanaki Preserve (WMD-Land Resources)**

Table 1. FDOT WETLAND IMPACT INVENTORY

Update - December, 2007
From Previous Plans
To Future Plans

Mitig. Transfer-> New DOT Proj.> <Deferred Mitig. <Deferring Mitig.

Wetland Habitat Type - Proposed Impact Acreages

Mit. Plan Year	DOT Dis.	County	Drainage Basin	FM No.	DOT Construction Date	Project Description	500 Open Water (Canal)	510 Streams & Waterways	530 Reservoir (Ponds)	540 Bays & Estuaries	610 Freshwater Hardwood Forest	611 Bay Swamp	612 Mangrove	615 Stream Swamp	616 Inland Pond	617 Mixed Hardwood Forest	618 Willow & Elderberry	619 Exotic Hardwood	621 Cypress	624 Cypress, Pine & C. Palm	625 Hydric Flatwoods	630 Mixed Wetland Forest	631 Wetland Scrub	640 Fresh Water Non-For.	641 Fresh Water Marsh	641x Fresh Water (Ditch)	642 Estuarine Marsh	642x S.Water (Ditch)	643 Wet Prairie	644 Lake Marsh	911 Seagrass	Total Impacted Acreage	Mitigation Location	Remarks		
97	1	Charlotte	Myakka River	1937941	July, 1999	SR 776 CR 771 to Willow Bend Road			2.20	2.08			3.10												2.20							10.96	SW 52 - Pine Island Mit. Bank (2.1 Ac.) SW 31 - Cattle Dock (8.9 Ac.)	no revisions		
98	1	Sarasota	Myakka River	1980131	Sept., 1999	SR 72 Deer Prairie to Big Slough																		0.87								0.87	DEP - PARKS SW 51 - Myakka River State Park	no revisions		
98	1	Sarasota	Myakka River	1979251	Jan., 1999	SR 72 Big Slough to DeSoto C.L.								0.30											1.19							1.49	DEP - PARKS SW 51 - Myakka River State Park	no revisions		
04	1	Sarasota	Myakka River	4138871	Oct., 2005	SR 72 Myakka River to Big Slough																			3.00			2.00				5.00	DEP - PARKS SW 51 - Myakka River State Park	no revisions		
04	1	Sarasota	Myakka River	4063143	April, 2010	I-75 N. River Road to SR 681																									0.30	Private Mitigation Bank SW 89 - Myakka Mitigation Bank	addit. impacts in L. Coastal			
5	1					SUBTOTAL BY BASIN:	0.00	0.00	2.20	2.08	0.00	0.00	3.10	0.30	0.00	0.00	0.00	1.38	0.00	0.00	0.00	0.00	0.00	0.30	2.36	5.20	0.00	0.00	2.00	0.00	0.00	18.62		18.62		
97	5	Marion	Ocklawaha River	238641	Sept., 2002	US 27 Levy Co. Line to SR 326																		3.50								3.50	Alachua Co. SW 58 - Ledwith Prairie	no revisions		
97	5	Marion	Ocklawaha River	238679	Sept., 1999	US 27 SR 326 to CR 225a																			1.09							1.09	Alachua Co. SW 58 - Ledwith Prairie	no revisions		
01	5	Marion	Ocklawaha River	238719	June, 2004	SR 40 CR 328 to SW 80th																			0.08							0.08	Alachua Co. SW 58 - Ledwith Prairie	no revisions		
03	1	Polk	Ocklawaha River	1976791	June, 2003	US 27 SR 544 to Blue Heron Bay		0.02																								0.46	Polk Co. / WMD-LAND SW 76 - Lake Lowery	additional impacts in Peace no revisions		
03	1	Polk	Ocklawaha River	4038901	August, 2003	US 27 Blue Heron Bay to CR 547																0.30	0.14									1.90	Polk Co. / WMD-LAND SW 76 - Lake Lowery	no revisions		
03	1	Polk	Ocklawaha River	2012041	Sept., 2002	I-4, CR 557 to Osceola Co. Line (Sec. 6, 7, & 9)													0.59													4.35	Polk Co. / WMD-LAND SW 76 - Lake Lowery	addit. impacts in With. & Kissim. no revisions		
04	1	Polk	Ocklawaha River	4110391	Oct., 2010	US 27 CR 546 to SR 544																										1.00	Polk Co. / WMD-LAND SW 76 - Lake Lowery	additional impacts in Peace no revisions		
07	5	Marion	Ocklawaha River	238720	March, 2011	SR 40 SR 45 (US 41) to CR 328			0.11																							0.11	Alachua Co. SW 58 - Ledwith Prairie	no revisions		
8	2					SUBTOTAL BY BASIN:	0.00	0.02	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.00	0.00	2.20	0.14	7.26	2.17	0.00	0.00	0.00	0.00	0.00	0.00	12.49		12.49			
96	1	Polk	Peace River	2012092	Oct., 2002	I-4, East of US 98 to East of CR 557 (Sec. 3-5)		0.20																								1.88	DEP/FFWCC SW 47 - Tenoroc/Saddle Creek	addit. impacts in Withlacoochee no revisions		
97	1	Hardee	Peace River	1986401	May, 1999	Fl. Green/Ona Road (Seg. 1) Vandolah to SR 62																										2.08	Private Mitigation Bank SW 53 - Boran Ranch Mit. Bank	no revisions		
97	1	Desoto	Peace River	1938880	Oct., 2000	SR 72 Sarasota Co. Line to SR 70								1.19																		1.19	Private Mitigation Bank SW 53 - Boran Ranch Mit. Bank	no revisions		
97	1	Hardee	Peace River	1111286	Feb., 2001	US 17 (SR 35) SR 64 to Peace River Bridge								1.84											0.46							2.30	Private Mitigation Bank SW 53 - Boran Ranch Mit. Bank	no revisions		
97	1	Polk	Peace River	1974751	July, 2000	SR 540 (Cypress Gardens) Thornhill Rd. to Recker Hwy.					0.59	0.33		2.86		1.35																5.87	DEP/FFWCC SW 47 - Tenoroc/Saddle Creek	no revisions		
97	1	Polk	Peace River	1974711	Nov., 2000	SR 540 (Cypress Gardens) 9th Street to Overlook																			0.06							0.41	DEP/FFWCC SW 47 - Tenoroc/Saddle Creek	no revisions		
98	1	Charlotte	Peace River	1937911	Oct., 2000	US 17 (SR 35) CR 74 to CR 764 North																										0.27	Private Mitigation Bank SW 53 - Boran Ranch Mit. Bank	no revisions		
98	1	Charlotte	Peace River	1984711	Oct., 2000	Trabue Harborwalk Bike Path																											0.16	Private Mitigation Bank SW 52 - L. Pine Island Mit. Bank	no revisions	
98	1	Hardee	Peace River	1986381	Oct., 2000	Fl. Green/Ona (Seg. 2) Vandolah to North of Vandolah																											7.22	Private Mitigation Bank SW 53 - Boran Ranch Mit. Bank	no revisions	
98	1	Hardee	Peace River	1986371	Oct., 2003	Fl. Green/Ona (Seg. 3) SR 64 to Vandolah Rd.																												5.23	Private Mitigation Bank SW 53 - Boran Ranch Mit. Bank	no revisions
99	1	Charlotte	Peace River	1937981	Oct., 2002	US 17 (SR35) CR 764 South to CR 764 North			0.30																								3.60	Private Mitigation Bank SW 53 - Boran Ranch Mit. Bank	no revisions	
99	1	Charlotte	Peace River	4046971	Jan., 2002	I-75 Bridge Widening over Peace River																											3.55	SW 69 - Peace Restor. (0.8 ac.) SW 52 - LPI Mit. Bank (2.75 ac.)	no revisions	
00	1	Polk	Peace River	1975331	June, 2003	US 27 Townerview Rd. to SR 540																											3.90	Polk Co. / WMD-LAND SW 66 - Circle B Bar Reserve	no revisions	
00	1	Hardee	Peace River	1940931	Oct., 2002	US 17 (SR 35) Peace River to Tropicana Rd.																											4.42	Polk Co. / WMD - LAND SW 66 - Circle B Bar Reserve	no revisions	
01	1	Polk	Peace River	1938991	Sept., 2002	US 17 Livingston to Hardee County Line																												11.59	Polk Co. / WMD - LAND SW 66 - Circle B Bar Reserve	no revisions
01	1	Polk	Peace River	1971681	Aug., 2002	SR 60A (Van Fleet Dr.) CR 555 to Broadway Ave.																											0.46	Polk Co. / WMD - LAND SW 66 - Circle B Bar Reserve	no revisions	
01	1	Polk	Peace River	1976791	June, 2003	US 27 SR 544 to Blue Heron Bay																											0.60	Polk Co. / WMD - LAND SW 66 - Circle B Bar Reserve	addit. impacts in Ocklawaha no revisions	
02	1	Polk	Peace River	1977061	Oct., 2010	US 27 SR 540 to SR 542		0.02			0.08																						1.78	Polk Co. / WMD - LAND SW 66 - Circle B Bar Reserve	no revisions	
02	1	Polk	Peace River	1977071	July, 2007	US 27 SR 542 to CR 546																											0.55	Polk Co. / WMD-LAND SW 66 - Circle B Bar Reserve	no revisions	
02	1	Polk	Peace River	1976381	Aug., 2003	US 98 - Carpenter's Way to Daugherty Road								0.10																			0.10	Polk Co. / WMD-LAND SW 66 - Circle B Bar Reserve	no revisions	
03	1	Polk	Peace River	1977051	July, 2006	US 27 SR 60 to Townerview Blvd.		0.01																									0.19	Polk Co. / WMD-LAND SW 66 - Circle B Bar Reserve	no revisions	
04	1	Polk	Peace River	4110391	Oct., 2009	US 27 CR 546 to SR 544																												6.70	Polk Co. / WMD-LAND SW 66 - Circle B Bar Reserve	addit. impacts in Ocklawaha no revisions
06	1	Polk	Peace River	4082682	July, 2011	US 98 Manor Drive to CR 540A																												4.00	Polk Co. / WMD-LAND SW 66 - Circle B Bar Reserve	no revisions
06	1	Polk	Peace River	4082683	Jan., 2014	US 98 CR 540A to SR 540																												1.90	Polk County / WMD-LAND SW 66 - Circle B Bar Reserve	no revisions
06	1	Desoto	Peace River	4154901	Oct., 2010	US 17 Charlotte C.L. to SW Collins								1.30		0.90																	4.90	SW 53 - Boran Ranch Mit. Bank (2.1 ac.) SW 89 - Peace River Mit. Bank (2.2 ac.)	-1.6 acres from 2007	
06	1	Desoto	Peace River	1938982	June, 2012	US 17 CR 760A to Heard Street								3.00																			4.00	SW 53 - Boran Ranch Mit. Bank (1.0) SW 89 - Peace River Mit. Bank (3.0)	no revisions	
06	1	Desoto	Peace River	4178761	March, 2018	US 17 SW Collins to CR 760A																											8.00	Private Mitigation Bank SW 53 - Boran Ranch Mit. Bank	+6.3 acres from 2007	
27	1					SUBTOTAL BY BASIN:	0.00	0.23	0.30	0.16	0.67	2.19	3.55	10.97	0.00	4.77	0.48	0.00	0.00	0.00	0.00															

Table 1. FDOT WETLAND IMPACT INVENTORY

Update - December, 2007

Mitig. Transfer-
New DOT Proj->

<Deferred Mitig.
<Deferring Mitig.
From Previous Plans
To Future Plans

Wetland Habitat Type - Proposed Impact Acreages

Mit. Plan Year	DOT Dis.	County	Drainage Basin	FM No.	DOT Construction Date	Project Description	500 Open Water (Canal)	510 Streams & Waterways	530 Reservoir (Ponds)	540 Bays & Estuaries	610 Freshwater Hardwood Forest	611 Bay Swamp	612 Mangrove	615 Stream Swamp	616 Inland Pond	617 Mixed Hardwood Forest	618 Willow & Elderberry	619 Exotic Hardwood	621 Cypress	624 Cypress, Pine & C. Palm	625 Hydric Flatwoods	630 Mixed Wetland Forest	631 Wetland Scrub	640 Fresh Water Non-For.	641 Fresh Water Marsh	641x Fresh Water (Ditch)	642 Estuarine Marsh	642x S.Water (Ditch)	643 Wet Prairie	644 Lake Marsh	911 Seagrass	Total Impacted Acreage	Mitigation Location	Remarks
97	7	Hillsborough	Tampa Bay	2557341	Jan., 2001	SR 676 Maritime Blvd. to SR 60							1.00				0.50													1.50	WMD-SWIM / Pinellas Co. SW 45 - Gateway Tract	no revisions		
97	7	Pinellas	Tampa Bay	2569571	Sept., 2002	US 19 SR 60 (Drew) to Railroad											0.20							0.30						0.50	WMD-SWIM / Hills Co. SW 56 - Cockroach Bay (Fresh)	no revisions		
97	7	Pinellas	Tampa Bay	2588701	May, 2002	I-275 Roosevelt to Big Island Gap							4.90				3.20							0.50						9.10	WMD-SWIM / Pinellas Co. SW 45 - Gateway Tract	no revisions		
98	7	Pinellas	Tampa Bay	2569051	Feb., 2000	SR 679 (Bayway) Bunces Pass Bridge # 150				0.10															0.50					0.60	WMD-SWIM / Pinellas Co. SW 45 - Gateway Tract	no revisions		
00	7	Pinellas	Tampa Bay	4037701	April, 2002	US 19, CR 816 (Alderman) to SR 582 (Tarpon)											0.10													0.10	City of St. Petersburg SW 71 - Boyd Hill Nature Park	no revisions		
00	7	Pinellas	Tampa Bay	2568881	Feb., 2003	US 19 Coachman Rd. to Sunset Point										0.30	0.20													0.50	City of St. Petersburg SW 71 - Boyd Hill Nature Park	no revisions		
00	7	Pinellas	Tampa Bay	4062531	Nov., 2003	SR 686 (Roosevelt) at 49th Street							0.20																	0.20	WMD-SWIM / Pinellas Co. SW 45 - Gateway Tract	no revisions		
00	7	Hillsborough	Tampa Bay	2557031	Aug., 2004	SR 60 Cypress St. to Fish Creek	0.60		0.10				0.30											0.80	0.60	10.70	3.50			16.60	SW 62 - Tappan (5.1), SW 56 & 75 CR Bay (6.2), SW 67- Apollo (5.3)	no revisions		
00	7	Hillsborough	Tampa Bay	2583981	Aug., 2006	I-275 Howard Franklin to Himes Ave.							0.70												0.80					1.50	WMD - SWIM / Pinellas Co. SW 45 - Gateway Tract	no revisions		
00	7	Hillsborough	Tampa Bay	2556301	Aug., 2004	SR 60 Courtney Campbell to Fish Creek							4.40													4.10				12.20	WMD - SWIM / Pinellas Co. SW 45 - Gateway Tract	0.2 acre seagrass impact on-site mitig. by DOT		
01	7	Hillsborough	Tampa Bay	2558881	Oct., 2005	US 301 Sligh Ave. to Tampa Bypass Canal										6.40	1.90							3.00						11.30	St. Pete - Boyd Hill (8.3) SW 56 - C.R. Bay (Fresh) (3.0)	no revisions		
01	7	Pinellas	Tampa Bay	2571391	Sept., 2005	SR 688 (Ulmerton Rd.), US 19 to 49th Street							0.10																	0.10	WMD-SWIM / Hills Co. SW 75 - Cockroach Bay (Salt)	no revisions		
01	7	Hillsborough	Tampa Bay	4082011	Sept., 2003	Himes Ave. at Hillsborough Ave.											0.10													0.10	City of St. Petersburg SW 71 - Boyd Hill Nature Park	no revisions		
02	7	Pinellas	Tampa Bay	4062561	Nov., 2003	East-West Trail, Coopers Bayou to Bayside											0.10													0.10	City of St. Petersburg SW 71 - Boyd Hill Nature Park	no revisions		
02	7	Pinellas	Tampa Bay	2570701	July, 2006	US 19 (SR 55) 49th St. to 118th Avenue										0.10														0.10	City of St. Petersburg SW 71 - Boyd Hill Nature Park	no revisions		
02	7	Pinellas	Tampa Bay	2569941	Feb., 2009	CR 296 Connector 40th St. to 28th St.																1.00								1.00	WMD-SWIM / Hills Co. SW 56 - Cockroach Bay (Fresh)	no revisions		
02	7	Hillsborough	Tampa Bay	2555991	Aug., 2007	SR 676 (Causeway Blvd.) SR 301 to US 41		0.20			0.20													1.00						1.40	SW 56 - C.R. Bay (Fresh) (1.2) SW 71 - Boyd Hill (0.2)	no revisions		
02	7	Pinellas	Tampa Bay	2569981	Oct., 2012	SR 686 (Roosevelt) I-275 to 9th St.												2.10												2.80	WMD - SWIM / Pinellas Co. SW 86 - Mobbly Bayou	no revisions		
02	7	Pinellas	Tampa Bay	2569311	Undetermined	Gandy Blvd. (SR 694) US 19 to 4th St.			0.50																				0.10	0.60	WMD-SWIM / Pinellas Co. SW 86 - Mobbly Bayou	goes with FM 2569312 no revisions		
03	7	Hillsborough	Tampa Bay	4143481	2007 thru post-2025	Tampa International Airport (TIA) (17 Construction Phases)										11.73	0.12	4.18	2.73				9.40		4.75						35.05	WMD-SWIM / Hills Co. SW 78 - Bahia Beach	+2.84 acres from 2007	
03	7	Pinellas	Tampa Bay	2568812	Oct., 2009	US 19 (SR 55) Seville Dr. to SR 60												0.20												0.20	WMD-SWIM / Hills Co. SW 56 - Cockroach Bay (Fresh)	no revisions		
03	7	Pinellas	Tampa Bay	2569951	Jan., 2013	SR 686 (Roosevelt) Ulmerton Rd. to 40th St.	0.50		0.30								0.40	0.10						0.60	0.20					2.10	WMD-SWIM / Pinellas Co. SW 86 - Mobbly Bayou	no revisions		
04	7	Pinellas	Tampa Bay	2569942	Oct., 2009	CR 296 Connector NB I-275 (Ramp P) to WB SR 692																						1.10		1.10	WMD-SWIM / Hills Co. SW 56 - Cockroach Bay (Fresh)	no revisions		
04	7	Pinellas	Tampa Bay	2568811	Jan., 2009	US 19 (SR 55) Whitney Rd. to Seville Dr.							0.50																	0.50	WMD - SWIM / Pinellas Co. SW 86 - Mobbly Bayou	-0.3 acre from 2007		
04	7	Pinellas	Tampa Bay	2569971	Oct., 2017	SR 686 (Roosevelt Blvd.) 49th St. Bridge to Ulmerton Rd.													0.10					0.20						0.30	WMD - SWIM / Pinellas Co. SW 86 - Mobbly Bayou	goes with FM 2569961 no revisions		
04	7	Pinellas	Tampa Bay	4091551	Oct., 2012	SR 688 (Ulmerton Rd.) Lake Seminole to Wild Acres	1.50		0.30																					1.80	WMD - SWIM / Pinellas Co. SW 86 - Mobbly Bayou	no revisions		
04	7	Hillsborough	Tampa Bay	4113371	Sept., 2007	US 92 Eureka Springs to Thonotassasa Rd.					0.10						0.10													0.20	WMD - SWIM / Hills Co. SW 82 - Ekker Tract	addit. impacts in Hills. Basin no revisions		
04	7	Hillsborough	Tampa Bay	2584151	Dec., 2009	I-4 (SR 400) @ Selmon Expressway							5.60					0.30				0.10		0.30						6.30	WMD - SWIM / Pinellas Co. SW 86 - Mobbly Bayou	no revisions		
06	7	Hillsborough	Tampa Bay	4152342	Oct., 2011	SR 580 - Dale Mabry Sidewalks												0.03													0.03	WMD - SWIM / Pinellas Co. SW 86 - Mobbly Bayou	no revisions	
06	7	Hillsborough	Tampa Bay	4055252	Dec., 2015	SR 60 (Adamo Drive) US 301 to East of Falkenburg												1.00												2.00	WMD - SWIM / Pinellas Co. SW 86 - Mobbly Bayou	no revisions		
06	7	Pinellas	Tampa Bay	2569961	Jan., 2014	SR 686 (Roosevelt Blvd.) and 49th Street							1.00																	3.10	WMD - SWIM / Pinellas Co. SW 86 - Mobbly Bayou	goes with FM 2569971 no revisions		
06	7	Hillsborough	Tampa Bay	4154892	Dec., 2007	US 301, Balm Road to Gibsonton Drive												1.00												11.50	WMD - SWIM / Hills Co. SW 82 - Ekker Tract	addit. impacts in Alafia basin no revisions		
06	7	Hillsborough	Tampa Bay	4154893	Oct., 2010	US 301, Sun City Center to Balm Road							4.80									7.20	2.80							7.50	SW 71 - Boyd Hill Nature Park SW 82 - Ekker Tract	addit. impacts in L. Coastal 2.9 acres mitig. on-site by DOT		
06	7	Pinellas	Tampa Bay	2569312	Oct., 2012	Gandy Blvd. (SR 694) 9th Street to 4th Street North												2.00						1.30						3.30	WMD - SWIM / Pinellas Co. SW 87 - Alligator Lake	-1.0 acre from 2007		
06	8	Hillsborough	Tampa Bay	4061511	July, 2010	Veteran's Expressway Memorial Hwy. to Anderson Rd.																		2.45						3.43	Hillsborough Co. SW 90 - Brooker Ck. Buffer Preserve	deferred mit. selection		
06	8	Hillsborough	Tampa Bay	4061511	July, 2010	Veteran's Expressway Anderson Rd. to Gunn Hwy.																		3.13						11.23	Hillsborough Co. SW 90 - Brooker Ck. Buffer Preserve	deferred mit. selection		
07	7	Hillsborough	Tampa Bay	4168411	March, 2009	US 301 Uncle Tom to Bloomingdale Road																								0.20	WMD-SWIM / Pinellas Co. SW 88 - Mobbly Bayou	no revisions		
07	7	Pinellas	Tampa Bay	2571471	Oct., 2010	SR 688 (Ulmerton Rd.) 38th to I-275																								0.20	WMD-SWIM / Pinellas Co. SW 87 - Alligator Lake	no revisions		
07	7	Hillsborough	Tampa Bay	2558935	Jan., 2010	SR 574 (MLK) Queen Palm Dr. to Williams Rd.								0.10																0.20	WMD-SWIM / Pinellas Co. SW 87 - Alligator Lake	no revisions		
07	7	Hillsborough	Tampa Bay	4125311	Dec., 2014	SR 60 I-275 to Spruce St.							1.00																	1.00	WMD-SWIM / Pinellas Co. SW 86 - Mobbly Bayou	no revisions		
07	7	Hillsborough	Tampa Bay	4153481	Undetermined	Tampa Bay Intermodal Centers Gateway Site											0.20													0.20	WMD-SWIM / Pinellas Co. SW 86 - Mobbly Bayou	no revisions		
07	7	Hillsborough	Tampa Bay	4209331	Undetermined	Dale Mabry Ave. Veteran's Expressway to US 41													0.30					0.30						0.90	WMD-SWIM / Pinellas Co. SW 87 - Alligator Lake	no revisions		
08	7	Hillsborough	Tampa Bay	4168421	Feb., 2010	US 301 Falkenburg to MLK Blvd.																								0.50	WMD-SWIM / Pinellas Co. SW 87 - Alligator Lake	2008, new project		
08	7	Pinellas	Tampa Bay	4168381	Jan., 2010	US 92 (SR 600 / Gandy) Pelican Sound to Gandy Bridge																				0.40				0.40	WMD-SWIM / Pinellas Co. SW 86 - Mobbly Bayou	2008, new project		
08	7	Pinellas	Tampa Bay	4136222	Nov., 2016	CR 296 US 19 to Roosevelt / CR 296																								4.10	WMD-SWIM / Pinellas Co. SW 86 - Mobbly Bayou	2008, new project		
46	1					SUBTOTAL BY BASIN:	2.60	0.20	1.20	3.80	8.74	0.00	19.70																					

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2007

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
SW 31 - Cattle Dock Point (DEP / WMD-SWIM) Myakka Basin - Charlotte Co.	Charlotte Co. Borrow Pit – 2.2 ac. Mangrove - 3.1 ac. Exotic Hardwood - 1.38 ac. Ditch (Fresh) - 2.14 ac. Total - 8.82 acres	Mangrove (Enhancement) - 1.2 ac. Mangrove & Salt-marsh Creation – 8 ac. Marsh (Intertidal) Creation – 6.0 ac. Marsh (Fresh) Enhancement – 0.1 ac. Upland Habitat (Creation) – 1.5 ac. Total – 16.8 acres	Cattle Dock Point (Phase II) is an expansion of adjacent Phase I restoration (18 acres) also providing FDOT mitigation.
SW 34 - Lake Thonotasassa (WMD-SWIM / Hills. Co. Parks) Hillsborough Basin –Hillsborough Co.	Pasco Co. Inland Pond - 0.8 ac. Scrub-Shrub - 4.1 ac. Cypress - 4.6 ac. Marsh (Fresh) – 4.7 ac. Total - 14.20 acres	Marsh (Fresh) Enhancement - 14 ac. Marsh (Fresh) Restoration - 45 ac. Cypress Planting in Restored Area Total - 59 acres	The Lk. Thonotasassa project is a large-scale habitat restoration project that also provides water quality treatment & attenuation of contributing watershed flow into the lake.
SW 45 - Gateway Restoration (Pinellas Co. / WMD-SWIM) Tampa Bay Drainage Basin - Pinellas Co.	Hillsborough & Pinellas Co. Mangrove - 13.8 ac. Exotic Hardwood - 3.7 ac. Marsh (Salt) - 5.3 ac. Bay & Estuary - 3.8 ac. Marsh (Fresh) - 0.5 ac. Ditch (Fresh) - 0.3 ac. Total - 27.4 acres	Mangrove Enhancement - 42.50 ac. Marsh (Salt) Restoration - 42.93 ac. Bay & Estuary – 10.63 ac. Upland Habitat Enhancement – 10.25 ac. Total – 106.31 acres	This phase of Gateway is adjacent to several hundred acres of proposed mangrove enhancement on existing Pinellas County property.
SW 47 - Tenoroc / Saddle Creek (DEP / FFWCC) Peace Basin - Polk Co.	Polk Co. Forested (Fresh) - 6.33 ac. Marsh (Fresh) - 1.25 ac. Total - 8.17 acres	Forested Wetland Creation – 21.4 ac. Marsh (Fresh) Creation – 3.7 ac. Total – 25.1 acres	The creation & restoration of wetland habitat at Tenoroc is part of an overall habitat & watershed management plan that covers over 6,000 acres of public land.

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2007

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
SW 49 - Reedy Creek Mitigation Bank (Private Mitigation Bank) Kissimmee Basin - Polk & Osceola Co.	Polk Co. Marsh (Fresh) – 1.16 ac. Hardwood Forest - 1.58 ac. Total - 2.74 acres	Forested Wetland Enhancement & Upland Habitat Restoration Total – purchase 2.74 credits	The mitigation bank covers over 3,500-acres of wetland and upland enhancement & restoration.
SW 50 - Terra Ceia Restoration (DEP / WMD - SWIM) Manatee Basin – Manatee Co.	Manatee Co. Mangrove - 0.18 ac. Shrub – 0.41 ac. Total - 0.59 acre	Mangrove Enhancement - 4.0 ac. Upland Habitat Enhancement - 3.0 ac. Total – 7.0 acres	This mitigation is part of a 1,700- acre public land tract designated for major wetland & upland enhancement & restoration.
SW 51 - Myakka River State Park (DEP - Parks) Myakka - Sarasota Co.	Sarasota Co. Stream & Waterway – 2.5 Hardwood Forest – 1.3 ac. Marsh (Fresh) – 4.56 ac. Ditch – 0.5 ac. Total - 8.86 acres	Stream Swamp Enhancement - 194 ac. Marsh (Fresh) Enhancement - 1074 ac. Marsh (Fresh) Restoration - 6 ac. Total – 1,274 acres	The project includes removal of a railroad grade berm (9 miles) and filling ditches to restore the hydrology of substantial wetland acreage.
SW 52 - Little Pine Island Mitigation Bank (Private Mitigation Bank) Charlotte Harbor - Lee Co.	Charlotte Co. Bay & Estuary - 2.24 ac. Mangrove – 2.75 Total - 4.99 acres	Saltwater Marsh Restoration & Mangrove Enhancement Total - purchase 4.99 credits	The mitigation bank includes eradication of exotic vegetation from 1,565 wetland acres on state- owned property.
SW 53 - Boran Ranch Mitigation Bank (Private Mitigation Bank) Peace Basin - DeSoto Co.	Hardee & DeSoto Co. Hardwood Forest - 9.49 ac. Marsh (Fresh) – 20.08 ac. Total - 29.7 acres	Freshwater wetland & upland restoration & enhancement Total – estimated purchase of 25 – 30 credits	Bank includes restoration and enhancement of 132 acres of wetlands, enhancement of 272 upland acres (total 404 acres).

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2007

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
SW 54 - Anclote Parcel (WMD - Land Resources) Upper Coastal Basin - Pasco Co.	Pasco Co. Mixed Hardwood - 4.1 ac. Scrub-Shrub - 0.8 ac. Cypress - 4.6 ac. Marsh (Fresh) - 2.7 ac. Ditch - 1.4 ac. Total - 13.6 acres	Acquisition & enhancement of 185-acres that includes mixed hardwood swamp, cypress, pine flatwoods, and oak hammocks. Creation of a 6-acre marsh from an existing borrow pit. Total - 185 acres	The acquired tract is adjacent to over 25,000-acres of publicly-owned native habitat (Starkey Wilderness Preserve).
SW 55 - Upper Hillsborough 4 & 5 (WMD - Land Resources) Hillsborough Basin - Pasco Co.	Polk Co. Mixed Hardwood - 6.57 ac. Marsh (Fresh) - 6.98 ac. Total - 13.55 acres	Cypress & Mixed Hardwood Enhancement & Restoration - 101.3 ac. Forested & Marsh Restoration - 10 ac. Marsh & Shrub Enhancement - 8.7 ac. Total - 120 acres	Backfilled 1.3 miles of ditch to hydrologically enhance forested and non-forested wetlands, within portion of WMD - Upper Hills. Tract covering several thousand acres.
SW 56 - Cockroach Bay - Fresh (Hills. Parks / WMD - SWIM) Tampa Bay Basin - Hills. Co.	Pinellas & Hills. Counties Canal - 0.2 ac. Shrub - 1.4 ac. Marsh (Fresh) - 6.2 ac. Hardwood - 0.2 Total - 8.0 acres	Marsh (Fresh) Creation - 26 ac. Upland Hardwood Hammock Enhancement - 7 ac. Total - 33 acres	Entire Cockroach Bay tract covers 651 acres of various fresh & saltwater wetland creation & restoration, along with upland habitat restoration.
SW 57 - Lake Panasoffkee Restoration (WMD - SWIM) Withlacoochee Basin - Sumter Co.	Sumter Co. Open Water - 5.93 ac. (Bridge impact over Lk. Panasoff.) Total - 5.93 acres	Lake Enhancement - 75 ac. Total - 75 acres	Mitigation includes portion of lake bottom dredging to remove 5 million cub.yds. of sediment from 1,010 acres of the lake.
SW 58 - Barr Hammock - Ledwith Prairie (Alachua Co.) Ocklawaha Basin - Alachua Co.	Marion Co. Marsh (Fresh) - 4.67 ac. Stream & Waterway - 0.11 ac. Total - 4.78 acres	Acquisition & enhance 60 acres of marsh and 10 acres of mixed forested hardwood wetland. Total - 70 acres	Entire acquisition is a 2303-acre tract of marsh, forested wetland, and forested upland habitat.

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2007

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
SW 59 - Hampton Tract (WMD - Land Resources) Withlacoochee Basin - Polk Co.	Polk Co. Forested Hardwood – 8.9 ac. Marsh - 7.2 ac. Cypress – 3.9 ac. Shrub – 2.8 ac. Open Water / Ditches – 1.2 Total - 22.8 acres	Mixed Forest Enhancement – 684 ac. Cypress Enhancement – 309 ac. Wet Prairie Enhancement – 60 ac. Hydric Pine Flatwood Enhance - 19 ac. Marsh Enhancement - 4 ac. Total – 1,076 acres	Entire Hampton Tract is 7,640 acres, adjacent to Green Swamp Wilderness Preserve (99,775 acres). Backfill over 4.5 miles of wetland ditches, installation of over 90 ditchblocks to restore wetland hydrology.
SW 60 - Serenova Extension (WMD - Land Resources) Upper Coastal – Pasco Co.	Pasco Open Water - 0.15 ac. Cypress - 8.19 ac. Marsh (Fresh) - 3.48 ac. Total - 11.82 acres	Preservation through acquisition, Enhancement, Management Oak Hammocks – 38 ac. Pine Flatwoods – 98 ac. Mixed Forested Wetlands - 44 ac. Cypress - 15 ac. Marsh (Fresh) - 2 ac. Total – 197 acres	This tract is adjacent to the Serenova Tract & Starkey Wilderness Preserve, a 15,000-acre tract of native habitat owned by the WMD.
SW 61 - Cypress Ck. Preserve, Jennings Tract (Hillsb. Parks / WMD-Land) Hillsborough Basin – Hillsborough Co.	Hillsborough, Pasco, Polk Co. Forested – 18.3 ac. Ditch (Forest) – 1.84 ac. Marsh (Fresh) – 3.6 ac. Willow – 0.5 ac. Cypress – 0.7 ac. Total - 24.9 acres	Preservation through acquisition, Enhancement, Management Mixed Forest Wetland – 146 ac. Upland Hardwood Hammock – 98 ac. Pine Flatwoods – 19 ac. Palmetto Prairie – 15 ac. Pine Flatwood Restoration - 20 ac. Total - 298 acres	This parcel acquisition is adjacent to several hundred acres of native habitat owned and managed by Hills. Co. Parks (ELAPP).

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2007

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
SW 62 - Tappan Tract (City of Tampa / WMD – SWIM) Tampa Bay Drainage Basin - Hillsborough County	Hillsborough Co. Mangrove – 0.3 ac. Ditch (Salt) - 3.5 ac. Ditch (Fresh) - 0.6 ac. Pond – 0.1 ac. Canal – 0.6 ac. Total - 5.1 acres	Mangrove Enhancement - 0.77 ac. Marsh (Salt) Create & Enhance - 5.86 ac. Marsh (Fresh) Create - 0.55 ac. Hardwood Hammock Restore - 1.2 ac. Total - 8.38 acres	Entire tract is 33-acres, the 8.4- acres includes habitat improvements which will enhance the remaining 24.6 acres.
SW 63 - Hillsborough River Corridor (WMD - Land Resources) Hillsborough Basin – Pasco Co.	Pasco Co. Cypress - 1.1 ac. Total - 1.1 acres	Preservation through acquisition - Forest Wetland Floodplain - 10.0 ac. Total - 10 acres	This parcel is along the Hills. River floodplain and adjacent to several thousand acres of the WMD's Upper Hillsborough Tract.
SW 64 - Baird Tract (FDEP / DOF) Withlacoochee Basin – Sumter Co.	Citrus, Hernando & Sumter Co. Forest – 26.0 ac. Shrub – 3.2 ac. Marsh (Fresh) – 8.4 ac. Total - 37.6 acres	Marsh Enhancement - 970 ac. Forested Wetland Enhance. - 548 ac. Total – 1,518 acres	The Baird Tract covers over 11,000 acres within the Withlacoochee State Forest.
SW 65 - Rutland Ranch (WMD-Land Resources) Manatee Basin – Manatee Co.	Manatee Co. Forest - 3.08 ac. Marsh - 4.84 ac. Total – 7.92 acres	Marsh Enhancement – 75 ac. Marsh Restoration – 5 ac. Upland Restoration – 10 ac. Upland Enhancement – 25 ac. Total - 115 acres	The South Tract of Rutland Ranch covers 900 acres of WMD property, enhancement includes hydrologic restoration of several heavily drained marshes, and upland habitat corridors.

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2007

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
SW 66 - Circle B Bar Reserve (Polk Co. Natural Resource & WMD-Land Resources) Peace Basin - Polk County	Polk Co. Forest - 13.6 ac. Shrub - 2.3 ac. Marsh - 14.9 ac. Ditches – 6.4 ac. Total - 37.2 acres	Marsh Enhancement – 220 ac. Marsh Restoration – 214 ac. Forested Wetland Enhancement – 84 ac. Forested Wetland Restoration – 65 ac. Upland Habitat Restoration - 24 ac. Marsh Creation – 3 ac. Total – 610 acres	Circle B Bar Reserve covers 1,256 acres, co-owned by Polk Co. & WMD. Primarily restoration of wet pastures to marsh and forested wetland habitat within the core of the property. Additional upland habitats are being restored and enhanced by Polk Co.
SW 67 - Apollo Beach Nature Preserve (Hills. Co. Parks / WMD-SWIM) Tampa Bay Basin - Hills. Co.	Hillsborough Co. Marsh (Salt) – 5.3 ac. Total - 5.3 acres	Marsh (Salt) Creation - 13.8 ac. Total – 13.8 acres	The site includes a total of 33 acres of saltwater wetland creation and 5 acres of upland preservation and enhancement.
SW 69 - Peace River Bridge Restoration (DOT & WMD) Peace Basin - Charlotte Co.	Charlotte Co. Mangrove & Salt-marsh Impacts Total - 3.31 acres	Restore Temporary Impacts to Mangrove & Saltmarsh - 2.51 ac. Enhance non-vegetated area under existing bridge span after removal, Mangrove & Saltmarsh - 2.06 ac. Total - 4.57 acres	A joint sponsorship between DOT and the WMD at the bridge construction site. Bridge Contractor responsible for the earthwork, WMD responsible for post-const. activities.
SW 70 - Ft. DeSoto Park (Pinellas County / WMD – SWIM) Upper Coastal Basin, Pinellas Co.	Pinellas Co. Canal & Ditch – 0.4 ac. Marsh – 0.3 ac. Seagrass – 1.4 ac. Bay Bottom – 0.4 ac. Total – 2.5 acres	Seagrass Enhancement – 18 ac. Total – 18 acres	Bridge construction restores tidal flow connections to interbay areas within the Park, resulting in a minimum 200 acres of seagrass enhancement, with additional enhancement to mangrove and other tidal ecosystems.

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2007

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
SW 71 - Boyd Hill Nature Park (City of St. Petersburg) Tampa Bay Drainage Basin - Pinellas County	Pinellas & Hillsborough Counties Hardwood Forest – 11.9 ac. Shrub – 2.4 ac. Total – 14.3 acres	Hardwood Wetland Enhancement – 69.6 ac. Upland Habitat Enhancement – 21.4 ac. Pond Enhancement – 1.0 ac. Total – 92.0 acres	The 300-acre park of upland and wetland habitat borders Lk. Maggiore, a rare and unique mosaic island of habitat communities for southern Pinellas County. The remaining portion of the property is also being enhanced with exotics eradication.
SW 74 - Serenova Preserve- 2,3,4,8 (WMD-LAND) Upper Coastal Basin – Pasco County	Pasco County Mixed Forest – 1.6 ac. Total – 1.6 acres	Forested Wetland Enhancement – 26 ac. Total – 26 acres	Hydrologic enhancement of the Pithlac. River and Five Mile Creek within the Serenova Preserve (7,000 acres)
SW 75 - Cockroach Bay – Saltwater (Hills. Parks / WMD – SWIM) Tampa Bay Drainage Basin – Hillsborough County	Hillsborough County Marsh (Salt) – 5.4 ac. Mangrove – 0.1 ac. Total – 5.5 acres	Marsh (salt) creation – 15.1 acres Total – 15.1 acres	Entire site covers 651 acres of various fresh & saltwater wetland creation & restoration, along with upland habitat restoration.
SW 76 - Lake Lowery Tract (Polk Co. Nat. Res. / WMD – LAND) Ocklawaha Basin – Polk County	Polk County Cypress – 0.6 ac. Marsh (Fresh) – 4.8 ac. Mixed Forest – 2.2 ac. Shrub & Ditch – 0.1 ac. Total – 7.7 acres	Marsh & Forested Wetland Preservation – 198 acres Total – 198 acres	Entire site includes joint-acquisition and preservation of 397 acres, predominantly forested wetland marsh habitat. Adjacent to 5700-acres of FFWCC property (Hilochee Wildlife Mgmt. Area).
SW 77 - Conner Preserve (WMD – LAND) Upper Coastal & Hillsborough Basins – Pasco County	Pasco County Mixed Forest – 13.7 ac. Cypress – 16.6 ac. Shrub – 4.6 ac. Marsh (Fresh) – 8.4 ac. Total – 43.3 acres	Forested Wetland Enhancement – 918 acres Non-Forested Wet. Enhance. – 712 acres Upland Habitat Enhancement – 1046 acres Upland Habitat Restoration – 304 acres Total – 2,980 acres	Habitat improvements within a tract located in the core of several other public lands in central Pasco County.

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2007

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
SW 78 - Bahia Beach Tract (Hillsborough Co. Parks, HCEPC, WMD – SWIM) Tampa Bay Basin – Hillsborough Co.	Hillsborough County Exotic Shrub – 2.8 ac. Forested Wet. – 26.0 ac. Marsh (Fresh) – 4.7 ac. Total – 35.0 acres	Forested Wet. & Marsh Creation - 40 ac. Upland Habitat Restoration – 21 ac. Coastal Wet. Hammock Enhance. – 17 ac. Marsh (salt) Restoration – 15 ac. Mangrove & Salt-marsh Enhance. – 27 ac. Total – 120 acres	The Bahia Beach Tract is adjacent to several thousand acres of other Hills. County property that has been acquired, enhanced and restored with assistance through the WMD.
SW 79 - Fox Creek Regional Mitigation Project (Sarasota County Natural Resources) Lower Coastal Basin – Sarasota Co.	Sarasota County Marsh (Fresh) – 7.5 ac. Ditch – 0.2 Total – 7.7 acres	Freshwater Marsh Creation Total - estimated purchase 3- 5 credits	The entire tract includes 140 acres of upland and wetland acres of wetland and upland habitat creation, restoration, and enhancement.
SW 80 - Hidden Harbour (Manatee County, WMD-RPM) Manatee Basin – Manatee Co.	Manatee County Hardwood Forest – 7.0 ac. Marsh (Fresh & Salt) – 2.7 ac. Shrub – 0.3 ac. Seagrass – 0.3 ac. Total – 10.3 acres	Forested Wetland Enhancement – 53.6 ac. Freshwater Marsh Enhancement – 1.1 ac. Upland Habitat Restoration – 42.1 ac. Marsh Creation – 3.3 ac. Total – 101 acres	The entire tract includes 229 acres buffering the Manatee River and Gamble Creek.
SW 81 - Balm Boyette – Stallion Hammock Restoration (Hillsborough Co. Parks, HCEPC, WMD-SWIM) Alafia Basin – Hillsborough Co.	Hillsborough & Polk County Stream Swamp – 9.3 ac. Mixed Forested – 1.9 ac. Marsh – 0.6 ac. Shrub – 0.5 ac. Total – 12.3 acres	Forested Wetland Restoration - 15 acres Total – 15 acres	The entire tract includes 4,933 acres. The long-range plan includes approximately 275-acres of wetland restoration, forested wetland enhancement, and upland habitat enhancement.

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2007

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
SW 82 - Ekker Tract (Hillsborough Parks, WMD-SWIM) Tampa Bay Basin – Hillsborough Co.	Hillsborough County Hardwood Forest – 1.6 ac. Shrub – 9.7 ac. Marsh (Fresh) – 3.1 ac. Total – 14.4 acres	Forested Wet. & Marsh Creation – 14 ac. Upland Habitat Restoration – 9 ac. Oak Hammock Enhancement – 29 ac. Pine Flatwood Enhancement – 32 ac. Total – 84 acres	This tract and the proposed construction includes converting over 150 low quality abandoned tropical fish ponds into appropriate wetland habitat and buffer with enhanced and restored upland habitat.
SW 83 - Little Manatee River – Lower Tract (Hillsborough County Parks) Little Manatee Basin – Hillsborough County	Hillsborough County Hardwood Forest – 0.5 ac. Shrub – 0.3 ac. Total – 0.8 acre	Upland Habitat Enhancement -137 ac. Marsh Enhancement - 5 ac. Total – 142 acres	Entire tract covers 1,902 acres. Designated project area includes only major area of disturbed habitat, enhancement activities will improve habitat and wildlife corridor along the Little Manatee River.
SW 84 - Colt Creek State Park (FDEP – Parks, WMD-LAND) Hillsborough & Withlacoochee Basin - Polk County	Hillsborough County Mixed Forested – 75.5 ac. Cypress – 5.9 ac. Shrub – 18.1 ac. Marsh – 35.5 ac. Hydric Flatwoods – 13.2 ac. Totals – 148.2 acres	Forested Wet. & Marsh Restoration & Enhancement - 707 ac. Upland Habitat Enhancement & Restoration - 343 ac. Total – 1,051 acres	Entire tract covers 5,118 acres located within the core of over 260,000 acres of adjacent public lands in the Green Swamp.
SW 85 - Peace River Mitigation Bank (Private Mitigation Bank) Peace Basin – Hardee County	DeSoto County Hardwood Forest – 5.2 acres Total – 5.2 acres	Freshwater forested wetland & upland preservation & enhancement Total – estimated purchase of 4 credits	Bank includes primarily preservation and minor enhancement of 118 acres of forested upland & 397 acres of forested wetland habitat (total 487 acres) along the Peace River floodplain.

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2007

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
SW 86 - Mobbly Bayou Wilderness Preserve (Pinellas County, WMD-SWIM) Tampa Bay Basin – Pinellas County	Hillsborough & Pinellas Counties Mangrove – 8.5 ac. Shrub – 8.3 ac. Ditches – 3.7 ac. Canal & Pond – 2.6 ac. Marsh – 1.0 ac. Total – 24.1 acres	Mangrove Enhancement – 21 ac. Salt Marsh Restoration & Enhancement – 63 ac. Freshwater & Oligohaline Pond Enhancement – 3 ac. Oligohaline Creek & Marsh Creation – 6 ac. Upland Habitat Enhancement – 39 ac. Total – 132 acres	Preserve covers 383 acres of freshwater to saltwater wetland habitats, and buffered by upland habitat.
SW 87 - Alligator Lake Management Area (Pinellas County / WMD – SWIM) Tampa Bay Basin – Pinellas. Co.	Hillsborough County Hardwood Forest – 0.4 ac. Cypress – 0.3 ac. Pond – 0.5 ac. Marsh – 1.2 ac. Total – 2.4 acres	Marsh Creation – 7.8 ac. Forested Wetland Creation – 1.3 ac. Forested Wetland Enhancement – 5.0 ac. Pine Flatwood Enhancement – 2.9 ac. Live Oak Enhancement – 9.4 ac. Temperate Hardwood Creation – 5.9 ac. Total – 32 acres	The Management Area covers 53 total acres and borders the 70-acre Alligator Lake. The habitat improvements will provide substantial opportunities for wildlife activities.
SW 88 - Curry Creek Regional Mitigation Project (Sarasota County Natural Resources) Lower Coastal Basin – Sarasota Co.	Sarasota County Mangrove – 0.9 ac. Seagrass – 0.3 ac. Total – 1.2 acres	Creation and enhancement of saltwater marsh, tidal creek, and mangrove habitat Total - estimated purchase 0.3 credit of tidal creek habitat, and 0.9 credit of mangrove habitat	The ROMA covers 19 acres within the 95-acre Curry Creek Preserve.
SW 89 - Myakka Mitigation Bank (Private Mitigation Bank) Myakka Basin – Sarasota County	Sarasota County Stream & Waterway – 0.3 ac. Total – 0.3 acre	Freshwater wetland & upland restoration & enhancement Total – estimated purchase of 0.3 credits	Bank includes 156 acres of wetland and 224 acres of upland habitat preservation, restoration and enhancement (total 380 acres). Bank adjacent to 3,800 acres of habitat protected under a conservation easement.

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2007

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
SW 90 – Brooker Creek Buffer Preserve (Hillsborough County, WMD-RPM) Tampa Bay Basin – Hillsborough County	Hillsborough County Cypress – 6.8 ac. Mixed Wetland Forest– 1.1 ac. Wetland Scrub – 1.2 ac. Marsh – 5.6 ac. Total – 14.7 acres	Forested Wetland Creation - 7 ac. Forested Wetland Enhancement – 34 ac. Non-Forested Wetland Enhance. – 15 ac. Upland Restoration – 22 ac. Total – 78 acres	Preserve covers 423 acres of existing habitat and proposed restoration areas that buffers the 7,500-acre Brooker Creek Preserve.
SW 91 – Upper Coastal Mitigation Bank (Private Mitigation Bank) Upper Coastal Basin – Citrus Co.	Hernando & Citrus Counties Mixed Hardwood Forest – 1.2 ac. Cypress – 1.5 ac. Marsh – 0.4 ac. Total – 3.3 acres	Freshwater forested wetland & upland preservation & enhancement Total – estimated purchase of 2-3 credits	Bank includes 149 acres of wetland & upland habitat providing a regionally significant, critical habitat and wildlife corridor between substantial public lands associated with Chassahowitzka National Wildlife Refuge and Withlacoochee State Forest.
SW 92 – Halpata Tastanaki Preserve (WMD – LAND) Withlacoochee River Basin – Marion Co.	Citrus County Mixed Hardwood Forest – 0.5 ac. Willow & Elderberry – 0.2 ac. Marsh – 3.1 ac. Total – 3.8 acres	Forested Wetland Enhancement – 103 acres Total – 103 acres	The Preserve is an 8,090-acre tract located within the vicinity of thousands of acres of other public lands comprised of native habitat.

Table 3 - Mitigation Projects - Habitat Types & Acreages																Page 1 of 3	December, 2007	
Mitigation Projects	DOT	Forest	Forest	Forest	Non-Forest	Non-Forest	Non-Forest	Mangrove	Mangrove	Non-Forest	Forest	Forest	Forest	Forest	PROJ.'s	MITIG.		
	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Upland	Upland	Upland	Upland	MITIG.	BANK &		
	Impact	Enhance	Restore &	Preserve &	Enhance	Restore &	Preserve &	Enhance	Restore &	Restore &	Preserve &	Enhance	Preserve &	Restore	ACREAGE	ROMA		
	Acreage	(Fresh)	Create (Fresh)	Enhance (Fresh)	(Fresh)	Create (Fresh)	Enhance (Fresh)	(Salt)	Create (Salt)	Create (Salt)	Enhance		Restore			CREDITS		
1-SW 31-Cattle Dock	8.8				0.1			1.2	8.0	6.0		1.5			16.8			
2-SW 34-Lk. Thonotasassa	14.2				14.0	45.0									59.0			
3-SW 45-Gateway	27.4							42.5		53.5		10.3			106.3			
4-SW 47-Tenoroc	8.2		21.4			3.7									25.1			
5-SW 49-Reedy Ck. M.B.	2.7														0.0	2.74		
6-SW 50-Terra Ceia	0.6							4.0				3.0			7.0			
7-SW 51-Myakka River S.P.	8.9	194.0			1074.0	6.0									1274.0			
8-SW 52-LPI Mitig. Bank	5.0														0.0	5.0		
9-SW 53-Boran Mitig Bank	29.7														0.0	27.0		
10-SW 54-Anclote Parcel	13.6			139.0		6.0					40.0				185.0			
11-SW 55-Upper Hills. 4&5	13.6	101.0	10.3		8.7										120.0			
12-SW 56-Cockroach Bay-Fresh	8.0					26.0						7.0			33.0			
13-SW 57-Lk. Panasof.	5.9				75.0										75.0			
14-SW 58 - Ledwith Prairie	4.8							70.0							70.0			
15-SW 59-Hampton Tract	22.8	993.0			83.0										1076.0			
16-SW 60-Serenova Exten.	11.8			59.0		2.0					136.0				197.0			
17-SW 61-Jennings Tract	24.9			146.0							132.0		20.0		298.0			
18-SW 62-Tappan Tract	5.1					0.6		0.8		5.9				1.2	8.4			
19-SW 63-Hills. Corridor	1.1			10.0											10.0			
20-SW 64-Baird Tract	37.6	548.0			970.0										1518.0			

Table 3 - Mitigation Projects - Habitat Types & Acreages																
Page 2 of 3																
December, 2007																
	DOT	Forest	Forest	Forest	Non-Forest	Non-Forest	Non-Forest	Mangrove	Mangrove	Non-Forest	Forest	Forest	Forest	Forest	PROJ.	MITIG.
Mitigation	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Upland	Upland	Upland	Upland	MITIG.	BANK &
Projects	Impact	Enhance	Restore	Preserve &	Enhance	Restore &	Preserve &	Enhance	Restore &	Restore &	Preserve &	Enhance	Preserve &	Restore	ACREAGE	ROMA
	Acreage	(Fresh)	& Create (Fresh)	Enhance (Fresh)	(Fresh)	Create (Fresh)	Enhance (Fresh)	(Salt)	Create (Salt)	Create (Salt)	Enhance		Restore			CREDITS
21-SW 65-Rutland Ranch	7.92				75.0	5.0						10.0		25.0	115.0	
22-SW 66-Circle B Bar	37.2	84.0	65.0		220.0	217.0						24.0			610.0	
23-SW 67-Apollo Beach	5.3									13.8					13.8	
24-SW 69-Peace River	3.3							2.06	2.51						4.57	
25-SW 70-Ft. DeSoto	2.5									18.0					18.0	
26-SW 71-Boyd Hill	14.3	69.6				1.0						21.4			92.0	
27-SW 74-Serenova, 2-4	1.6	26.0													26.0	
28-SW 75-Cockroach Bay-Salt	5.5									15.1					15.1	
29-SW 76-Lk. Lowery	7.70			37.0				161.0							198.0	
30-SW 77 - Conner Preserve	43.3	918.0			712.0							1046.0		304.0	2,980.0	
31-SW 78 - Bahia Beach	35.0	17.0	10.0			30.0		27.0		15.0		21.0			120.0	
32-SW 79 - Fox Creek ROMA	7.5														0.0	4.0
33-SW 80 - Hidden Harbour	10.6			53.6	1.5	3.3								42.1	100.5	
34-SW 81-Balm Boyette	12.3		15.0												15.0	
35-SW 82 - Ekker Tract	8.3		4.0			10.0						61.0		9.0	84.0	
36-SW 83 - Little Manatee	0.8				5.0									137.0	142.0	
37-SW 84 - Colt Creek	148.2		65.0	570.0	12.0	60.0					221.0		123.0		1051.0	
38-SW 85 - Peace Mitig. Bank	5.20														0.0	4.0
39-SW 86 - Mobbly Bayou	24.10					9.0		21.0		63.0		39.0			132.0	

Southwest Florida Water Management District
2008-2009 Regional Mitigation Plan

December, 2007

Table 4 - Amended FDOT Impacts and Associated Mitigation Projects

FDOT District	Financial Project	Description	Estim. Permit Application	Prev. Ac.	Curr. Ac.	Mitigation Project	Programmed Funds (Previous)	Programmed Funds (Current)
1	4063143	I-75 - N. River Rd. to SR 681	April, 2008	6.30	8.30	SW 79- Fox Creek ROMA	\$ 671,715.00	\$ 849,762.00
1	4154901	US 17 - Charlotte C.L. to SW Collins	October, 2007	5.90	4.30	SW 88- Curry Creek ROMA SW 89- Myakka Mit. Bank	\$ 591,505.00	\$ 415,448.00
1	4178761	US 17 - SW Collins to CR 760A	2013	1.70	8.00	SW 53- Boran Ranch Mit. Bank	\$ 170,434.00	\$ 851,128.00
1	1973941	SR 563 - Pipkin Rd. to SR 572	2012	18.10	11.80	SW 81- Balm Boyette	\$ 1,686,576.00	\$ 1,231,400.00
1	4110391	US 27 - CR 546 to SR 544	March, 2008	5.70	6.70	SW 66 - Circle B Bar Reserve	\$ 558,885.00	\$ 647,327.00
1	1980101	US 301 - Wood St. to University Pkwy. FM 198104 replaces FM 1980101	March, 2008	0.20	0.00	SW 79- Fox Creek ROMA	\$ 19,323.00	\$ -
1	1980104	US 301 - 29th St. to DeSoto	March, 2008	0.00	0.12	SW 79- Fox Creek ROMA	\$ -	\$ 11,593.00
7	4113371	US 92 - Eureka Springs to SR 566	June, 2006	1.60	1.60	SW 84- Colt Creek	\$ 149,090.00	\$ 149,090.00
7	4154892	US 301 - Balm Rd. to Gibsonton Dr. FM 4154892 replaces FM 4154891	August, 2007	11.80	11.80	SW 82- Ekker Tract	\$ 1,140,068.00	\$ 1,140,068.00
7	4154893	US 301 - Sun City to Balm Road FM 4154893 replaces FM 4154891	January, 2008	8.50	8.50	SW 81- Balm Boyette SW 85- Little Manatee River	\$ 766,862.00	\$ 821,236.00
7	2568811	US 19 - Whitney Rd. to Seville Dr.	November, 2006	0.80	0.50	SW 86- Mobby Bayou	\$ 80,204.00	\$ 46,590.00
7	4089321	SR 39 @ Hillsborough River	April, 2008	7.80	0.50	SW 84- Colt Creek	\$ 753,605.00	\$ 48,308.00
7	4218314	I-75 - S of CR 54 to N of CR 54 Originally FM 4084591	August, 2007	40.90	17.30	SW 84- Colt Creek	\$ 3,924,559.00	\$ 1,671,456.00
7	4218311	I-75 - BB Downs to SR 56 Originally FM 4084593	November, 2007	50.90	35.00	SW 84- Colt Creek	\$ 4,917,754.00	\$ 3,381,560.00
7	2563241	US 41 - Tower Road to Ridge Road	January, 2008	11.50	14.10	SW 77- Conner Preserve	\$ 1,127,575.00	\$ 1,362,285.00
7	2569312	Gandy Blvd. - 9th St. to 4th St.	January, 2008	4.30	3.30	SW 87- Alligator Lake	\$ 415,449.00	\$ 323,565.00
7	4084592	I-75 - Fowler Ave. to CR 581	July, 2007	17.70	16.80	SW 84- Colt Creek	\$ 1,710,103.00	\$ 1,623,148.00
7	4084593	I-75 - CR 581 to SR 56	December, 2007	50.90	35.00	SW 84- Colt Creek	\$ 4,917,754.00	\$ 3,381,560.00
7	2571882	SR 200 - US 41 to Marion Co. Line	April, 2013	5.00	3.10	SW 92- Halpata Tasthanaki	\$ 521,780.00	\$ 329,812.00
7	2587362	I-75 - N. of CR 54 to S. of CR 52	August, 2010	10.20	10.20	SW 84- Colt Creek	\$ 985,383.00	\$ 1,044,286.00
7	4110142	I-75 - SR 52 to Pasco/Hernando	January, 2009	1.00	27.30	SW 84- Colt Creek	\$ 100,572.00	\$ 2,676,765.00
7	4110112	I-75 - Pasco/Hernando to SR 50	2009	0.60	5.00	SW 84- Colt Creek	\$ 63,835.00	\$ 490,250.00
7	4110122	I-75 - SR 50 to Hernando/Sumter	February, 2010	0.50	3.50	SW 84- Colt Creek	\$ 52,178.00	\$ 350,892.00
7	4143481	Tampa International Airport	2004-2025+	32.20	35.00	SW 78- Bahia Beach	\$ 2,773,998.00	\$ 3,044,523.00
7	4133991	US 41- 15th Ave. to Bull Frog Creek	2006	0.20	0.00	Deleted FM Project	\$ 18,044.00	\$ -
7	4050172	US 98 - CR 485 to CR 491	2011	0.10	0.00	Deleted FM Project	\$ 10,238.00	\$ -
7	4080741	SR 56 - Wesley Chapel to Morris Bridge	2010	7.30	0.00	Deleted FM Project	\$ 731,862.00	\$ -
8	4061511	Veteran's- Memorial to Anderson	July, 2009	4.00	3.43	SW 90- Brooker Ck. Buffer Pres.	\$ 401,020.00	\$ 343,874.00
8	4061511	Veteran's- Anderson to Gunn Hwy.	July, 2009	11.00	11.23	SW 90- Brooker Ck. Buffer Pres.	\$ 1,102,805.00	\$ 1,125,863.00
8	4061511	Veteran's- Gunn to Van Dyke	2014	19.00	0.00	Deleted FM Project	\$ 2,021,429.00	\$ -
TOTAL IMPACTS & FUNDS				336.20	282.58		\$ 32,431,196.00	\$ 27,380,425.00
TOTAL REVISIONS TO IMPACTS & FUNDS					-53.6			\$ (5,050,771.00)

**Southwest Florida Water Management District
2008-2009 Regional Mitigation Plan**

December, 2007

Table 5 - New FDOT Impacts & Associated Mitigation Projects

FDOT District	Financial Project	Description	Estim. Permit Application	Impact Ac.	Mitigation Project	Programmed Funds
5	2426262	I-75 - Hernando Co. to SR 470	March, 2008	0.40	SW 64- Baird Tract	\$ 38,646.00
5	2426263	I-75 - SR 470 to Turnpike	July, 2008	13.80	SW 64- Baird Tract	\$ 1,353,090.00
5	2404182	SR 48 - I-75 to CR 475	July, 2008	0.15	SW 64- Baird Tract	\$ 14,707.00
7	4168421	US 301 - Falkenburg to MLK Blvd.	December, 2008	0.50	SW 87- Alligator Lake	\$ 49,025.00
7	4168381	US 92 - Pelican Sound to Gandy Bridge	November, 2008	0.40	SW 86- Mobbly Bayou	\$ 39,220.00
7	4079513	SR 50 - US 19 to Mariner	September, 2008	0.20	SW 91 - U.C. Mit. Bank	\$ 19,610.00
7	4084594	I-75 - S of SR 56 to S of CR 54	August, 2007	11.70	SW 84- Colt Creek	\$ 1,130,407.00
7	4136222	CR 296 - US 19 to Roosevelt / CR 296	November, 2013	4.10	SW 86- Mobbly Bayou	\$ 436,203.00
7	4131361	McMullen Rd. - Balm Riverview to Boyette	February, 2008	0.20	SW 81- Balm Boyette	\$ 19,323.00
TOTALS				31.45		\$ 3,100,231.00

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Cattle Dock Point, Phase II

Project Number: SW 31

Project Manager: Paul Misesis, WMD – SWIM Engineer

Phone No: (813) 985-7481 ext. 2200

County(ies): Charlotte

Location: Section 3, T41S, R21E

IMPACT INFORMATION

DOT FM: 1937941, SR 776 - CR 771 to Willow Bend Rd.

ERP #: 4316676.00 COE: 199601986

Drainage Basin(s): Myakka River Water Body(s): Myakka River/Charlotte Harbor SWIM water body? Y

Impact Acres/Types: FM 1937941 2.20 ac. 530 (borrow pit) (Fluocs code)

3.10 ac. 612

1.38 ac. 619

2.14 ac. 641x

TOTAL: 8.82 Acres

Note: This project has an additional 2.08 acres of open water impact mitigated through the purchase of 2.08 credits from the Little Pine Island Mitigation Bank (SW 52).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration Enhancement Mitigation Area: **16.8 Acres**

SWIM project? Aquatic Plant Control project? Exotic Plant Control Project? Y

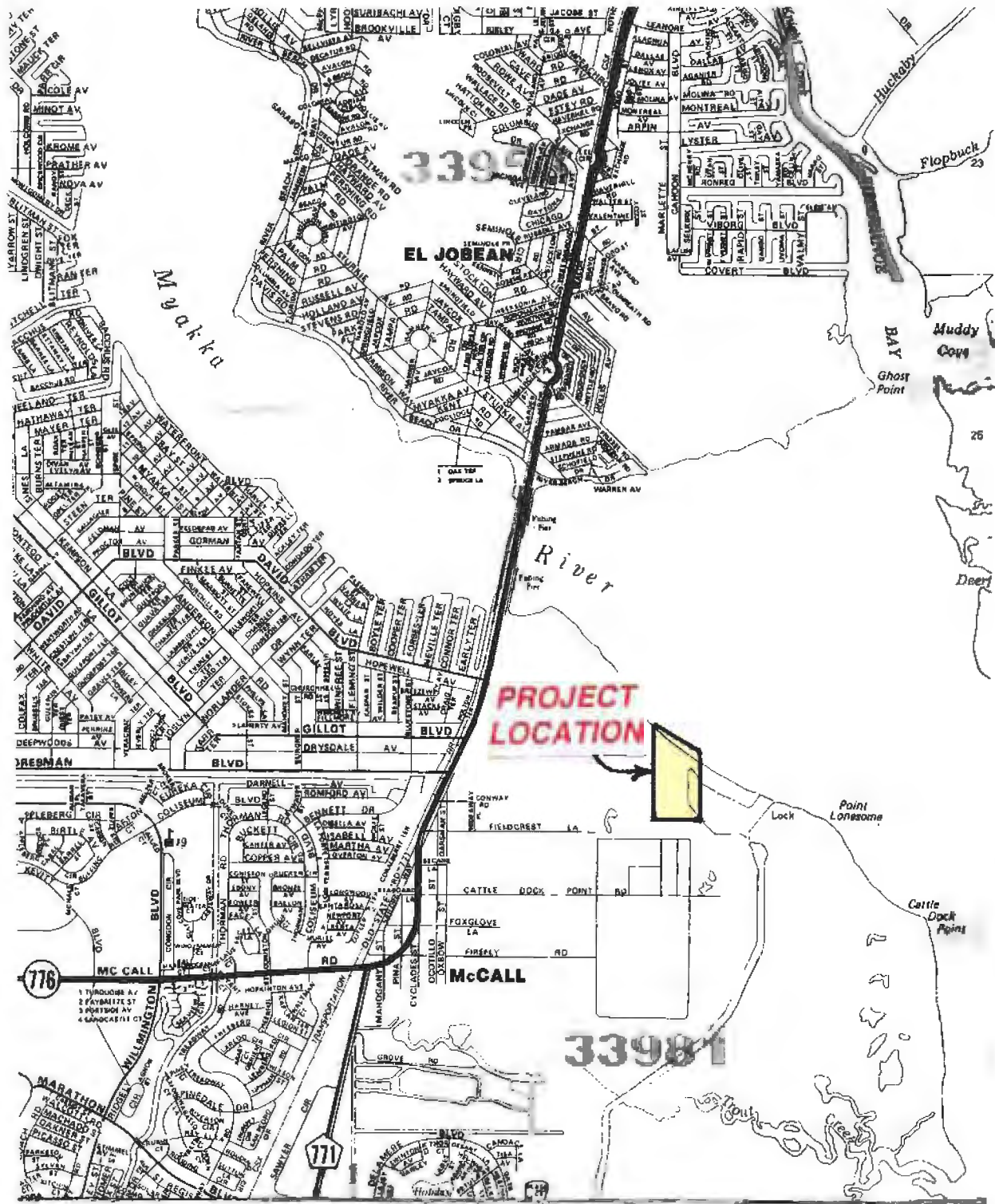
Mitigation Bank? N Drainage Basin(s): Myakka River Drainage Basin Water Body(s): Myakka River and Charlotte Harbor SWIM water body? Y

Project Description

- A. Overall project goals:** The primary goal of the project was to create salt-marsh wetland habitat on property jointly owned by the FDEP and the SWFWMD. Constructed in 2004, the Phase II project removed extensive exotic vegetation that dominated the site and graded historically filled acreage to create a habitat mosaic of upland and wetland habitat (refer to Fig. C). The Phase I project (total 18 acres) was constructed in 2001 to provide appropriate mitigation for wetland impacts associated with an adjacent segment of SR 776 (Willow Bend Rd. to Collingswood Blvd.). Phase I was designated for the mitigation just prior to commencement of the FDOT Mitigation Program in 1996.
- B. Brief description of current condition:** Historically, the upland area (approx. 6 acres for Phase I, 8 acres for Phase II) was formed as a result of spreading dredged material from construction of a boat basin during the early 1900's (refer to Figure B). The upland area was extensively dominated by nuisance/exotic vegetation, particularly Brazilian pepper (Australian pine for the peninsula at Phase I, refer to photos). A narrow littoral zone of 40-50 ft. (total 1.2 acres) of mangrove habitat is along the border between the dredged basin and the filled upland. A 0.1-acre ephemeral marsh was dominated by cattails, B. pepper, and sesbania. Overall, except for the minor mangrove habitat, the project area for Phase II represented extremely poor habitat.
- C. Brief description of proposed work:** The project included eradicating the nuisance & exotic vegetation, and grading the filled upland to create appropriate intertidal marsh elevations (total 6 acres) and three upland habitat islands (total 1.5 acres). The cut material was deposited to fill a portion of the dredged basin to create salt-marsh "platforms" (total - 8 acres). The basin was not totally filled to allow access and foraging opportunities for aquatic wildlife species including manatees that are known to visit the basin. The intertidal marsh is hydrologically

connected via culverts to the basin, and a meandering channel was constructed in the marsh to provide tidal flushing and fish access (refer to photos). After the appropriate grades were established in 2005, the intertidal marsh and salt-marsh was planted with appropriate herb species such as saltmarsh cordgrass (*Spartina alterniflora*) and black rush (*Juncus roemerianus*) in the lower grade elevations and bordered with sand cordgrass (*Spartina bakeri*) and seashore paspalum (*Paspalum vaginatum*) in the higher elevations. Due to the ability of mangrove seeds to naturally recruit and generate on their own, it wasn't necessary to plant mangroves. After initial temporary cover provided by brown-top millet, planting of the upland islands include a dominance of slash pine, saw palmetto, wax myrtle, muhly grass, beach grass, and purple lovegrass. The mangrove littoral zone (1.2 acres) was enhanced with the eradication of Brazilian pepper that had encroached upon the perimeter. The ephemeral marsh (0.1 acre) was also preserved and enhanced with eradication of exotic and nuisance species (dominated by cattails, B. pepper, and sesbania). Figure D depicts the planting plans that were conducted for the project. The total direct amount of habitat creation, restoration, and enhancement is 16.8 acres. This quantity doesn't include secondary benefits to the open water components of the dredged basin.

- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The wetland impacts associated with SR 776 included 2.2 acres (borrow pit), 2.1 acres (open water), 3.1 acres (mangrove), 1.4 acres (exotic shrub habitat), and 2.1 acres of ditches; for a total of 11 acres of impacts that represented a dominance of low quality habitat. The only habitat impact that provided high quality was the mangrove. This mitigation project includes a mosaic of saltwater wetland habitat creation (14 acres) and upland habitat restoration (1.5 acres). The mangrove impacts are appropriately compensated with the enhancement of the existing mangrove habitat and as demonstrated from the mangrove habitat naturally forming at Phase I (refer to site photos), much of the intertidal and salt-marsh habitat will gradually transition to mangrove habitat following the typical vegetative succession. The open water impacts were appropriately mitigated with purchasing non-forested wetland credits from the Little Pine Island Mitigation Bank (refer to SW 52). The permitted wetland impacts associated with this SR 776 segment are the only impacts that were designated for mitigation at Cattle Dock Point, Phase II.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** Cattle Dock, Phase II was designed and constructed to provide appropriate wetland mitigation for the predominantly low-quality SR 776 wetland impacts, as well as for the high quality impacts associated with the mangrove habitat. The mitigation includes creation of similar habitat, close proximity to the proposed impacts, located on publicly-owned land in need of major restoration, and adjacent to mitigation designated for compensating for wetland impacts associated with the adjacent SR 776 project (Phase I). Due to the low quality habitat associated with the open water impacts, the associated mitigation was compensated with purchasing mitigation bank credits at the adjacent Little Pine Island Mitigation Bank. The mitigation bank could not be nominated to provide mitigation for the mangrove wetland impacts since the bank is located in the adjacent Charlotte Harbour Drainage Basin and the wetland impacts occurred in the Myakka River basin.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body:** Cattle Dock, Phases I and II are SWIM designated projects.



**FDOT – District One
MITIGATION SITE
(Myakka River Basin)**

**SW 31 - CATTLE DOCK
POINT, PHASE II**

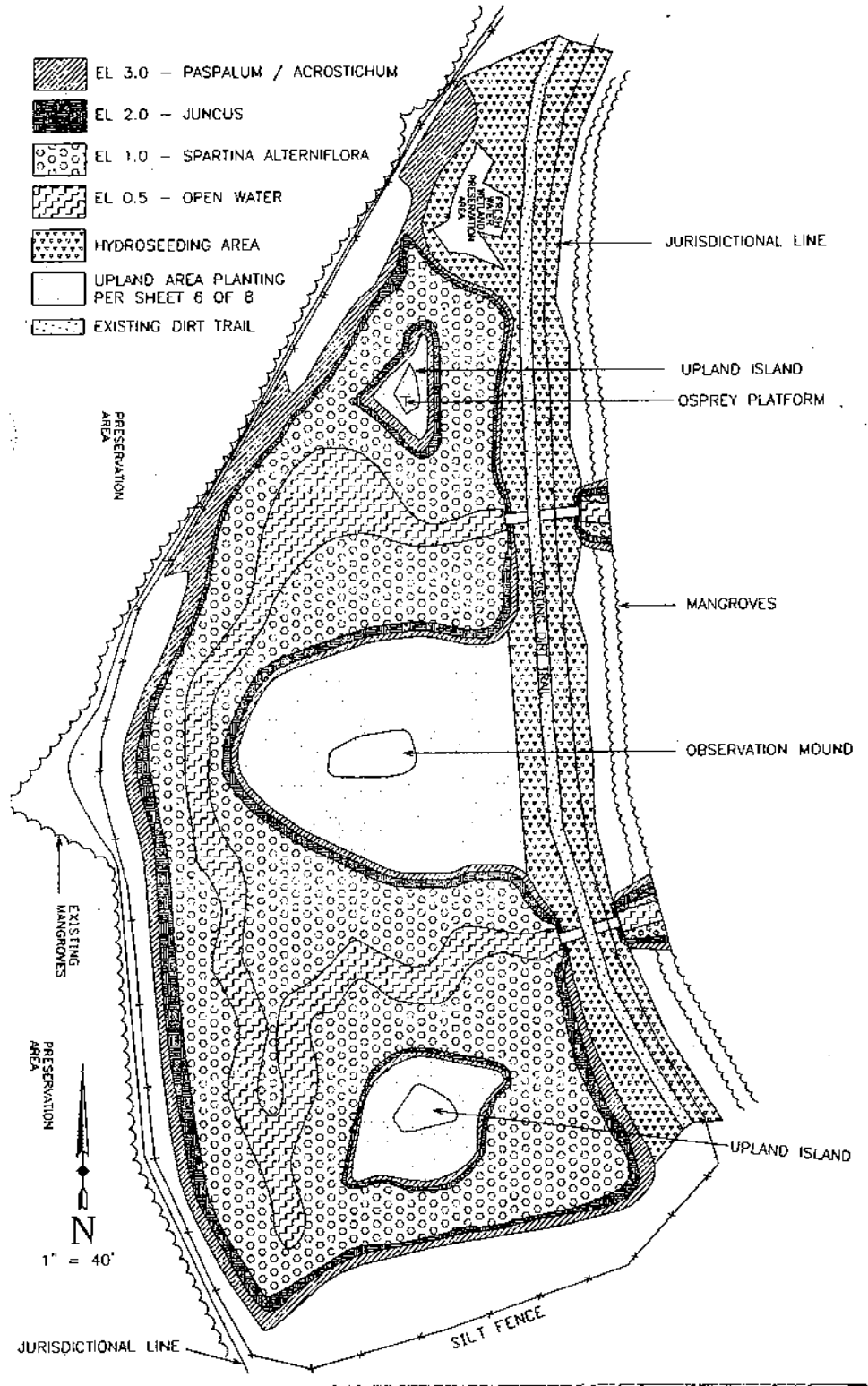
**FIGURE A
Location Map**



**FDOT – District One
MITIGATION SITE
(Myakka River Basin)**

**SW 31 - CATTLE DOCK
POINT, PHASE II**

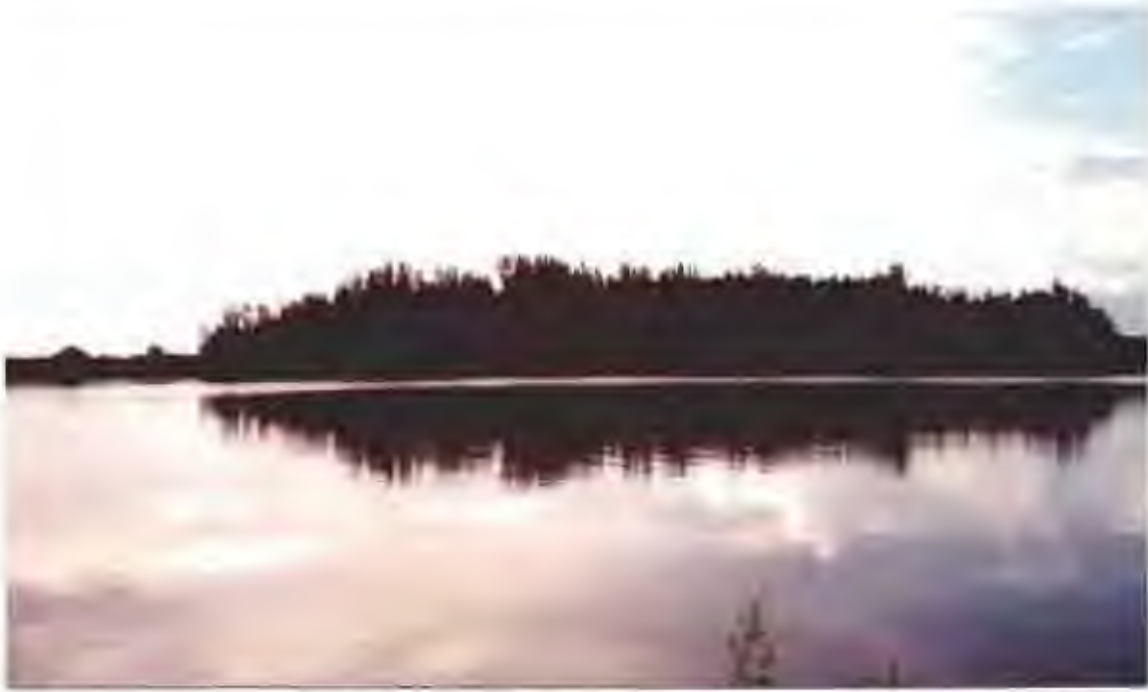
**FIGURE B
1995 Pre-Construction
Aerial**



FDOT – District One
 MITIGATION SITE
 (Myakka River Basin)

SW 31 - CATTLE DOCK
 POINT, PHASE II

FIGURE C
 Construction &
 Vegetation Plan



View from the southern shoreline of the Cattle Dock bayou area, looking north at the Brazilian pepper and Australian pine dominating the peninsula of the Phase I area.



View along the access road located along the eastern boundary of the Phase II construction area, access road is one of the few upland areas not dominated by B. pepper.

**FDOT - District 1 Mitigation Site
(Myakka River Basin)**

CATTLE DOCK POINT (SW 31)



The freshwater marsh has cattails, willows, and a recent invasion of sesbania species.



Additional view along the access road, looking over dense B. pepper coverage and A. pine (background) along the southern Phase II boundary.

**FDOT - District 1 Mitigation Site
(Myakka River Basin)**

CATTLE DOCK POINT (SW 31)



Cattle Dock Point – Phase I

Top & Middle Photos – 1995 infrared aerial (top) and 2000 site aerial (middle). To the north of the boat basin, the filled peninsula includes dominant cover of Australian pine (dark green) with the majority of the remaining portion covered with Brazilian pepper.

Bottom Photo – Phase I construction (2001) commences with eradication of the exotic vegetation while preserving and enhancing the mangrove fringe.



Cattle Dock Point – Phase I

Top & Middle Photos – 2001, view of the peninsula after appropriate grading to construct intertidal channel and adjacent marsh habitat. The cut fill material is placed in the boat basin to create salt-marsh platforms.

Bottom Photo – 2004, the planting of saltmarsh cordgrass, black rush, and seashore paspalum has generated and recruited to provide extensive cover, and the natural recruitment of white mangrove seedlings provide additional habitat diversity to the area.



Cattle Dock - Phase II

Top Photo – (Feb. 2004) – View of the completed and high quality habitat conditions for Phase I. Pre-construction, the Phase II area (lower left) has extensive cover of Brazilian pepper, and is bordered to the west by preserved high salt-marsh and mangrove habitat.

Middle & Bottom Photo - (Summer, 2004) – Brazilian pepper eradicated and grading of the filled upland commences to create intertidal marsh habitat. Graded material is placed in the boat basin to create salt-marsh habitat platforms.



Cattle Dock – Phase II

Top Photo –(January, 2005) – Dredging of the intertidal marsh and associated meandering channel is evident. Three upland islands located within the marsh are taking shape, and fill material for the three marsh platforms is being extended into the boat basin.

Middle Photo – (July, 2005) – The final grades and planting has occurred but the flushing of vegetation is not visible on this photo. The desired hydrologic connections for the intertidal marsh have been opened and stabilized via culvert connections.

Bottom Photo – Reserved for future habitat conditions.

REGIONAL MITIGATION PLAN

BASIC INFORMATION

Water Management District : Southwest Florida Water Management District

Project Name: **Lake Thonotosassa Shoreline Restoration**

Project Number: **SW 34**

Project Manager: Stephanie Powers, SWIM Environmental Scientist

Phone Number: (813) 985-7481 ext. 2213

County: Hillsborough

Location :Sec. 11, 12, 13, 14, T28S, R20E

DOT: FM 2563431, SR 54 - US 41 to Cypress Ck.

ERP #4319567.000 ACOE# 19950145 (IP-ES)

Impact Acres / Types (FLUCFCS):

0.8 ac. 616

4.1 ac. 618

4.6 ac. 621

4.7 ac. 641

Total: 14.20 ac.

ENVIRONMENTAL INFORMATION

Type(s) of Mitigation: Enhancement: **14 ac.** Restoration: **45 ac.** **Total: 59 ac.**

SWIM project? Y

Aquatic Plant Control project? N

Exotic Plant Control Project? N

Mitigation Bank? N

Drainage Basin: Hillsborough River

Water Body: Lake Thonotosassa, Baker Creek

Project Description

A. Overall project goals: The purpose of the project is to improve and enhance the water quality and the fish and wildlife habitat values of Lake Thonotosassa through implementing a restoration plan that involves enhancement and restoration of 59 wetland acres.

B. Brief description of current condition: Prior to restoration construction, the southeast shoreline of the lake was historically filled and separated from the lake with a berm and seawall. The filled area was converted to a bahia pasture which was ditched to provide drainage to a retention collection area. The collection area was periodically pumped to maintain a dry pasture, however a small percentage (14 acres) of wetland enhancement (Figures D & E) of disturbed soft rush marsh regenerated in the pasture.

C. Brief description of proposed work: Enhancement of the historical lake bottom occurred within the north and south cells of the project and incorporated the following elements (refer to Figure E): (1) A structure was installed in Baker Creek which diverted mean annual flow of the creek into the restoration area, with sediments removed by a sump; (2) a low flow channel was constructed to carry water from the sediment sump through the marsh planting area; (3) planted upland islands bracket the low flow; (4) the marsh restoration area was graded to proper elevation and planted with vegetation, predominantly pickerelweed, fireflag, spikerush, spatterdock & scattered cypress; (5) the existing hydrologic connection of Otter Lake to Lake Thonotosassa was enhanced via the construction of an open water slough system; (6) an additional marsh planting was conducted adjacent to and surrounding the existing Otter Lake; (7) the berms separating the north and south cells from Lake Thonotosassa were excavated to allow the enhancement area and the lake to merge during periods of high water. The resulting fill material was used to cover seawall demolition areas and fill ditches.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The created herbaceous marsh and planted cypress will replace the acreage and function of the marsh, open water, and cypress wetlands impacted along SR 54. The mitigation effort is a larger restoration project, allowing for a greater chance of success and provide desired fish and wildlife benefits.

PROJECT IMPLEMENTATION

Entity responsible for construction: Construction completed in 1999 by private contractor working for the SWFWMD.

Contact Name: Stephanie Powers, SWIM Environmental Scientist Phone Number: (813) 985-7481 ext. 2213

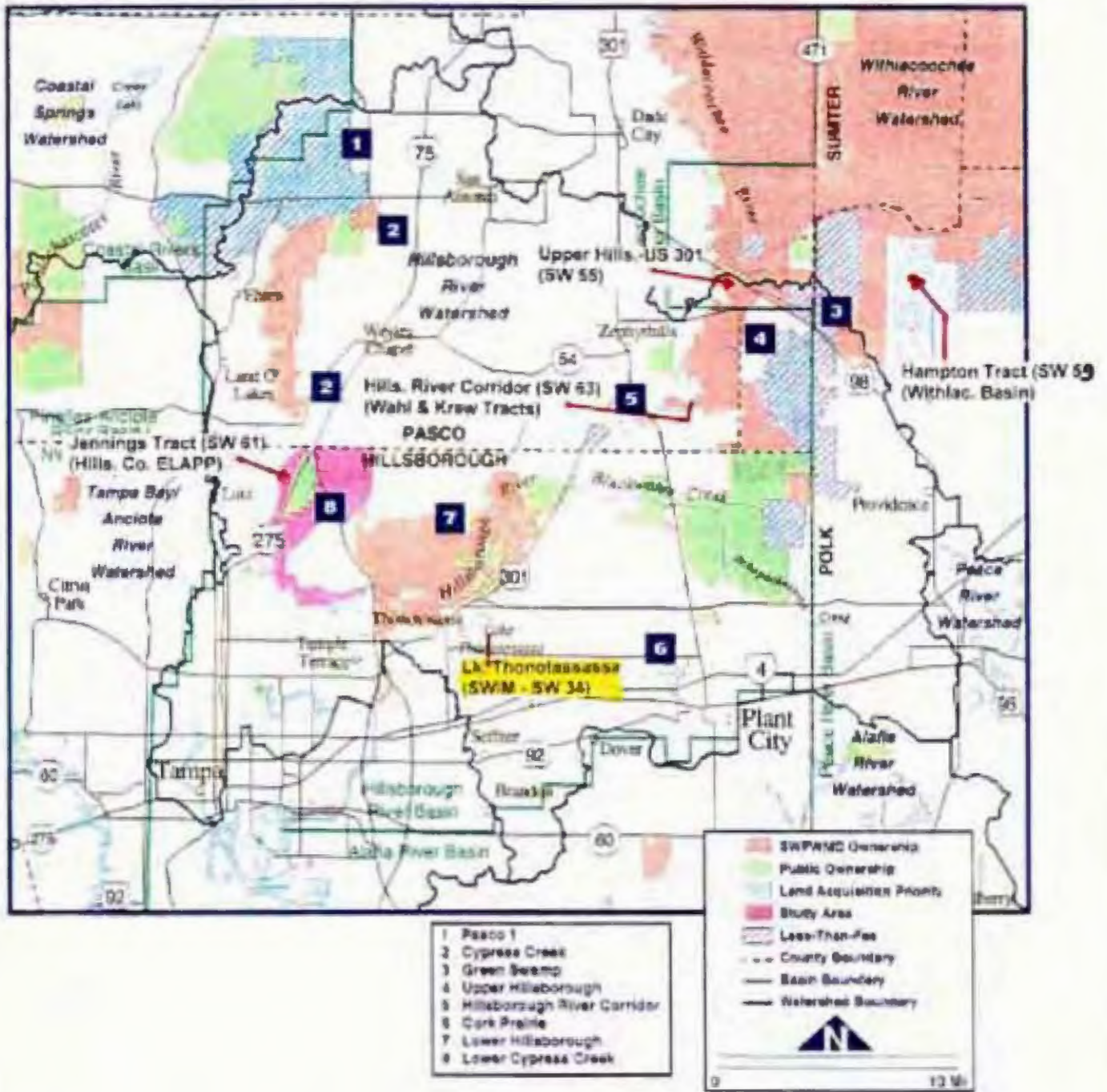
Entity responsible for monitoring and maintenance: SWFWMD-SWIM Dept.

Proposed timeframe for implementation: Commence: January, 1998 Complete: Construction completed in 1999, supplemental planting in the fall, 2003 and 2004 ; minimum of three years of maintenance & monitoring.

Project cost: \$800,000 (total)

Attachments:

- X 1. Detailed description of existing site and proposed work. Refer to text under Comment C, site photographs.
- X 2. Recent aerial photograph with date and scale. Figure D-1995 Infrared Aerial, Figure E - Summer, 1999, aerial photograph during site construction.
- X 3. Location map and design drawings of existing and proposed conditions. Figs. A, B, C.
- X 4. Detailed schedule for work implementation, including any and all phases. Refer to text under Comment C.
- X 5. Proposed success criteria and associated monitoring plan. Success criteria includes a minimum 85% coverage of desirable species and less than 10% exotic / nuisance species, determined by qualitative assessment methods. Supplemental planting occurred in the fall, 2003 and late 2004 to achieve appropriate percent coverage.
- X 6. Long term maintenance plan. Maintenance is currently being conducted and will continue for an additional 3 years and/or until success criteria is met. The sump area also provides a good containment area for any exotic and nuisance species that historically flowed directly in Lake Thono from the Baker Creek Canal.
- X 7. Itemized cost estimate. Design & Permitting - \$90,000, Construction - \$240,000 Planting - \$180,000, Supplemental Planting & 3 years maintenance - \$250,000, Maintenance & Monitoring - \$140,000
- X 8. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to text under Comment D.



**FDOT - District 7
 MITIGATION SITE
 (Hillsborough River Basin)**

**LAKE THONOTOSASSA
 SHORELINE RESTORATION
 (SW 34)**

**FIGURE A
 WATERSHED BASIN MAP**

WETLAND RESTORATION IN THE LAKE THONOTOSASSA WATERSHED

SECTION 11, 12, 13 and 14, TOWNSHIP 26 S, RANGE 30 E
HILLSBOROUGH COUNTY, FLORIDA

PROJECT CONSTRUCTION PLANS

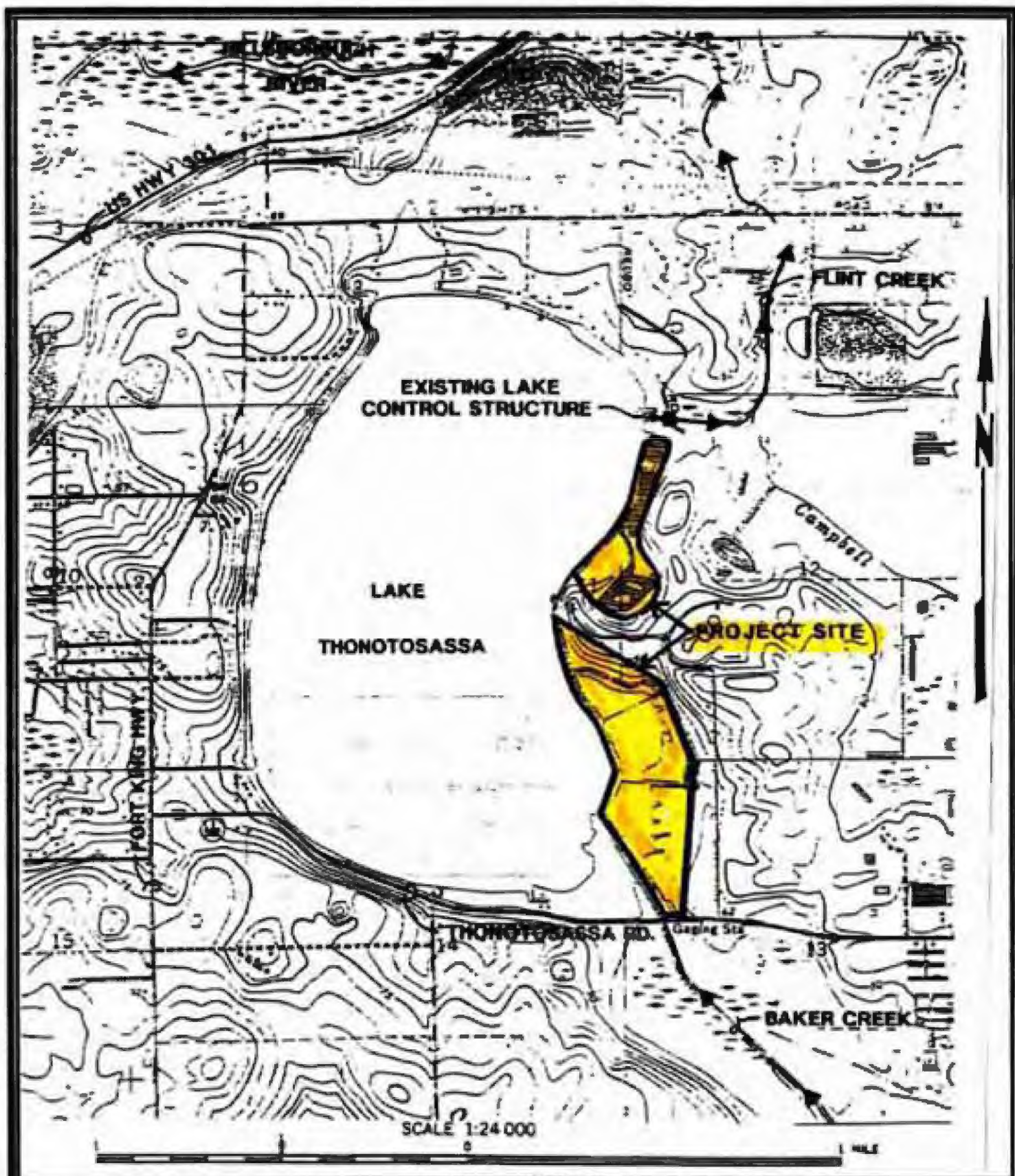


VICINITY MAP

FDOT - District 7
MITIGATION SITE
(Hillsborough River Basin)

LAKE THONOTOSASSA
SHORELINE RESTORATION
(SW 34)

FIGURE B
LOCATION MAP



**FDOT - District 7
 MITIGATION SITE
 (Hillsborough River Basin)**

**LAKE THONOTOSASSA
 SHORELINE RESTORATION
 (SW 34)**

**FIGURE C
 PROJECT SITE**

Lake Thonotasassa Shoreline Restoration Wetland Enhancement & Restoration - 59 Acres

Project Boundaries
(Green)

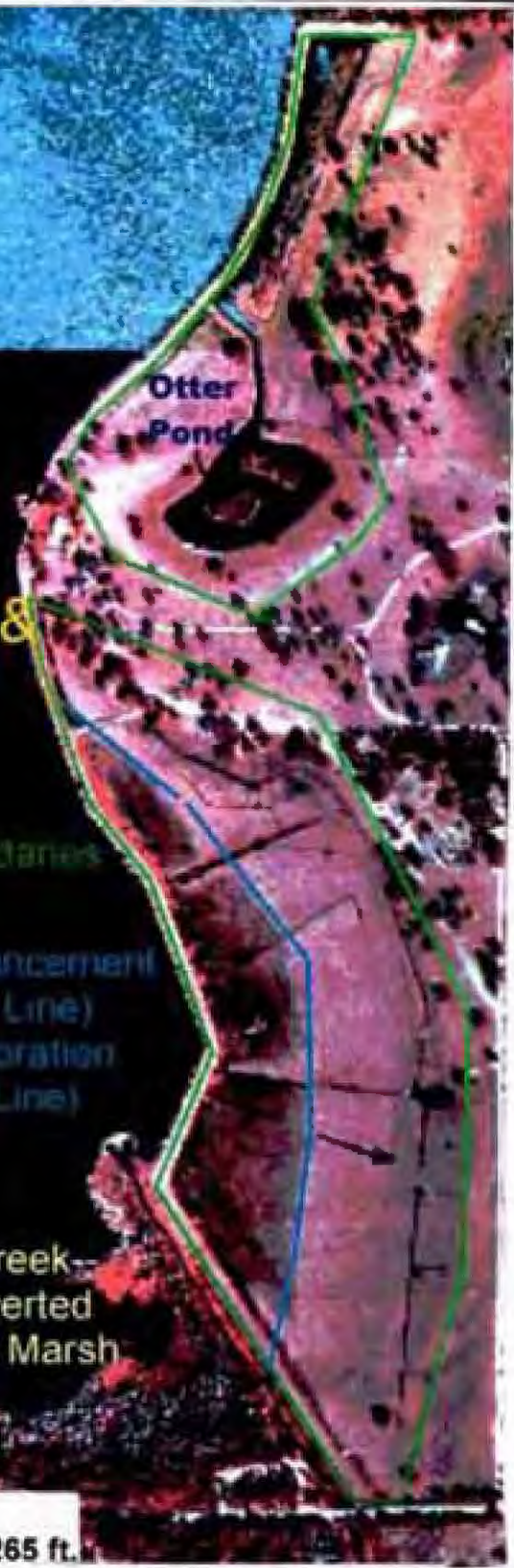
Wetland Enhancement
(West of Blue Line)

Wetland Restoration
(East of Blue Line)

Baker Creek
Flow Diverted
Through Marsh

NORTH ^

SCALE 1 in. = 1265 ft.

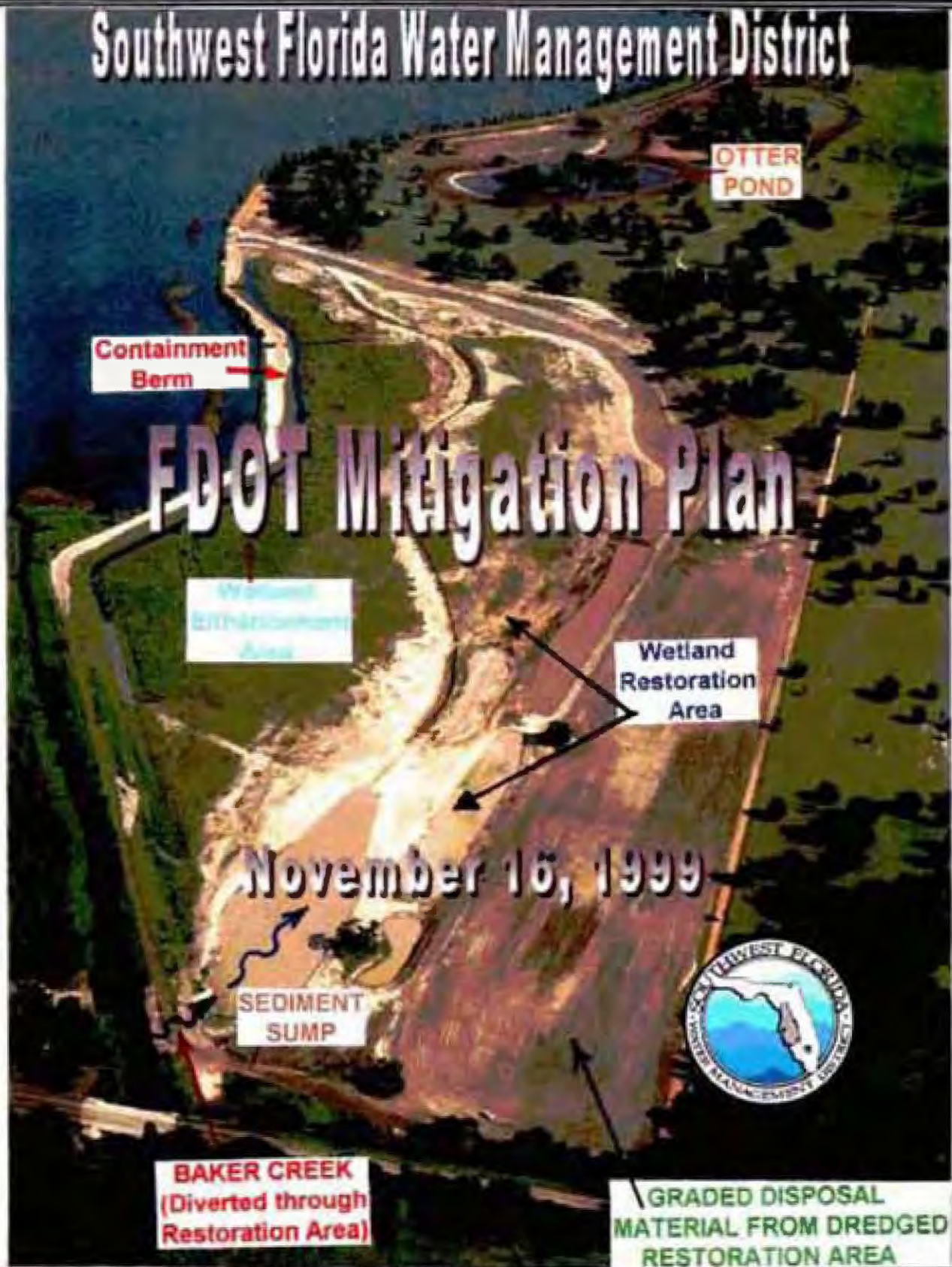


FDOT - District 7
MITIGATION SITE
(Hillsborough River Basin)

LAKE THONOTOSASSA
SHORELINE RESTORATION
(SW 34)

FIGURE D
INFRARED AERIAL
(1995)

Southwest Florida Water Management District



FDOT - District 7
MITIGATION SITE
(Hillsborough River Basin)

LAKE THONOTOSASSA
SHORELINE RESTORATION
(SW 34)

FIGURE E
SUMMER, 1999 AERIAL
DURING CONSTRUCTION



View from the upland fringe, with the deep water flow-way in the foreground, followed in sequence by planted cypress and fireflag, an upland peninsula with planted oaks, and the enhanced marsh and additional planted cypress in the background. The shoreline of Lake Thonotasassa is located along the tall cypress in the left background.



North of Otter Pond, view of the constructed deep water flow-way, marsh, and cypress along the lake shoreline.

**FDOT - District 7 Mitigation Site
(Hillsborough River Basin)**

**LAKE THONOTASASSA
SHORELINE RESTORATION (SW 34)**



Wildlife activity has substantially increased since completing construction. The deep water habitats are used by otters and alligators, with many of the gators using the shoreline banks for resting. Wading birds forage within the shallow waters and even a few Canadian geese (shown above) have decided to establish residency.



The islands within Otter Pond have become refuge for nesting snowy egrets.

**FDOT - District 7 Mitigation Site
(Hillsborough River Basin)**

**LAKE THONOTASASSA
SHORELINE RESTORATION (SW 34)**

**REGIONAL MITIGATION PLAN
BACKGROUND INFORMATION**

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Gateway Restoration**

Project Number: **SW 45**

Project Manager: Stephanie Powers, SWIM Environmental Scientist

Phone No: (813) 985-7481 ext. 2213

County: Pinellas

Location: Sec. 12, T30S, R16E

IMPACT INFORMATION

(1) <u>FM: 2569051, SR 679 (Bayway), Bunces Bridge</u>	DEP #: <u>52-0148752-001</u>	COE #: <u>199100289 (IP-AM)</u>
(2) <u>FM: 2588701, I-275-Roosevelt to Big Island Gap</u>	ERP #: <u>43001034.006</u>	COE #: <u>199402523 (IP-ES)</u>
(3) <u>FM: 2556301, SR 60, Courtney Campbell to Fish Creek</u>	ERP #: <u>43000920.005</u>	COE #: <u>200105084 (IP-MN)</u>
(4) <u>FM: 2570931, SR 60, Clearwater Harbor Bridge Replace.</u>	ERP #: <u>44021540.001</u>	COE #: <u>200024966 (IP-TF)</u>
(5) <u>FM: 4062531, SR 686 (Roosevelt) at 49th Street</u>	ERP #: <u>44007482.012</u>	COE #: <u>200206320 (NW 14)</u>
(6) <u>FM: 2557341, SR 676-Maritime Blvd. to SR 60</u>	ERP #: <u>4413736.003</u>	COE #: <u>199502501 (IP-ES)</u>
(7) <u>FM: 2583981, I-275, Howard Franklin to Himes Ave.</u>	ERP #: <u>43002958.006</u>	COE #: <u>20053876 (IP-JF)</u>

Drainage Basin: Tampa Bay Drainage Water Body(s): McKay Bay, Bunces Pass, Clearwater Harbor, Boca Ciega Bay, Anclote River, Lake Tarpon, Curlew Creek, Cross Bayou Canal, Fish Creek, Tampa Bay SWIM water body? Y, referenced water bodies connect to Tampa Bay

Impact Acres / Habitat Type (FLUCFCS):

(1) FM 2569051	<u>0.1 ac. 540</u>	(4) FM 2570931	<u>1.3 ac. 612</u>
	<u>0.5 ac. 642</u>		<u>0.2 ac. 642</u>
	TOTAL 0.6 acre		TOTAL 1.5 acres
		(5) FM 4062531	TOTAL 0.2 ac. <u>612</u>
(2) FM 2569571	<u>4.9 ac. 612</u>	(6) FM 2557341	<u>1.0 ac. 612</u>
	<u>3.2 ac. 619</u>		<u>0.5 ac. 619</u>
	<u>0.5 ac. 641</u>		TOTAL 1.5 ac.
	<u>0.5 ac. 642</u>		
	TOTAL 9.1 acres	(7) FM 2583981	<u>0.7 ac. 612</u>
			<u>0.8 ac. 641x</u>
(3) FM 2556301	<u>3.7 ac. 540</u>		TOTAL 1.5 ac.
	<u>4.4 ac. 612</u>		
	<u>4.1 ac. 642</u>		
	TOTAL 12.2 acres		
			TOTAL 26.6 acres

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration Enhancement Preservation Mitigation Area: **106.3 ac.**

Project Site: 176 Acres - Preservation of mangroves (42 acres) not included in the mitigation acreage.

Mitigation:	Saltwater Marsh Restoration (#642)	42.93 Acres
	Open Water Inlets & Lagoons (#510, 540)	10.63 Acres
	Mangrove Enhancement (#612)	42.50 Acres
	Upland Enhancement	10.25 Acres
	Mitigation Area	106.31 Acres

SWIM project? Y Aquatic Plant Control project? N Exotic Plant Control Project? Y Mitigation Bank? N

Drainage Basin(s): Tampa Bay Drainage Basin SWIM water body? Y

Project Description

A. Overall project goal: To restore and enhance wetland and upland coastal habitats on County-owned property within the Gateway corridor in Pinellas County (Figure A). This project was first proposed and adopted to the FDOT mitigation program in 1999, and restoration construction was conducted in 2004.

B. Brief description of current condition: Prior to restoration construction, the majority of the site included mangrove habitat with an extensive "checkerboard" mosquito-ditch system. The spoil mounds adjacent to the ditches had dense coverage of Brazilian pepper. Additional fill material was also historically placed on wetlands, particularly within the northwest quadrant of the project area. This upland area was dominated by dense stands of Melaleuca and Australian pine.

C. Brief description of proposed work: Restoration commenced with herbicide eradication of the extensive exotic vegetation, including the B. pepper on the spoil mounds adjacent to the mosquito ditches. Proper erosion control methods were installed on the site, followed by necessary earthwork activities. For the first time, a unique spoil removal method was applied to the construction effort. Referred to as "hydroblasting," this method was utilized in order to gain access into the mangroves without impacts that would otherwise occur with traditional construction equipment. Hydroblasting uses high-pressure water hoses to spray and displace the majority of the soil material into the adjacent mosquito ditches. By lowering the spoil mounds to below high tide elevations, the B. pepper cannot re-establish. Mangrove seedlings have naturally recruited and generated within the footprint of the removed spoil material. Construction within the filled upland restored appropriate wetland grades, followed by planting of the historic salt-marsh and intertidal zones. The historic remnant upland areas received eradication of the exotic species and were planted with native coastal upland species. Open water and lagoon components have reconnected the estuarine habitat and improved tidal flushing, increasing access for aquatic micro-organisms, fish, and invertebrates throughout the Gateway habitat area.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The created intertidal salt-marsh, enhancing existing mangroves, and naturally-generating mangroves compensate with a substantially larger acreage than the similar proposed habitat impacts. This activity is conducted within a large restoration project; allowing for a greater chance of success and provide the desired fish and wildlife benefits. The total DOT wetland impacts (26.6 acres) are mitigated with habitat enhancement and restoration covering 106.3 acres, a cumulative mitigation ratio of 4-to-1 (refer to mitigation table). Approximately 30% (9.1 acres) of the total wetland impact was associated with the I-275 expansion adjacent to the mitigation area, essentially resulting in an on-site mitigation option. This mitigation plan includes 9 acres of habitat improvements held in reserve for any potential impact increase revisions associated with the specific FDOT projects. Other than wetland impacts associated with the seven referenced FDOT projects, no additional roadway projects are proposed for mitigation within this Gateway restoration project.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The Tampa Bay Mitigation Bank (TBMB) is located within the Tampa Bay Drainage basin, but had not received permits during the period of mitigation selection.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : Gateway Restoration is a SWIM-sponsored project conducted on property owned by Pinellas County.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Construction was conducted by a private contractor selected by the SWFWMD
Contact Name: Stephanie Powers, SWIM Environmental Scientist Phone Number: (813) 985-7481, ext. 2213
Entity responsible for monitoring and maintenance: Private contractors selected by the SWFWMD

Proposed timeframe for implementation: Commence: Design Complete, 2002 Complete: Construction Spring-Summer, 2004; followed by minimum 3 years maintenance and monitoring.

Project cost: \$1,498,000 (total);
\$ 92,000 Design, permitting, and construction monitoring
\$1,336,000 Construction & Planting
\$ 70,000 Maintenance & Monitoring (minimum, 5 years)

Attachments

- X 1. Detailed description of existing site and proposed work. Refer to Attach. A - Existing Site & Proposed Work Attachment D - Design Drawings
- X 2. Recent aerial photograph with date and scale. Figure B - 1995 infrared aerial.
- X 3. Location map and design drawings of existing and proposed conditions. Figure A (Location Map) and Attachment D - Design Drawings
- X 4. Detailed schedule for work implementation, including any and all phases. Refer to Attachment B – Schedule
- X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment C -Maintenance & Monitoring Plan, Success Criteria.
- X 6. Long term maintenance plan. Refer to Attachment C - Maintenance & Monitoring Plan, Success Criteria
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). The attached impact and mitigation table and design plans depict each of the proposed wetland impacts and associated designated mitigation areas at Gateway.

ATTACHMENT A - Existing Site & Proposed Work

This initial construction phase of Gateway includes 176-acres, which includes 92 acres of mangrove that were historically ditched and drained for mosquito control. As depicted on the 1970 aerial (Figure C - Pinellas Co. Soil Survey), the mangroves were bordered by salt-marsh habitat in the northwest quadrant. The marsh was predominantly filled, as was approximately 11 acres of historic upland habitat in the northwest and southeast quadrants. The filled areas had extensive and dense coverage of exotic species, primarily Brazilian pepper and Melaleuca (refer to site photos).

As depicted on the attached design plans, the salt-marsh, open water, and upland habitats are restored with a combination of exotics eradication, appropriate grading, and planting with native species. The dominant wetland plantings include smooth cordgrass, marshhay cordgrass, sand cordgrass, seaside paspalum, and needle rush. As part of the proposed FDOT mitigation effort, 35-acres of the 92-acre mangrove habitat have been enhanced by removing the spoil mounds associated with the mosquito ditches. Historically, enhancing and restoring mangrove habitat with mosquito ditches have typically been a very problematic process. Unless continuously maintained, cutting Brazilian pepper from the spoil mounds is only a temporary solution since they will typically regenerate as long as the spoil is still present. To rid a mangrove area of exotics without conducting continuous maintenance, the spoil mounds have to be graded below high tide elevations. However, utilizing construction equipment typically results in mangrove impacts since access to the various mounds require crossing through mangroves. The pepper roots also firmly hold the spoil material, made up of shell, sand, and limerock. This limits the use of small grader equipment. As a result of these problems, the resource agencies associated with mangrove habitat enhancement have essentially avoided attempting to restore mosquito ditch systems.

Therefore, the "hydroblast" method was first proposed and adopted at Gateway. After herbicide and manual cutting of the B. pepper and other exotics, staked silt screens and floating barriers were strategically installed to control sedimentation prior to commencing earthwork. The 35-acres of mangrove habitat had pressurized water

pumped through a fire hose to "washdown" the spoil mounds. This grading method has allowed tides to evenly sheet flow under the mangroves, eliminated the opportunity for pepper regeneration, and allowed the opportunity for mangrove seedlings to generate. Evaluation has indicated this method to be an ecological beneficial yet economical construction method for future mangrove enhancement activities.

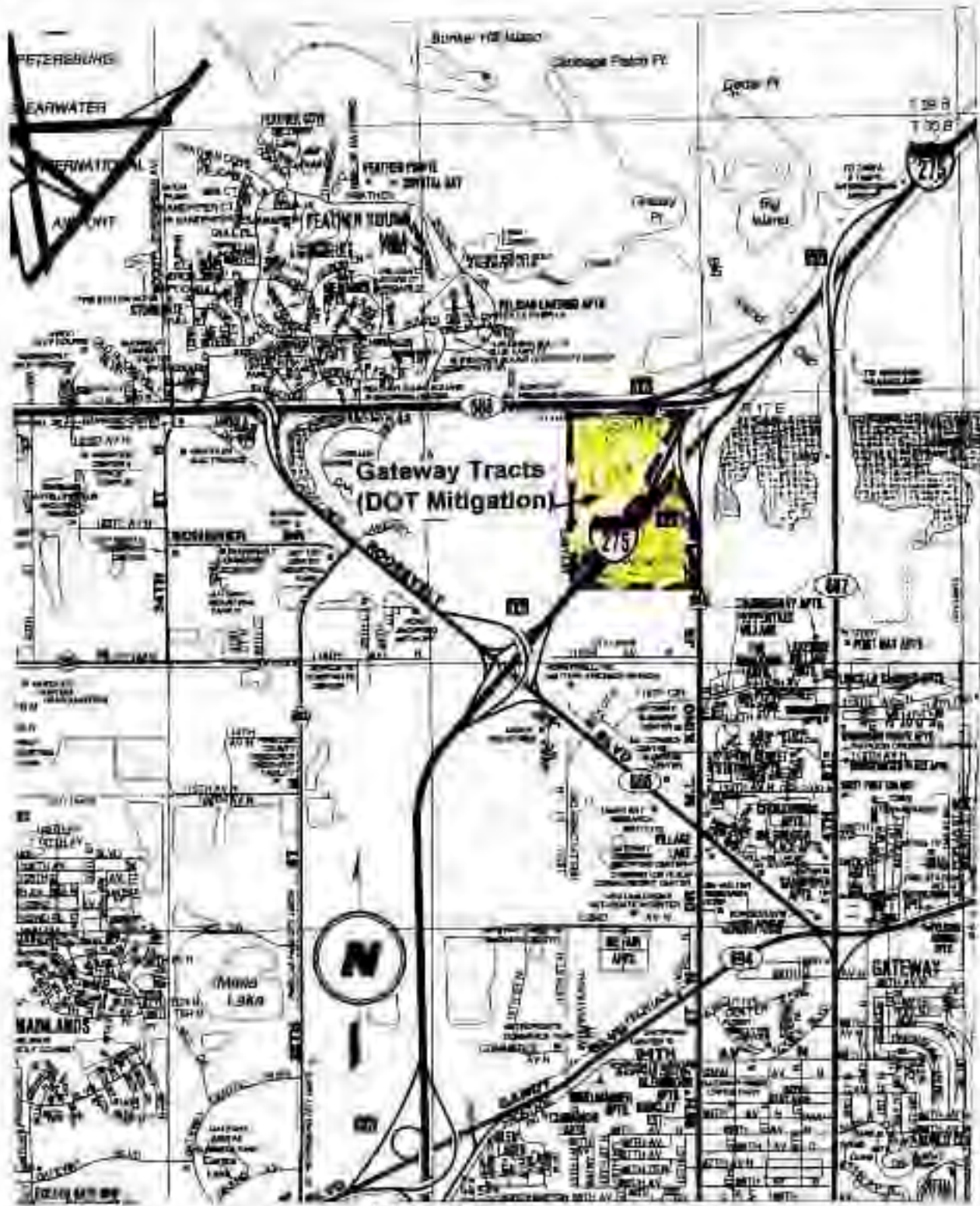
ATTACHMENT B - Schedule

A minimum 3-year period of maintenance & monitoring will extend beyond the construction period. Perpetual maintenance will be conducted as necessary by Pinellas County after the site conditions achieve success and the monitoring period.

ATTACHMENT C - Maintenance & Monitoring Plan, Success Criteria

This mitigation is associated with an initial and long-term restoration objective for the public lands within the Gateway and Weedon Island area of Pinellas County (Figure B). The maintenance of the project is expected to be minimal. For estuary restoration projects, with proper construction of appropriate wetland grades to allow for sufficient tidal action, the planted and naturally recruited vegetation typically have a good survival and recruitment rate. Maintenance is primarily related to control of debris from the site, spot herbicide treatment and conducting supplemental planting. Salt water substantially limits the re-establishment of exotic vegetation. Maintenance will be conducted as needed, planned for quarterly for the first few first year post-construction, and at least semi-annually thereafter for a minimum of three years. After three years, maintenance activities will be conducted as needed to maintain the success criteria. Inspections on a semi-annual basis are anticipated to evaluate vegetative conditions, debris, and any nuisance/exotic vegetation. After each inspection, proper maintenance activities will be conducted to correct any problems.

Monitoring will be conducted semi-annually for a minimum of three years post-construction. Annual reports will be conducted to document habitat conditions and various activities implemented during the previous year. The first monitoring report will include documentation (qualitative evaluation, site photos, etc.) of pre-construction habitat conditions. This report will also designate the monitoring station locations utilized for the entire monitoring period. However, site conditions will be annually documented for the entire site, not just for the monitoring station locations. The success criteria includes a minimum 90% survivorship for planted material for one year after planting and a total 85% cover of planted and recruited desirable species. The natural recruitment and generation of mangroves are anticipated to occur within portions of the planted salt marsh habitat.



NORTH ↑
 SCALE 1.7 in. = 1 mile.

**FDOT - District 7
 MITIGATION SITE
 (Tampa Bay Drainage Basin)**

**GATEWAY TRACT
 (SW 45)**

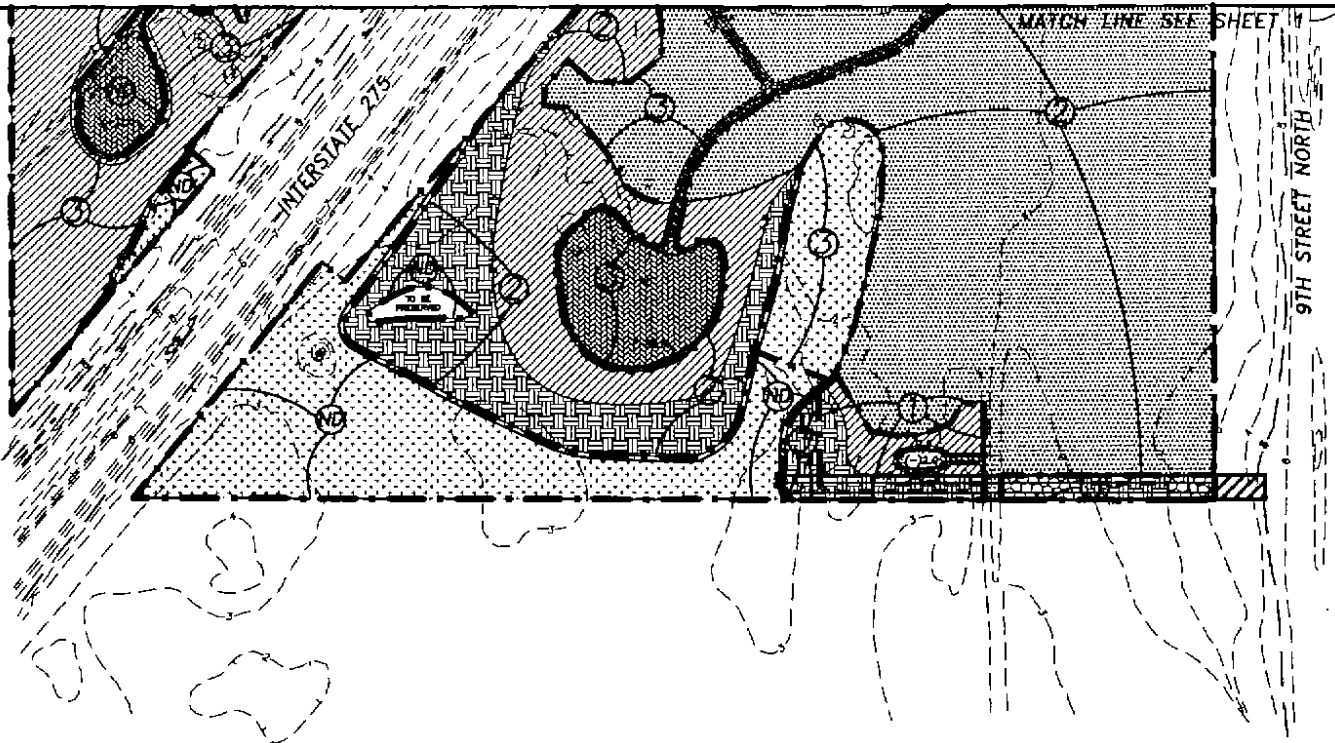
**FIGURE A
 LOCATION MAP**

FDOT Impacts and Mitigation

**Gateway Tract Restoration Site
Tampa Bay Drainage Basin
SW 45 (Updated 8/04)**

Project No.	Project Name	FM	SWFWMD Permit No.	USACOE Permit No.	Total Impact Acreage	Impact Acreage	Impact Habitat Type (FLUCFCS)	Mitigation Ratio	Mitigation Acreage	Mitigation Type
1	SR 679 (Bayway) - Bunces Pass Bridge #150	2569051	DEP 52-0148752-001	199100289 (IP-AM)	0.60	0.10	540 - Bays & Estuaries	2 to 1	0.20	Open Water Restoration
						0.50	642 - Saltwater Marsh	2 to 1	1.00	Saltwater Marsh Restoration
2	I-275 - Roosevelt to Big Island Gap	2588701	43001034.006	199402523 (IP-ES)	9.10	4.90	612 - Mangrove	4 to 1	17.28	Mangrove Enhancement
						3.20	619 - Exotic Hardwood	2 to 1	6.44	Saltwater Marsh Restoration
						0.50	642 - Saltwater Marsh	2 to 1	1.00	Saltwater Marsh Restoration
						0.50	641 - Freshwater Marsh	2 to 1	1.06	Saltwater Marsh Restoration
3	SR 60, Courtney Campbell to Fish Creek	2556301	43000920.005	2001015084 (IP-MN)	12.20	3.70	540 - Bays & Estuaries	2 to 1	6.60	Open Water Restoration
									0.90	Saltwater Marsh Restoration
						4.40	612 - Mangrove	5 to 1	11.60	Mangrove Enhancement
4	SR 60, Clearwater Harbor Bridge Replacement	2570931	44021540.001	200004966 (IP-TF)	1.50	4.10	642 - Saltwater Marsh	3 to 1	11.53	Saltwater Marsh Restoration
									2.00	Upland Enhancement
						0.20	540 - Bays & Estuaries	2 to 1	0.98	Open Water Restoration
5	SR 686 (Roosevelt) at 49 th Street	4062531	44007482.001	200206320	0.20	1.30	612 - Mangrove	3 to 1	3.00	Mangrove Enhancement
						0.20	612 - Mangrove	12 to 1	2.40	Mangrove Enhancement
6	SR 676 - Maritime Blvd. to SR 60 (SR 45, Causeway Blvd & US 41, Licata Bridge)	2557341	44137356.003	199502501 (IP-ES)	1.50	1.00	612 - Mangrove	4 to 1	4.00	Mangrove Enhancement
						0.50	619 - Exotic Hardwood	2 to 1	1.00	Saltwater Marsh Restoration
7	I-275 - Howard Franklin to Himes	2583981	---	---	2.30	2.00	612 - Mangrove	7 to 1	4.20	Mangrove Enhancement
									10.30	Saltwater Marsh Restoration
						0.30	641x - Freshwater Ditch	5 to 1	1.50	Upland Enhancement
TOTAL					27.40	27.40		3.5 to 1 (avg.)	96.69	

FDOT Wetland Impacts - Habitat & Acreage		Gateway Mitigation Acreage		Mitigation Acreage Committed To FDOT	
540 - Bays & Estuaries	3.8	Total Open Water	10.63	Total Open Water	7.78
612 - Mangrove	13.8	Total Mangrove Enhancement	42.50	Total Mangrove Enhancement	42.48
619 - Exotic Hardwood	3.7	Total Saltwater Marsh	42.93	Total Saltwater Marsh	42.93
641 - Freshwater Marsh	0.5	Total Upland Enhancement	10.25	Total Upland Enhancement	3.50
641x - Freshwater Ditch	0.3				
642 - Saltwater Marsh	5.3	TOTAL	106.31	TOTAL	96.69
TOTAL	27.4				

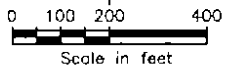


FDOT MITIGATION APPROPRIATION		
FDOT PROJ. ID	FDOT PROJECT NAME	ACOE PERMIT NO.
1	SR 679 (BAYWAY) - BUNCES PASS BRIDGE #150	199100289
2	I-275, ROOSEVELT BLVD. TO BIG ISLAND GAP	199402523
3	SR 60, COURTNEY CAMPBELL TO FISH CREEK	-
4	SR 60, CLEARWATER HARBOR BRIDGE REPLACEMENT	200004988
5	SR 666 (ROOSEVELT BLVD.) AT 49TH STREET	-
6	SR 676, MARITIME BLVD. TO SR 60	199502501
7	I-275, HOWARD FRANKLIN TO HIMES	-

LEGEND

- 2--- EXISTING 1 FOOT CONTOUR
- 5--- EXISTING 5 FOOT CONTOUR
- PROPOSED CENTER LINE OF CHANNEL
- 2.0--- PROPOSED CONTOUR
- EXISTING RIGHT OF WAY
- PROJECT ALLOCATION BOUNDARY
- ① F.D.O.T. PROJECT I.D. NUMBER
- ND NOT DESIGNATED FOR F.D.O.T. MITIGATION

- MANGROVE SWAMP TO BE ENHANCED
- ZONE 1 (EL. (-)2.0 TO 0.5) OPEN WATER & WATER WAY
- ZONE 2 (EL. 0.5 TO 1.5) SALTWATER MARSH
- ZONE 3 (EL. 1.5 TO 2.0) SALTWATER MARSH
- ZONE 4 (EL. 2.0 TO 3.0) SALTWATER MARSH
- ZONE 5 (EL. 3.0 TO NG) UPLAND - SOD
- ZONE 6 UPLAND - NUISANCE SPECIES REMOVAL



PURPOSE: MITIGATION/RESTORATION
 DATUM: NGVD 1929

F.D.O.T. PROJECT APPROPRIATION MITIGATION PLAN

IN: TAMPA BAY
 AT: ULMERTON ROAD & I-275
 COUNTY OF: PINELLAS STATE OF: FLA.
 APPLICATION BY: SWFWMD

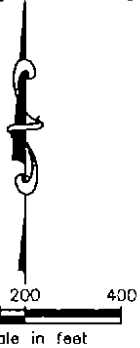
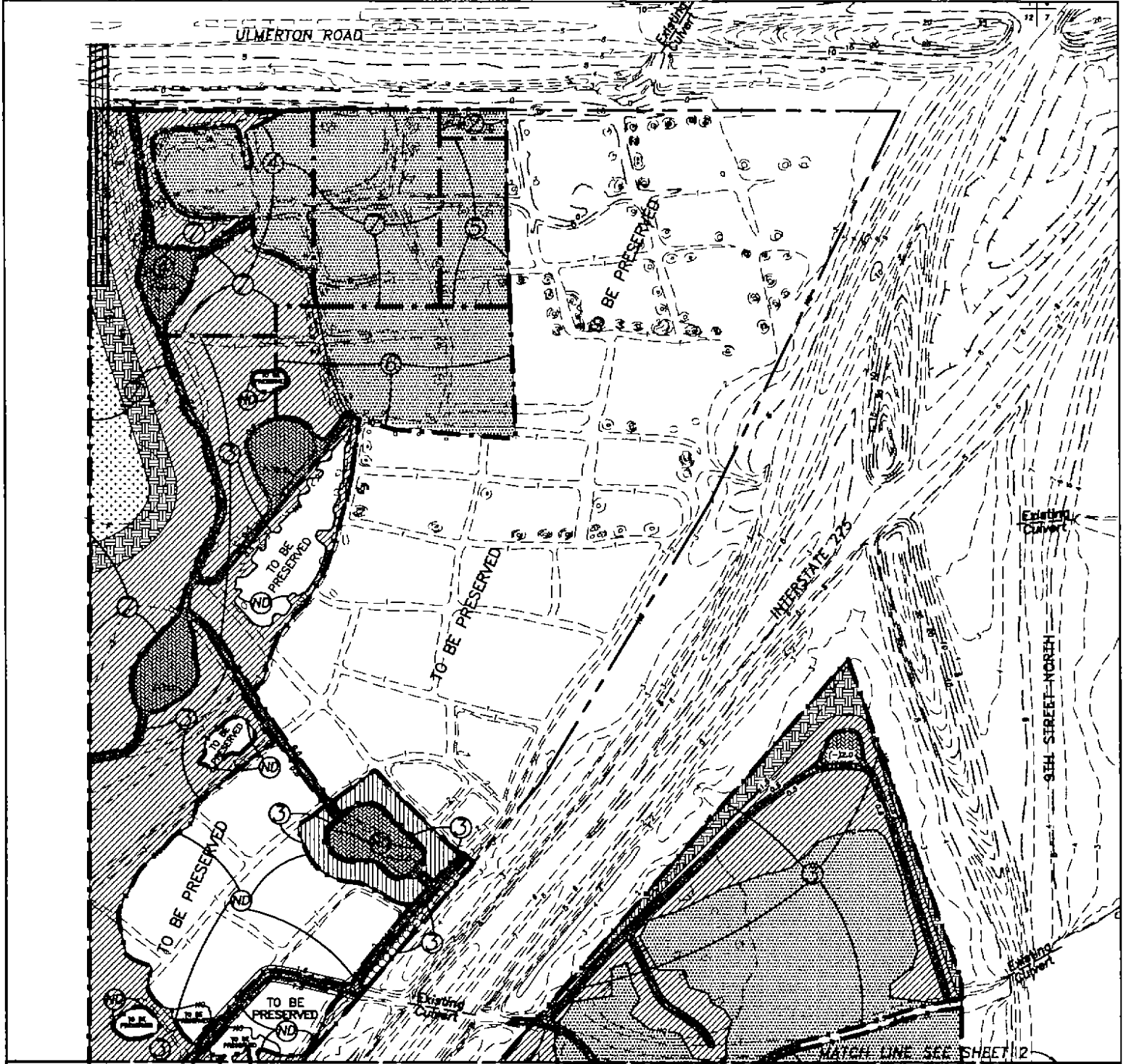
SWFWMD
 GATEWAY TRACT

SHEET 2 OF 2 DATE: JULY, 2002

FOR PERMIT PURPOSES ONLY

Prepared by: URS Corporation Southern

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FOR LEGEND SEE SHEET 2

PURPOSE: MITIGATION/RESTORATION
 DATUM: NGVD 1929

**F.D.O.T. PROJECT
 APPROPRIATION
 MITIGATION PLAN**

IN: TAMPA BAY
 AT: ULMERTON ROAD & I-275
 COUNTY OF: PINELLAS STATE OF: FLA.
 APPLICATION BY: SWFWMD

SWFWMD
 GATEWAY TRACT

SHEET 1 OF 2 DATE: JULY, 2002

FOR PERMIT PURPOSES ONLY

Prepared by: URS Corporation Southern

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FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)

GATEWAY TRACT
(SW 45)

FIGURE B
INFRARED AERIAL
(1995)



The remnant upland habitat at Gateway includes a dominance of Brazilian pepper and Melaleuca that will be removed as part of the enhancement plan.



Higher elevation view from the Carillon Development along the western boundary of the Gateway Tract. The western and southern perimeter of the two DOT mitigation tracts (Figure B) are uplands that still have saw palmetto and other native species interspersed with the exotic/nuisance vegetation.

**FDOT - District 7 Mitigation Site
(Tampa Bay Drainage Basin)**

GATEWAY TRACT (SW 45)



The major ditch that tidally connects the northern mitigation tract to the channel north of Ulmerton Road. Restored wetlands adjacent to the enhanced uplands will be tidally connected to this ditch with small channels.



View from the Ulmerton Rd. bridge of the northern mitigation tract. The tidal area has a dominance of B. pepper on the mosquito ditch spoil mounds, mangroves within the remaining area. The western boundary of the northern tract is located at the higher treeline and building to the right, eastern boundary at I-275 to the left.

**FDOT - District 7 Mitigation Site
(Tampa Bay Drainage Basin)**

GATEWAY TRACT (SW 45)

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District: Southwest Florida Water Management District

Mitigation Project Name: Tenoroc/Saddle Creek Restoration

Project Number: SW47

Project Manager: Bud Cates – DEP Program Administrator

Phone No: (850) 488-8217

County(ies): Polk

Location: Sections 29,30,31,32 T27S, R24E

IMPACT INFORMATION

(1) FM: 2012092, Int.- 4, US 98 to CR 557 (Seg. 3-5)*

ERP #: 43011896.026 COE #: 200204891 (IP-MGH)

(2) FM: 1974751, SR 540, Thornhill Rd. to Recker Hwy.

ERP #: 4401612.000 COE #: 199401950

(3) FM: 1974711, SR 540, 9th St. to Overlook Dr.

ERP #: 4417859.000 COE #: 199403139

Drainage Basin(s): Peace River Water Body(s): None SWIM water body? N

Impact Acres / Types:

(1) FM 2012092 0.10 ac. – 510 (Fluccs code) (2) FM 1974751 0.59 ac. – 610 (Fluccs code)

1.79 ac. – 611 (Fluccs code) 0.33 ac. – 611 (Fluccs code)

TOTAL 1.89 Acres 2.86 ac. – 615 (Fluccs code)

1.35 ac. – 617 (Fluccs code)

0.74 ac. – 641 (Fluccs code)

(3) FM 1974711 0.06 ac. -- 640 (Fluccs code)

TOTAL 5.87 Acres

0.35 ac. – 644 (Fluccs code)

TOTAL 0.41 Acres

TOTAL: 8.17 acres

*Note: The I-4 project also has 18.95 wetland impact acres within the Withlacoochee River Basin, those anticipated impacts are proposed to be mitigated at the Hampton Tract (SW 59).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation Restoration Enhancement Preservation Mitigation Area: **25.1 acres**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin(s): Peace River Water body(s): Saddle Creek Headwaters SWIM water body? N

Project Description

A. Overall project goal: Restoration, enhancement, and creation of wetland & upland habitat on land previously altered by phosphate mining. Establishment of hydrologic, vegetative, and wildlife corridors through the Tenoroc Management Area and adjacent Bridgewater addition. Establishment of appropriate water quantity, flow regimes, and water quality improvements to Saddle Creek and Lake Parker, thus enhancing headwater flows to the Peace River. The watershed improvements and mitigation activities are being conducted through a joint ecosystem management initiative managed by the FFWCC and FDEP.

B. Brief description of current condition: Reclaimed phosphate mined land of various landscape features constructed by various clay/sand disposal and earthwork methods. In 2002, the southern portion of the Bridgewater property (Figures B & C) was publicly acquired by the FFWCC as an addition to Tenoroc. Tenoroc and Bridgewater contain numerous man-made lakes and substantial upland ruderal areas dominated by opportunistic species such as bahia grass, salt-bush, wax myrtle, and exotic species such as cogon grass and Brazilian pepper. The proposed DOT mitigation area is within the recently acquired portion of southern Bridgewater, adjacent to the western boundary of the property. The designated mitigation area is within an upland fallow field between a few man-made lakes, and minimal acreage of low quality marshes that naturally generated on top of the reclamation areas.

C. Brief description of proposed work: The mitigation is a 25.1 acre wetland creation area to be constructed in 2004 and 2005 (refer to Fig. D). An outer facultative zone of forested wetland creation includes a planting plan dominated by red maple and bald cypress, with additional species including popash, sweetgum, laurel oak, water hickory, buttonbush and blackgum. An inner obligate forested zone includes a dominance of bald cypress, with additional coverage provided by popash, red maple, buttonbush, and blackgum. The ground coverage of the forested components will include a dominance of soft rush, pickerelweed, and arrowhead. Three obligate pockets of created marsh habitat will include a dominance of pickerelweed, arrowhead, bulrush, and fireflag. The marsh pockets will be connected with shallow creek tributaries that will maintain proper hydraulic flow throughout the wetland system. Herbs will be planted on three ft. centers, trees on ten ft. centers. Once wetland construction and planting is complete, there will be a minimum 5 years of maintenance & monitoring activities.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): All the proposed DOT wetland impacts will occur within the upper watershed of the Peace River in Polk County. The majority of the proposed wetland impacts (6.33 acres, approx. 77%) will be to forested wetland systems. Those wetland impacts will be mitigated by the creation of forested wetlands (21.4 acres, 3.4-to-1 ratio). The non-forested wetland impacts (1.84 acres) will be mitigated with the creation of marshes (3.7 acres, 2-to-1 ratio). The 25.1 acres of wetland mitigation will occur within a larger habitat plan that will include upland and wetland creation, restoration, and enhancement .

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: There is currently only one permitted mitigation bank selling credits within the Peace River Basin, Boran Ranch (DeSoto County) is located within the lower portion of the Peace Basin. To mitigate the hydrologic and vegetative characteristics of the proposed FDOT wetland impacts in the upper basin, the restoration plan associated with Tenoroc will more appropriately compensate for those impacts. The majority of the proposed FDOT impacts are associated with forested wetlands, whereas Boran Ranch is predominantly a non-forested wetland restoration project. As of 2003, Boran Ranch (SW 53) is providing mitigation for approximately 20 acres of FDOT wetland impacts, providing \$670,500 to the mitigation bank.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : There are currently no proposed SWIM projects in the Peace River Basin that are appropriate to mitigate for the proposed wetland impacts.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Contractor selected by FDEP

Contact Name: Bud Cates (FDEP)

Phone Number: (850) 488-8217

Entity responsible for monitoring and maintenance: DEP/FFWCC

Proposed timeframe for implementation: Commence: 1998 (evaluation & design) Complete: 2004-05 (construction, followed by minimum 5 years of maintenance & monitoring)

Project cost: \$650,000 (total) Includes design, construction & planting, maintenance & monitoring for minimum five years. Perpetual management & maintenance to be conducted by the FFWCC.

Attachments

X 1. Detailed description of existing site and proposed work. Refer to previous description.

X 2. Recent aerial photograph with date and scale. Refer to attached 1995 infrared aerials (Figs. C & D).

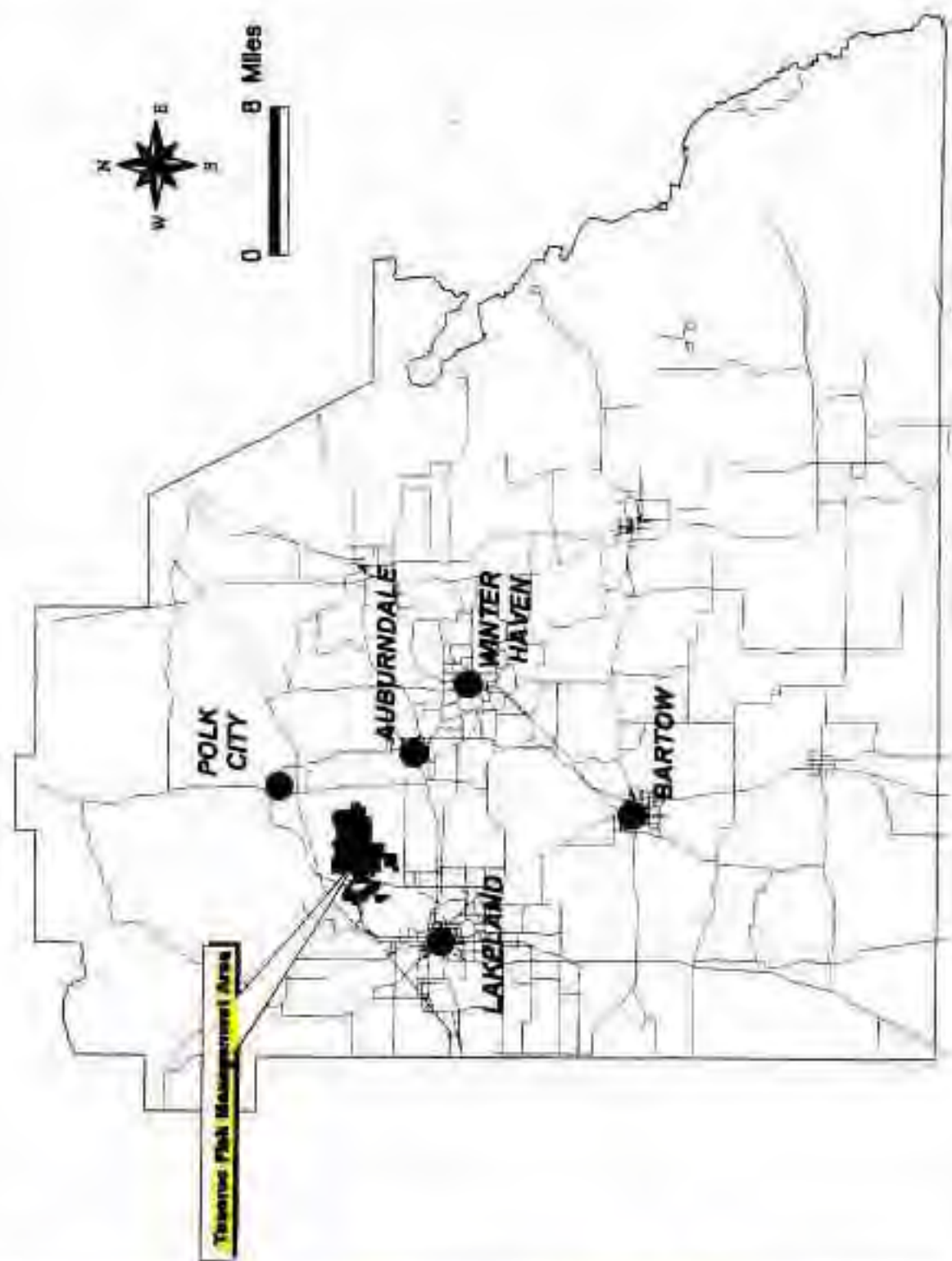
X 3. Location map and design drawings of existing and proposed conditions. Refer to Figs. A, B for location map, Figures C & D for proposed wetland creation area.

X 4. Detailed schedule for work implementation, including any and all phases. Design & permitting will be finalized in late 2003, construction conducted in 2004-2005, followed by a minimum 5-years maintenance & monitoring.

X 5. Proposed success criteria and associated monitoring plan. The monitoring will include qualitative habitat evaluations within the created wetland. Habitat evaluations will be conducted semi-annually for a minimum 5-years post construction. These evaluations will include documentation of vegetative, wildlife, and hydrologic conditions. Additional information on maintenance activities and success trends will also be reported. The two semi-annual evaluations each year will be compiled into annual monitoring reports for WMD and ACOE submittals. Success criteria will require a minimum 90% survivorship of planted stock. Maintenance activities (herbicide treatment) are required to maintain less than 10% cover of exotic, nuisance, and undesirable species. Vegetative cover of planted and naturally recruited vegetative cover will exceed 85% at the end of the 5-year monitoring period. Canopy cover of forested wetlands will exceed 30% by the end of the monitoring period, measuring only trees that exceed a height of 10 ft. It may be necessary to extend the monitoring periods beyond the 5-years to document that success criteria is met.

X 6. Long term maintenance plan. Maintenance will include herbicide control of nuisance, exotic, and undesirable species for a minimum 5 years and until the success criteria is met. After the 5 years, the FFWCC will be responsible to periodically conduct additional herbicide maintenance as necessary to guarantee these same success criteria are being met.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to the previous response under Comment D. Additional wetland habitat creation activities at Tenoroc and/or Bridgewater are proposed as mitigation for wetland impacts associated with the Turnpike construction of the Polk Parkway. This additional mitigation is separate from the FDOT mitigation program.



**FDOT - District 1
MITIGATION SITE
(Peace River Basin)**

**TENOROC / SADDLE CK.
RESTORATION PROJECT
(SW 47)**

**FIGURE A
LOCATION MAP**



**FDOT – District 1
MITIGATION SITE
(Peace River Basin)**

**TENOROC / SADDLE CREEK
RESTORATION PROJECT
(SW 47)**

**FIGURE B – Infrared Aerial (1995)
Tenoroc Tract & Project Area
Scale 1 in. = 6714 ft. < North**



**FDOT - District One Mitigation
Wetland Creation Area**

FDOT - District 1
MITIGATION SITE
(Peace River Basin)

TENOROC / SADDLE CREEK
RESTORATION PROJECT
(SW 47)

FIGURE C - Infrared Aerial (1995)
Wetland Creation Mitigation
Scale 1 in. = 250 ft. < North



FDOT – District 1
MITIGATION SITE
(Peace River Basin)

TENOROC / SADDLE CK.
RESTORATION PROJECT
(SW 47)

FIGURE D – 1995 Infrared Aerial
Bridgewater Wetland Creation &
Designated DOT Mitigation Locations
Scale 1 in = 760 feet, <North

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Reedy Creek Mitigation Bank**

Project Number: **SW 49**

Project Manager: Kathy Odom

Phone No: 407-719-3194

County(ies): Polk, Osceola

Location: Sec. 7,17,20,29,31,32 T26S, R28E

IMPACT INFORMATION

1 – FM 1945101, US 27-Lake Glenada to Hal McRae

ERP #: 4412845.06

COE #: 199342314

2 – FM 2012092, I-4, CR 557 to Osceola County (Seg. 6, 7, 9) *

ERP #: 44011896.033

COE #: 200208260 (IP-MGH)

Drainage Basin: Kissimmee River

Water Body(s): None

SWIM water body? N

Impacts / Types:

1 – FM 1945101 0.34 ac. 640 (Fluccs) 2-FM 2012092 1.53 ac. 617 (Fluccs)

0.05 ac. 611

0.82 ac. 640/641

TOTAL

0.39 ac.

2.35 acres

TOTAL 2.74 Acres

* The majority of the proposed wetland impacts associated with I-4 are within the Ocklawaha basin (4.00 acres mitigated at SW 76-Lake Lowery Tract) and the Withlacoochee basin (3.88 acres mitigated at SW 59 – Hampton Tract).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation X Restoration X Enhancement Preservation Mitigation Area: **2.74 Credits**
SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N

Mitigation Bank? Y If yes, give DEP/WMD mitigation bank permit #: 970819-11 COE # 199507852 (IP-ME)

Drainage Basin(s) : Kissimmee Ridge Water Body(s): Reedy Creek SWIM water body? N

Project Description

A. Overall project goal: Hydrologic enhancement of forested floodplain wetlands associated with Reedy Creek, restore upland improved pastures into native flatwoods habitat.

B. Brief description of current condition: The Reedy Creek Mitigation Bank covers approximately 3500-acres in northeast Polk County and southwest Osceola County. Reedy Creek Swamp is a high quality wetland system, however, has been historically logged for cypress and some alterations to hydrologic conditions. The upland area along the eastern border of the swamp was converted to improved pasture, but being restored to pine flatwoods habitat to provide a habitat buffer to Reedy Creek Swamp.

C. Brief description of proposed work: Hydrologic connections to Reedy Creek Swamp have been restored and the upland pasture has been converted to flatwoods habitat with a combination of bahiagrass eradication and implementing a native species planting and seed relocation program.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The mitigation bank adequately compensates for the minor wetland impacts with the combination of wetland enhancement and upland restoration.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: Reedy Creek is a cost-effective mitigation bank that appropriately compensates for the proposed wetland impacts.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : There are no existing or proposed SWIM projects in this basin.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Reedy Creek Mitigation Bank

Contact Name: Kathy Odom

Phone No: 407-719-3194

Entity responsible for monitoring and maintenance: Reedy Creek Mitigation Bank

Proposed timeframe for implementation: Commence: _____ Complete: Currently Maintenance & Monitoring

FM 1945101 - \$ 13,650 (\$35,000 cost/credit x 0.4 impact acres, Credits purchased Fall, 2001)

FM 2012092 - \$ 77,315 (\$32,900 cost/credit x 2.35 impact acres, Credits purchased Summer, 2004)

TOTAL **\$ 90,965**

Attachments

1. Detailed description of existing site and proposed work. Refer to previous discussion.

2. Recent aerial photograph with date and scale. Figure B – 1995 Infrared Aerial.

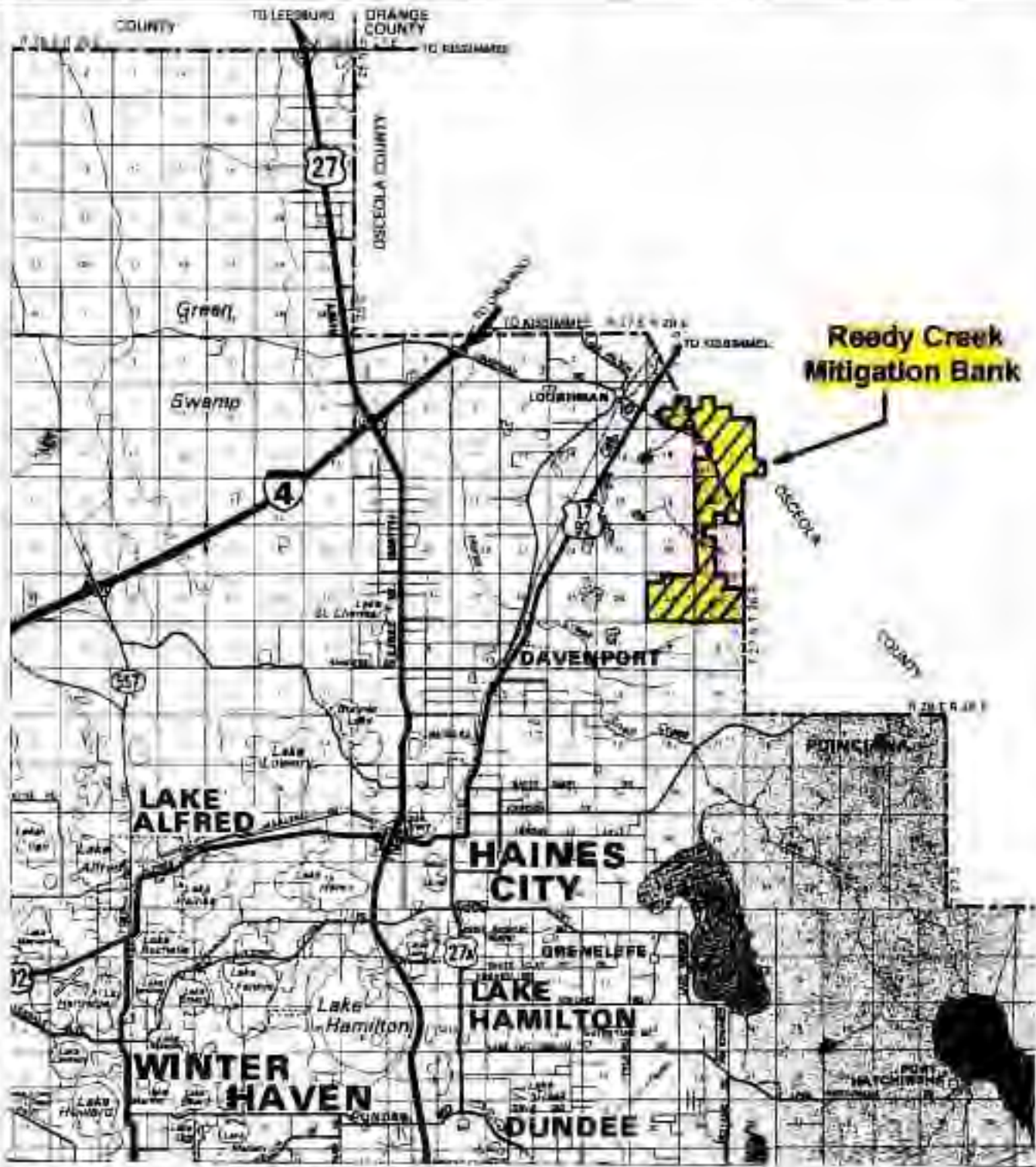
3. Location map and design drawings of existing and proposed conditions. Figure A – Location Map, Figure B depicts wetland enhancement & preservation, upland restoration areas.

4. Detailed schedule for work implementation, including any and all phases. Currently maintenance & monitoring activities.

5. Proposed success criteria and associated monitoring plan. Reference permit conditions.

6. Long term maintenance plan. Reference permit conditions.

7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

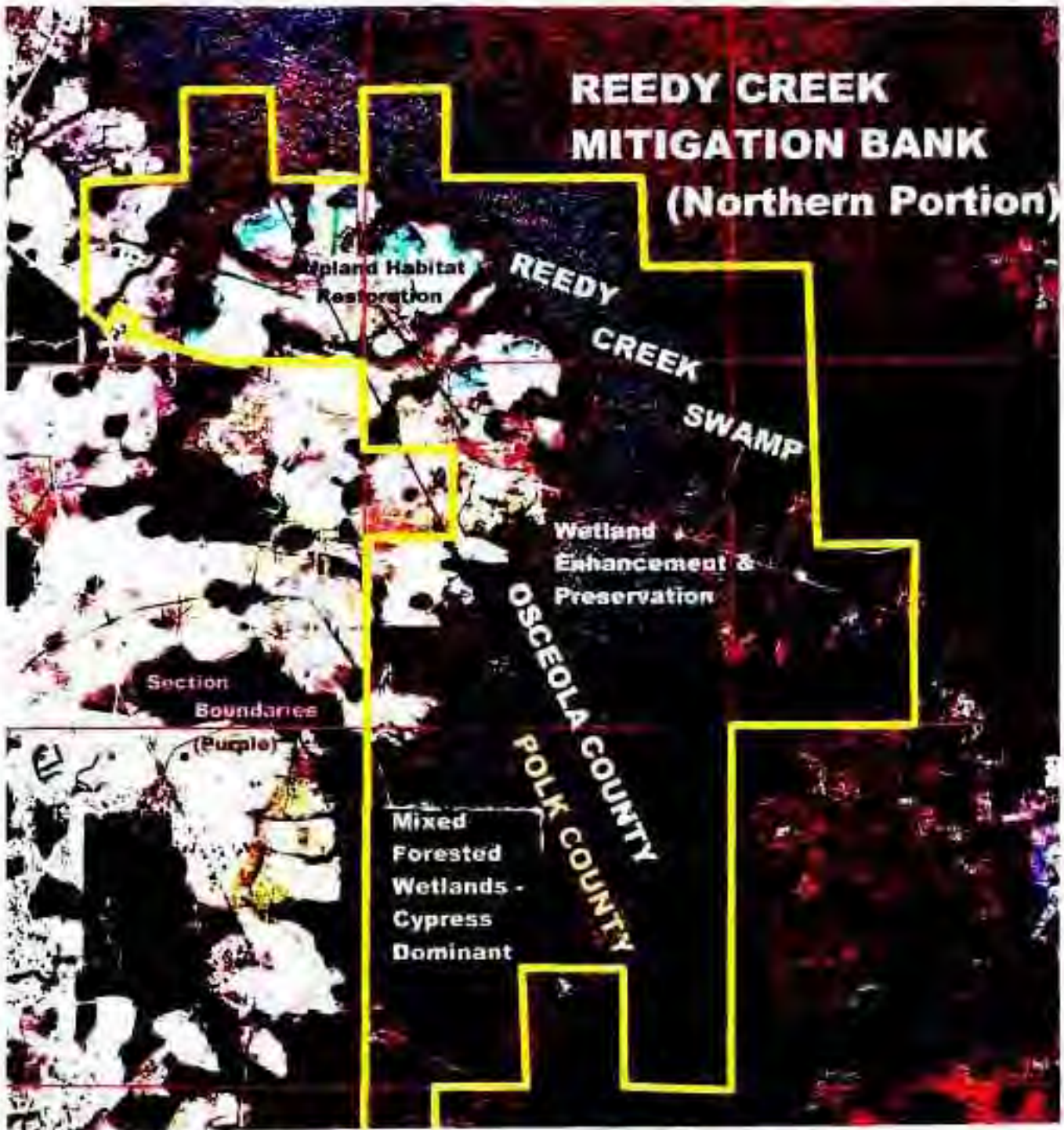


NORTH [↑] SCALE 1 in. = 3 miles

**FDOT - District 1
MITIGATION SITE
(Kissimmee River Basin)**

**REEDY CREEK
MITIGATION BANK
(SW 49)**

**FIGURE A
LOCATION MAP**

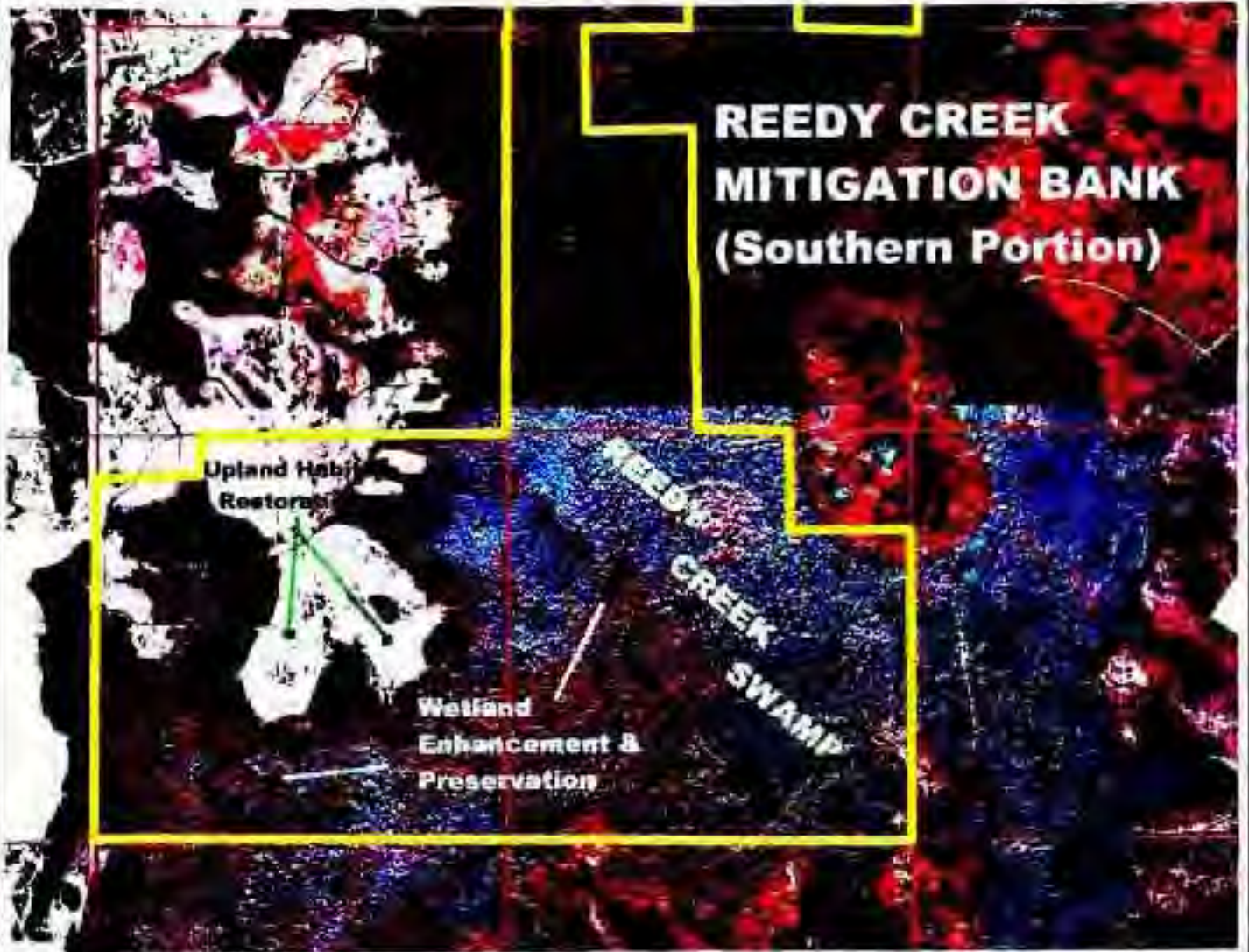


NORTH ^ SCALE 2.4 in. = 1 mile

FDOT - District 1
MITIGATION SITE
(Kissimmee River Basin)

REEDY CREEK
MITIGATION BANK
(SW 49)

FIGURE B
INFRARED AERIAL (1995)
(NORTHERN PORTION)



NORTH ↑ SCALE 2.4 in. = 1 mile

FDOT - District 1
 MITIGATION SITE
 (Kissimmee River Basin)

REEDY CREEK
 MITIGATION BANK
 (SW 49)

FIGURE B
 INFRARED AERIAL (1995)
 (SOUTHERN PORTION)

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District
Mitigation Project Name: Terra Ceia Restoration
Project Manager: Brandt F. Henningsen, Ph.D., SWIM Sr. Env. Scientist
County(ies): Manatee

Project Number: SW 50
Phone: (813) 985-7481 ext. 2202
Location : Sec. 13, 14, 23, 24, 25,26, T33S, R17E

IMPACT INFORMATION

DOT: WPI 1115399, FM 1960581, US 301 (Ellenton)-60th Ave to Erie Road ERP #: 4012295 COE#: 199802683
Drainage Basin(s): Manatee River Basin Water Body(s) : Manatee River SWIM water body? Y
Impact Acres / Types: WPI 1115399 0.18 ac. .612 (Fluccs code)
0.41 ac. .618 (Fluccs code) **TOTAL - 0.59 Acres**

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Restoration X Enhancement Mitigation Area: **7 acres**
SWIM project? Y Aquatic Plant Control project? N Exotic Plant Control Project? Y Mitigation Bank? N
Drainage Basin(s): Manatee River Water Body(s): Manatee River, Tampa Bay, Terra Ceia Bay SWIM water body? Y

Project Description

- A. Overall project goals:** Restoration and enhancement of various types of saltwater wetlands and upland habitat within a 1700-acre DEP -owned tract (Terra Ceia Isles) in southeastern Tampa Bay (Figures A & B).
- B. Brief description of current condition:** Large tracts of once-pristine mangrove forest and intertidal wetlands within the project area have been adversely impacted by dredge and fill operations. Also, much of the existing upland and various wetland habitats have been infested by exotic vegetation including Brazilian pepper, Melaleuca, and Australian pines. These areas of infestation currently provide poor habitat value for the adjacent estuary (photos).
- C. Brief description of proposed work:** The disturbed uplands and wetlands have had exotic/nuisance vegetation removed and planted with native species. For the area designated to provide the DOT mitigation (Figure D), there has been four acres of mangrove enhancement by removing the perimeter of Brazilian pepper, and three acres of upland adjacent habitat enhancement and restoration with B. pepper removal and plantings of cabbage palms and other native vegetation.
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The restored and enhanced uplands and mangroves replace the acreage and function of the disturbed wetlands while increasing habitat diversity, further enhancing the habitat mosaic concept. For mitigating the proposed mangrove (0.18 acre) and willow & elderberry impact (0.41 acre) (total 0.59 impact acres), a minimum 4 acres of mangrove enhancement, and 3 acres of upland habitat enhancement & restoration have been conducted by removing exotic/nuisance vegetation, followed with planting desirable species. Even though the existing 19 acres of mangrove interior will be enhanced by these surrounding activities, this enhancement was not accounted for as mitigation credit. The cumulative ratio of enhancement and restoration activities will result in a cumulative ratio of 12:1 compared to the proposed impacts, and will appropriately compensate for those impacts.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** No mitigation banks were available in the Manatee River Drainage Basin in 1998.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: The mitigation activities are in conjunction with a SWIM project located on DEP property in need of major habitat restoration & enhancement.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD - Operations Dept.

Contact Name: Brandt F. Henningsen, Ph.D., Sr. Environmental Scientist Phone: (813) 985-7481 ext. 2202

Entity responsible for monitoring and maintenance: SWFWMD & DEP Proposed time frame for implementation: Commence: Design in 2000-2001 Complete: Exotic/Nuisance Species Removal & Planting, 2002; followed by a minimum 3 years maintenance & monitoring

Project cost: \$ 46,175 (total);

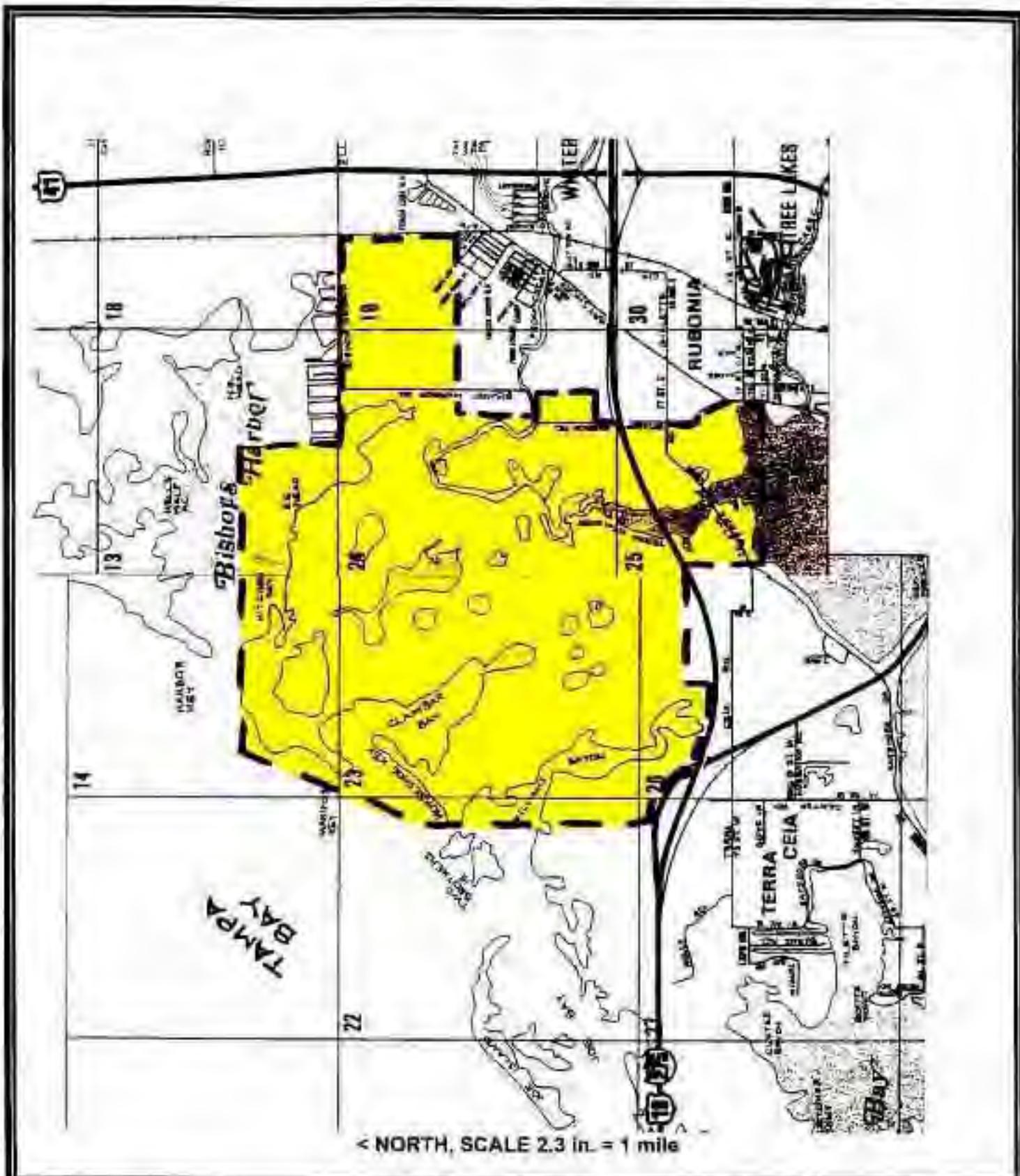
Mangrove Enhancement & Creation (exotics/nuisance species removal - 10 acres) - \$26,175

Maintenance (minimum 5 years) - \$15,000

Monitoring (minimum 3 years) - \$5,000

Attachments

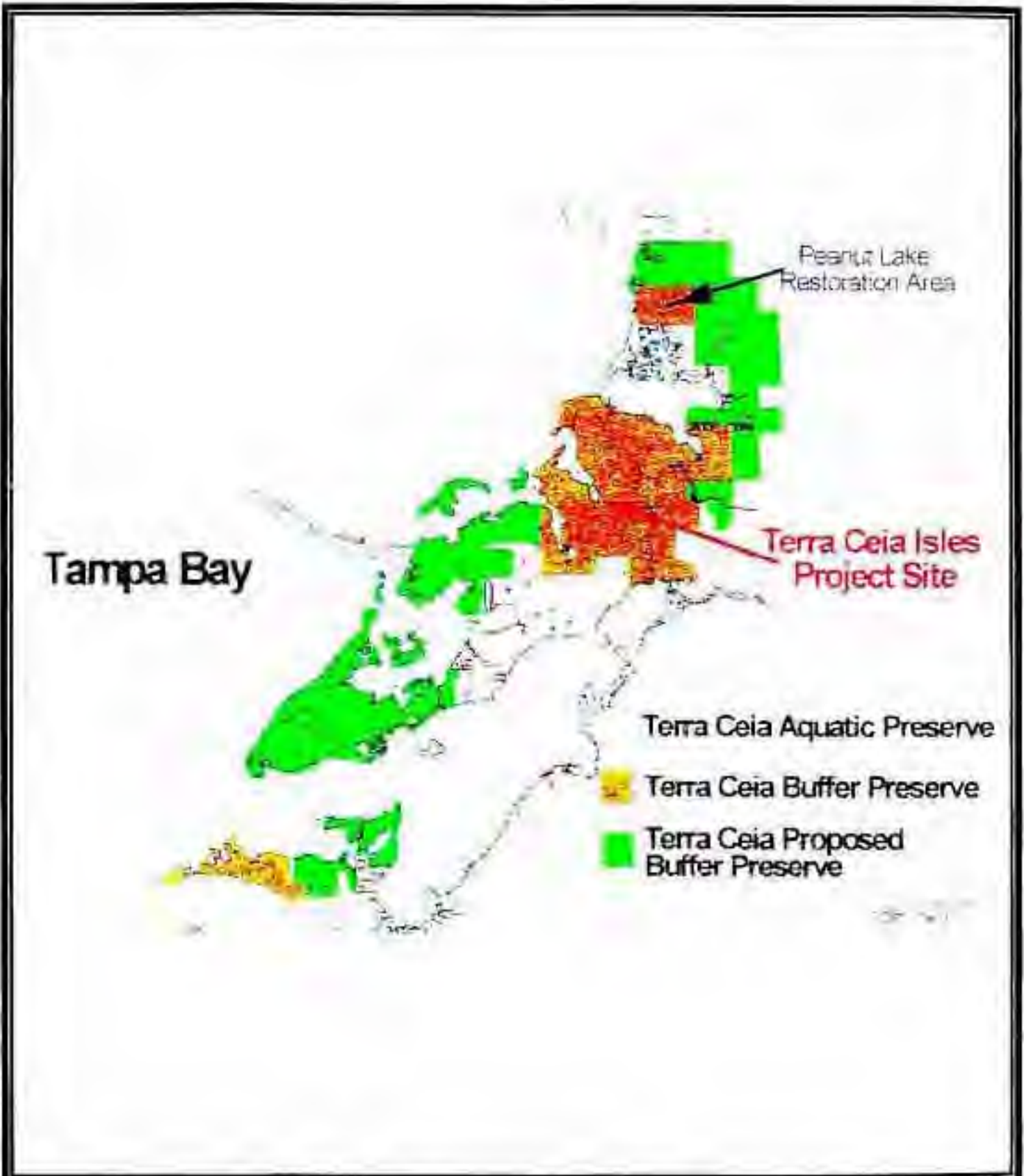
1. Detailed description of existing site and proposed work. Refer to previous discussion.
2. Recent aerial photograph with date and scale. Figure B - 1995 Infrared Aerial
3. Location map and design drawings of existing and proposed conditions. Fig. A - Location Map, Fig D - Design.
4. Detailed schedule for work implementation, including any and all phases. The exotic species were eradicated and the area planted in 2002.
5. Proposed success criteria and associated monitoring plan. The success criteria includes less than 10% cover of exotic/nuisance vegetation for the minimum 7- acre area providing mitigation for DOT wetland impacts. The monitoring will occur on an annual basis for 3 years, qualitative evaluation of species survival, cover, exotic/nuisance vegetation, hydrologic conditions, wildlife use, and recommended actions needed to ensure or enhance success.
6. Long term maintenance plan. The mitigation is associated within larger restoration objectives for land owned by the DEP. The maintenance of the project is being conducted by a private contractor working for the FDEP. The maintenance is primarily related to control of invasive exotic vegetation, maintaining less than 10% nuisance/exotics, and less frequent maintenance as the project matures.
7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Please refer to previous discussion.



**FDOT - District 1
MITIGATION SITE
(Manatee River Basin)**

**TERRA CEIA
RESTORATION
(SW 50)**

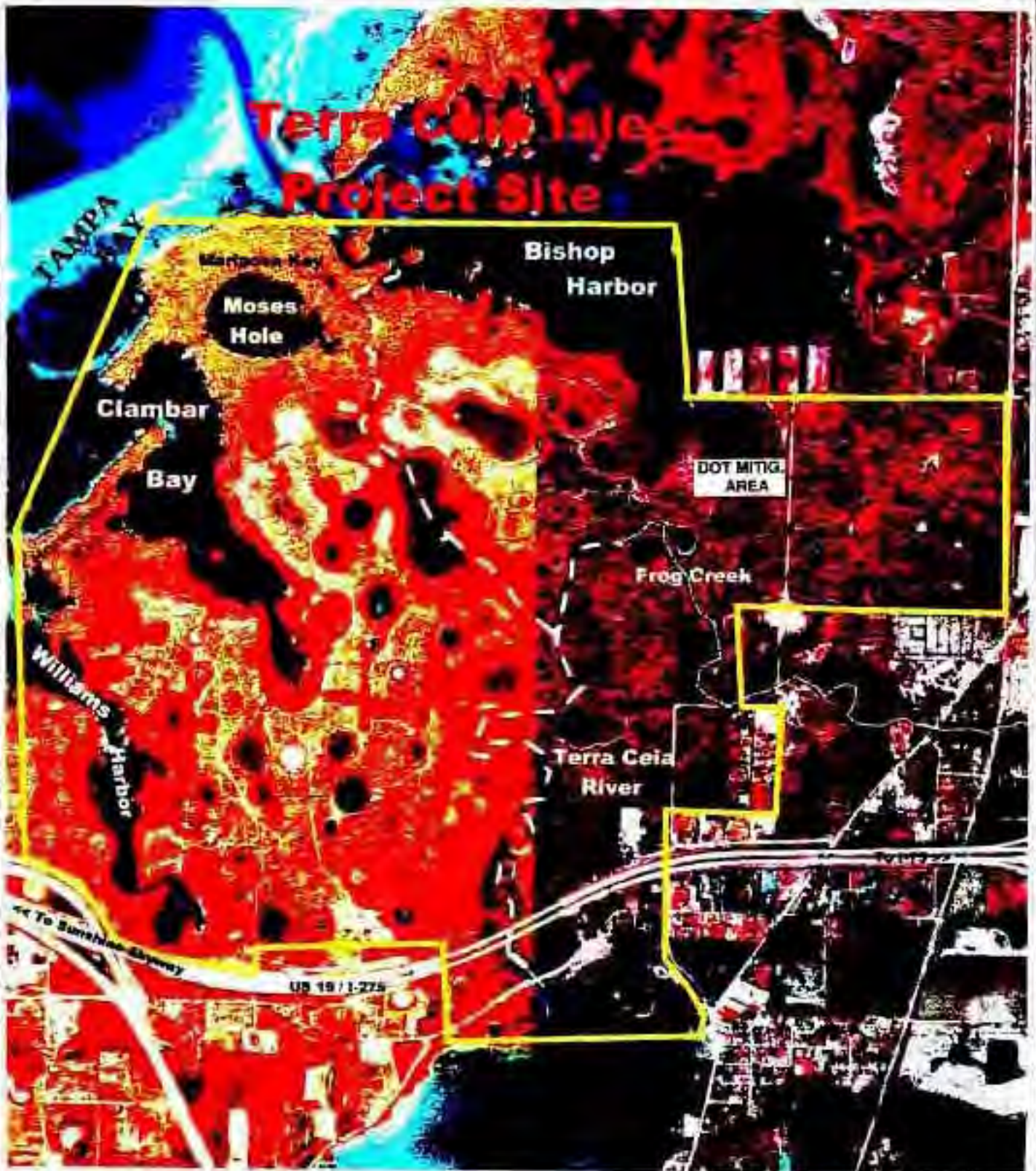
**FIGURE A
LOCATION MAP**



**FDOT - District 1
MITIGATION SITE
(Manatee River Basin)**

**TERRA CEIA
RESTORATION
(SW 50)**

**FIGURE B
TERRA CEIA BUFFER
PRESERVE**



**FDOT - District 1
MITIGATION SITE
(Manatee River Basin)**

**TERRA CEIA
RESTORATION
(SW 50)**

**FIGURE C
INFRARED AERIAL (1995)**



**FDOT - District 1
MITIGATION SITE
(Manatee River Basin)**

**TERRA CEIA
RESTORATION
(SW 50)**

**FIGURE D
PROPOSED MITIGATION
*North, Scale 1 in. = 340 ft.**



The upland areas are dominated by dense coverage of exotic/nuisance species such as Australian pine, Brazilian pepper, Johnson grass, ragweed, and dog fennel. Extensive efforts will be conducted to eradicate exotic/nuisance species, followed by a planting plan to include native upland species.



Small areas of live oak and cabbage palm hammocks are still present but are also heavily infested with Brazilian pepper that will require eradication to enhance and expand these remnant habitats.

**FDOT - District 1 Mitigation Site
(Manatee River Basin)**

TERRA CEIA (SW 50)



Small, circular open water components at the site have been tidally connected by ditches to the various harbors and bays on the property, resulting in various salinity levels and species coverage. Black mangroves are common along the perimeter of these open water areas. Brazilian pepper dominates along the upland border of the mangroves.



Even though there is substantial opportunity for upland & wetland enhancement & restoration at Terra Ceia, there are still high quality saltwater wetlands and open water habitat associated with several harbors & bays. This view is located along the projects southern border where the Terra Ceia River connects with Terra Ceia Bayou.

**FDOT - District 1 Mitigation Site
(Manatee River Basin)**

TERRA CEIA (SW 50)

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Myakka River State Park

Project Number: SW51

Project Manager: Jon Robison, Park Manager

Phone No: (941) 366-6511; SC 516-1876

County(ies): Sarasota, Manatee

Location: Sec. 19,26,28,29,30, T37S, R21E

IMPACT INFORMATION

(1) <u>FM 1979251, SR 72 - Big Slough to DeSoto County Line</u>	ERP#: <u>4318471.00</u>	COE #: <u>199802683</u>
(2) <u>FM 1980131, SR 72 - Deer Prairie to Big Slough</u>	ERP#: <u>4418399.00</u>	COE #: <u>199802683</u>
(3) <u>FM 4138871, SR 72 – Myakka River to Big Slough</u>	ERP#: _____	COE #: _____

Drainage Basin: Myakka River Water Body(s):Big Slough, Deer Prairie Slough, Myakka River SWIM water body? N
Impact Acres / Types :

(1) FM 1979251 <u>0.30</u> ac. <u>.615</u> (FlucCs)	(3) FM 4138871 <u>2.5</u> ac. <u>.510</u> (FlucCs)	
<u>1.19</u> ac. <u>.641</u>	<u>0.5</u> ac. <u>.610</u>	
TOTAL 1.49 acres	<u>0.5</u> ac. <u>.630</u>	
	<u>2.5</u> ac. <u>.641</u>	
	<u>0.5</u> ac. <u>.641x</u>	
	TOTAL 6.5 acres	
(2) FM 1119303 <u>0.87</u> ac. <u>.641</u> (FlucCs)		TOTAL 8.86 acres

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation X Restoration X Enhancement

Mitigation Area: **1,274 acres**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N
Drainage Basin(s): Myakka River Water Body(s):Myakka River, Deer Prairie Slough SWIM water body? N, but the Myakka River is an Outstanding Florida Water and Florida Wild & Scenic River

Project Description

- A. **Overall project goal:** The objective is to restore surface and groundwater hydrology of wetlands by removing 9 miles of an abandoned elevated railroad grade, as well as construction of ditch blocks and backfilling of ditch segments at appropriate locations (refer to Figures B & C). With the proposed plan, there will be at least 37 wetlands that will have direct habitat improvements; including 1,074 acres of non-forested wetland enhancement, 194 acres of forested wetland enhancement, and 6 acres of non-forested wetland restoration in the location where 3.3 miles of the railroad grade crosses former wetland habitat. Secondary benefits will include restoring surface and groundwater flow regimes to thousands of acres of other wetland and upland habitat in the Park.
- B. **Brief description of current condition:** The Park has a flat topography with a general groundwater and surface water flow pattern from north to south and west toward the Myakka River. The river is also located along the western boundary of the Park. An abandoned elevated railroad tram grade cuts through marshes predominantly located within several thousand acres of palmetto & dry prairies (Figure B&C, site photos). This east-west railroad tram and adjacent ditches are located in a perpendicular direction opposite of the general flow direction of ground and surface water hydrology. Except for the Deer Prairie Slough crossing, the railroad tram was installed without the use of culverts to maintain north-south drainage patterns. This has resulted in minimizing hydrologic connectivity with periodic impoundment of surface water within the contributing watershed north of the tram.

Subsequently, the tram performs as a levee that also decreases historic contributing flow to upland and wetland habitats south of the tram. Some of the marshes within the prairie are interconnected with ditches that were historically dredged to increase internal drainage.

- C. **Brief description of proposed work:** The primary earthwork includes backfilling the railroad grade into the adjacent lateral ditches to match their historic natural grade elevations. Additional activities include filling ditch segments and installing ditch blocks that currently drain marshes within the prairie (refer to Figures B & C). A portion of these activities were initially nominated and approved for the FDOT mitigation plan in 1998. At that time, the approved mitigation for SR 72 (Projects 1 & 2) included removing approximately 2 miles of the tram. Except for some periodic maintenance, these activities were completed by 2004 and the flow regime has been successfully achieved in those areas. With the addition of the third SR 72 project to the mitigation program, the removal of the remaining 7 miles of tram and installation of ditch blocks was approved as part of the 2004 FDOT Mitigation Plan. For the tram removal, only upstream and downstream wetlands and portion of wetlands that will receive direct hydrologic enhancement were quantified and accounted to provide mitigation credit (delineated in blue on Figures B & C). The restored marsh area (6 acres) includes only half the lateral ditch and fill footprint since the remaining half of the restored grade will be utilized for vehicle access necessary for land management activities (site photo). Due in part to the sandy soil and presence of a hardpan spodic horizon in the subsoil, for the restored grades to date, vehicle use through the surface water has proven to be accessible which is essential to maintain land management activities. The installation of long ditch blocks and total backfilling of some ditches will also restore hydrologic conditions of small to large shallow marshes. This will result in restoring historic attenuation and groundwater recharge within the wetland basin limits, and allow appropriate hydrophytic species to regenerate and recruit to historic outer perimeters of the wetlands. Even though maidencane is the dominant herb cover of these marshes; broomsedge, palmetto, and more traditional upland vegetative species have encroached within the outer facultative zones of these marshes. Due to the shallow grade elevations and narrow hydrologic fluctuations of the majority of the marshes within the Park, even the small ditches can alter the duration and depth of surface water (hydroperiod) within these systems. Not only from a vegetative, water quality/quantity perspective, but restoring appropriate hydrology and hydroperiods of these wetlands have a direct correlation to the wildlife use of these habitats. To date, natural recruitment of desirable species within the graded areas has occurred without the need for supplemental planting.
- D. **Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The three SR 72 segments are adjacent to Myakka River State Park (Figure A). Therefore, the wetland enhancement and restoration activities appropriately compensate for unavoidable wetland impacts that not only represent the same habitat conditions, but are also located within very close proximity of the proposed wetland impacts.
- E. **Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** No mitigation banks were permitted in the Myakka River Basin during the period of selection. In addition, removal of the railroad tram has proven to be the most cost-effective and most appropriate option for mitigating those wetland impacts.
- F. **Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body:** The impacts are not within a SWIM water body and there are no freshwater SWIM projects within the Myakka River basin. However, the

habitat improvements will directly benefit the Myakka River, an Outstanding Florida Waters and one of the few rivers in Florida that has achieved the designation as a Wild & Scenic River.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: FDEP, Division of Recreation and Parks selection of a private contractor
Contact Name: Jon Robinson, Park Manager or Diana Donaghy, Park Biologist Phone Number: 941-361-6511

Entity responsible for monitoring and maintenance: FDEP – Park staff
Proposed timeframe for implementation: Commence: 1998 - Design First Phase Construction – 2002-2003
Second Phase Construction - 2006-2007 Maintenance & Monitoring - 2003 – 2010 Complete: 2010
Project cost: \$530,000-\$600,000 (total)

Attachments

X 1. Detailed description of existing site and proposed work. Refer to previous discussion, Figs. B&C, site photographs.

X 2. Recent aerial photograph with date and scale. Figs. B&C – 1999 Infrared Aerials

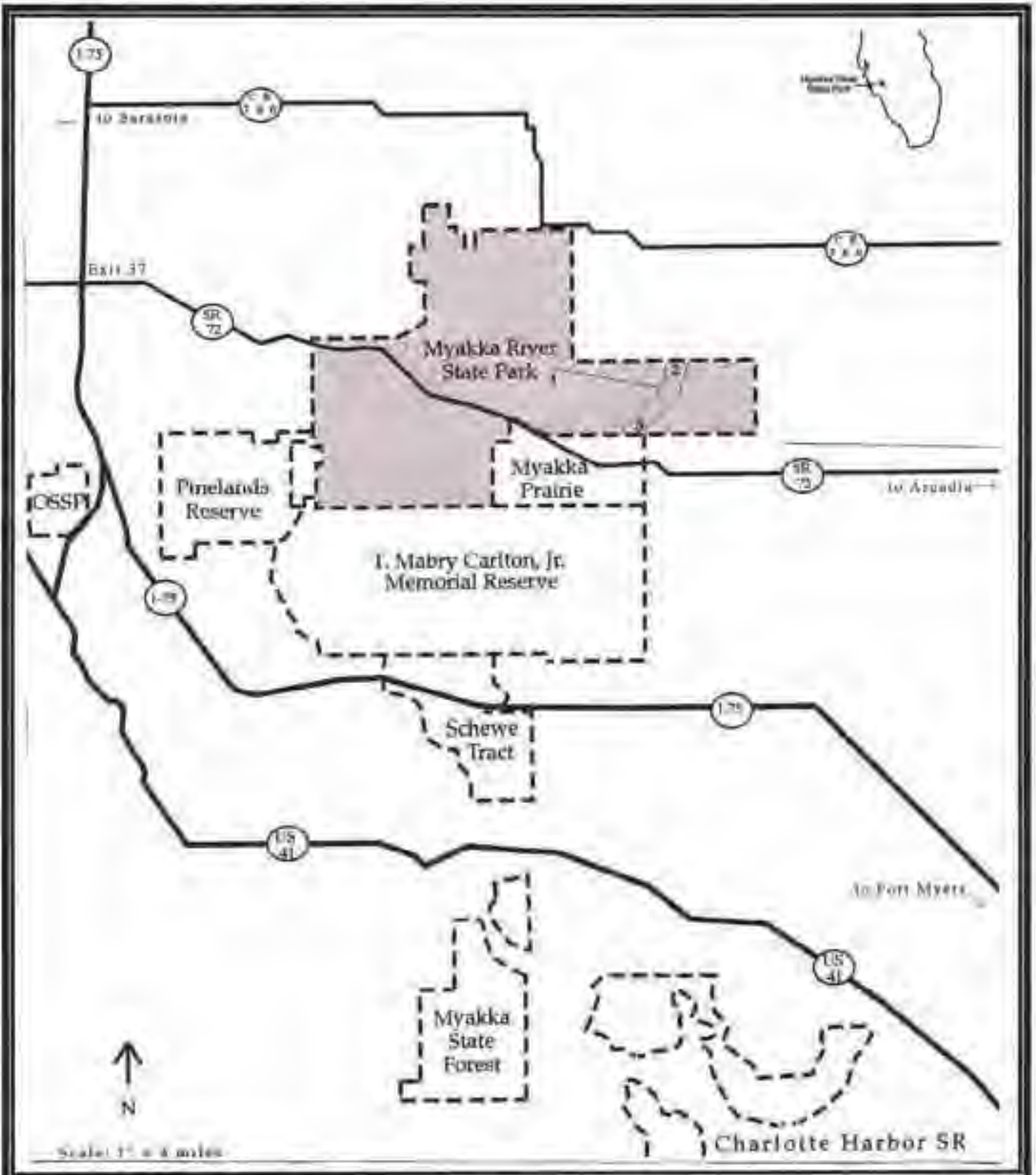
X 3. Location map and design drawings of existing and proposed conditions. Fig. C – Design Drawings

X 4. Detailed schedule for work implementation, including any and all phases. Design (1998), Construction (First Phase, 2002-2003, Second Phase 2006-2007); followed by 2 years of annual monitoring reports.

X 5. Proposed success criteria and associated monitoring plan. For the marsh restoration where the tram is graded, minimum of 80% vegetative coverage within filled ditches and majority of the graded tram (leaving a 10-15 ft. wide path for vehicular access) within 3 years after construction & less than 5% exotic species. For the enhanced wetlands, success is achieved when filled ditches and ditch blocks are stabilized with vegetation to eliminate any potential of erosion & sedimentation conditions, and historic drainage patterns are restored. Annual monitoring for a minimum two years post-construction will include qualitative documentation and photographs of tram regrading to demonstrate vegetative regeneration and restoration of proper drainage patterns.

X 6. Long term maintenance plan. Maintenance will be conducted as needed to ensure proper erosion control measures until vegetative cover is achieved in the wetlands and uplands. Maintenance to eliminate exotic & nuisance vegetative cover within the restored wetlands can be manually conducted or herbicide treatment. It should be noted that the first phase has shown extensive recruitment of native desirable vegetative species without the need for planting or maintenance due to minimal presence of existing exotic & nuisance species seed sources (site photos).

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous response under Comment D. Even though this restoration activity can provide extensive FDOT mitigation relative to the proposed wetland impacts, it has been determined that eliminating the entire railroad grade beyond the wetland boundaries is very important in restoring natural drainage patterns. The palmetto and upland prairie at Myakka River State Park has high groundwater conditions near the surface grade elevations during the rainy season. If only the grade crossings over the wetlands were restored and the tram was maintained through the uplands, groundwater within the upland prairies would still be improperly diverted from contributing to some wetlands while providing too much water in other wetlands. Restoring surface grade elevations from the 9 miles of railroad tram is an important component for allowing the entire ecosystem and various habitat inter-relationships to naturally restore.



**FDOT - District 1
MITIGATION SITE
(Myakka River Basin)**

**MYAKKA STATE PARK
(SW 51)**

**FIGURE A
LOCATION MAP**

**SW 51 - Myakka River State Park
Figure B - West Portion**

Secluded State Dam

Wetland Restoration

Wetland Restoration

Fill / Plug Ditches

State Road 72

0 0.3 0.6 1.2 1.8 2.4 Miles



SW 51 - Myakka River State Park Figure C - East Portion

-  Railroad Grade Removal
-  Wetland Enhancement
-  Wetland Restoration
-  Fill / Plug Ditches

PARK BOUNDARY

End Railroad
Grade Removal





The majority of the proposed earthwork activities include removing nine miles of the elevated railroad tram grade depicted above. This abandoned tram blocks and diverts surface and ground water flow from north to south (left to right), effectively impounding surface water within habitats upstream and minimizing contributing flow to the habitats directly downstream of the berm.



This photo depicts a portion of the post-construction road shortly after tram removal. The berm material was graded into the adjacent lateral ditches to restore historic grade elevations and contributing hydrology. Native vegetation is naturally recruiting into the filled ditches. The lowered road grade still provides vehicle access necessary for land management activities, including through the surface water at wet crossings.

**FDOT - District 1 Mitigation Site
(Myakka River Basin)**

**MYAKKA RIVER
STATE PARK (SW 51)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Little Pine Island Mitigation Bank

Project Manager: Ray Pavelka

County: Lee

Project Number: SW 52

Phone No: (941) 481-2011

Location: Sec. 14,15,16,21,22,23,24,25,26,27,34,35,36 T44S, R22E

IMPACT INFORMATION

(1) FM: 1937941, SR 776-CR 771 to Willow Bend Rd.* ERP #: 4316676.00 COE#: 199601986
(2) FM: 1984711, Trabue Harborwalk Bike Path ERP #: 4417560.01 COE#: 199705303
(3) FM: 4046971, I-75 Widen Bridge over Peace River** ERP #: 43021917.00 COE#: 200102749

Drainage Basin(s): Myakka River (1110148), Peace River (1984711, 4046971) Charlotte (1984781)

Water Body(s): Peace River, Alligator Creek SWIM water body? Y

Impacts / Types (FLUCFCS): (1) FM 1937941 2.08 ac. 540 (3) FM 4046971 2.75 ac. 612
(2) FM 1984711 0.16 ac. 540

TOTAL: 4.99 Acres

* Note - This roadway project has an additional 8.92 acres of wetland impacts being mitigated through restoration activities at Cattle Dock Point (SW 31).

** Note - The bridge project has an additional 0.8 acres of proposed mangrove impacts that are mitigated through on-site restoration activities, as noted under Peace River Bridge Restoration (SW 69).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation _x_ Restoration _x_ Enhancement ___ Preservation Mitigation Area: **4.99 Credits**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? Y

Mitigation Bank? Y If yes, give DEP/WMD mit bank permit #: 362434779 COE # 199400037 (IP-GS)

Drainage Basin(s): Charlotte Harbor Water Body(s): Charlotte Harbor SWIM water body? Y

Project Description

A. Overall project goal: Little Pine Island is state-owned property (FDEP) with extensive coverage of exotic vegetation (melaleuca, Brazilian pepper, Australian pine). The goal of the mitigation bank is to eradicate exotic vegetation from approximately 1,565 acres of historically disturbed coastal marsh, salt flats, mangroves, and pine flatwoods; construct temporary haul roads, and restoring grades by backfilling and plugging 48.3 acres of mosquito ditches.

B. Brief description of current condition: Mangrove species exist within undisturbed portions of the island, particularly along the perimeter of the 5000 acre island. However, prior to current restoration, the exotics (particularly melaleuca) had overwhelmed the native vegetation. As restoration activities have been conducted, native estuarine herbaceous and shrub species have naturally regenerated with minimal need for supplemental planting.

C. Brief description of proposed work: Due to the fact a private entity has been conducting restoration on public lands, extensive construction requirements have been mandated and adopted by the mitigation bankers. In order to access and restore the site without turbidity, impermeable liners have been used to enclose fill roads used to haul cut exotic vegetation to a mulch machine. The mulch quantity is too extensive to use as a restoration soil amendment because it would substantially limit regeneration of native vegetation. Instead, the mulch is hauled and burned as a fuel source by a sugar processing plant. After the exotic vegetation is cut and removed from the site, herbicide treatment of the stumps and spraying of any regenerated exotics are conducted on a routine schedule.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): Little Pine Island Mitigation Bank is conducting restoration and enhancement of freshwater and saltwater herbaceous and forested wetland habitats. The proposed FDOT wetland impacts are similar in habitat and function of the enhanced and restored wetlands at Little Pine Island.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: Little Pine Island is a private mitigation bank conducted on public lands owned by FDEP.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time of mitigation selection, there was not a proposed SWIM-sponsored project proposed in the Charlotte Harbor watershed that could adequately and appropriately compensate for the proposed wetland impacts.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Mariner Properties, Inc.

Contact Name: Ray Pavelka, Richard Anderson

Phone Number: (941) 481-2011

Entity responsible for monitoring and maintenance: Mariner Properties, Inc.

Proposed timeframe: Commence: 1996 Complete: When the seven phases meet permit success criteria

Project cost: \$228,630 (total for the purchased credits for the three FM's)

(1) FM 1937941	2.08 Ac. x \$37,000/credit = \$76,960 (Credits purchased Summer, 2001)
(2) FM 1984711	0.16 Ac. x \$37,000/credit = \$5,920 (Credits Purchased Summer, 2001)
(3) FM 4046971	2.75 Ac. x \$53,000/credit = \$145,750 (Credits Purchased Summer, 2002)

Attachments

1. Detailed description of existing site and proposed work. Refer to previous discussion & mit. bank permits.

2. Recent aerial photograph with date and scale. Attached aerial and site photographs.

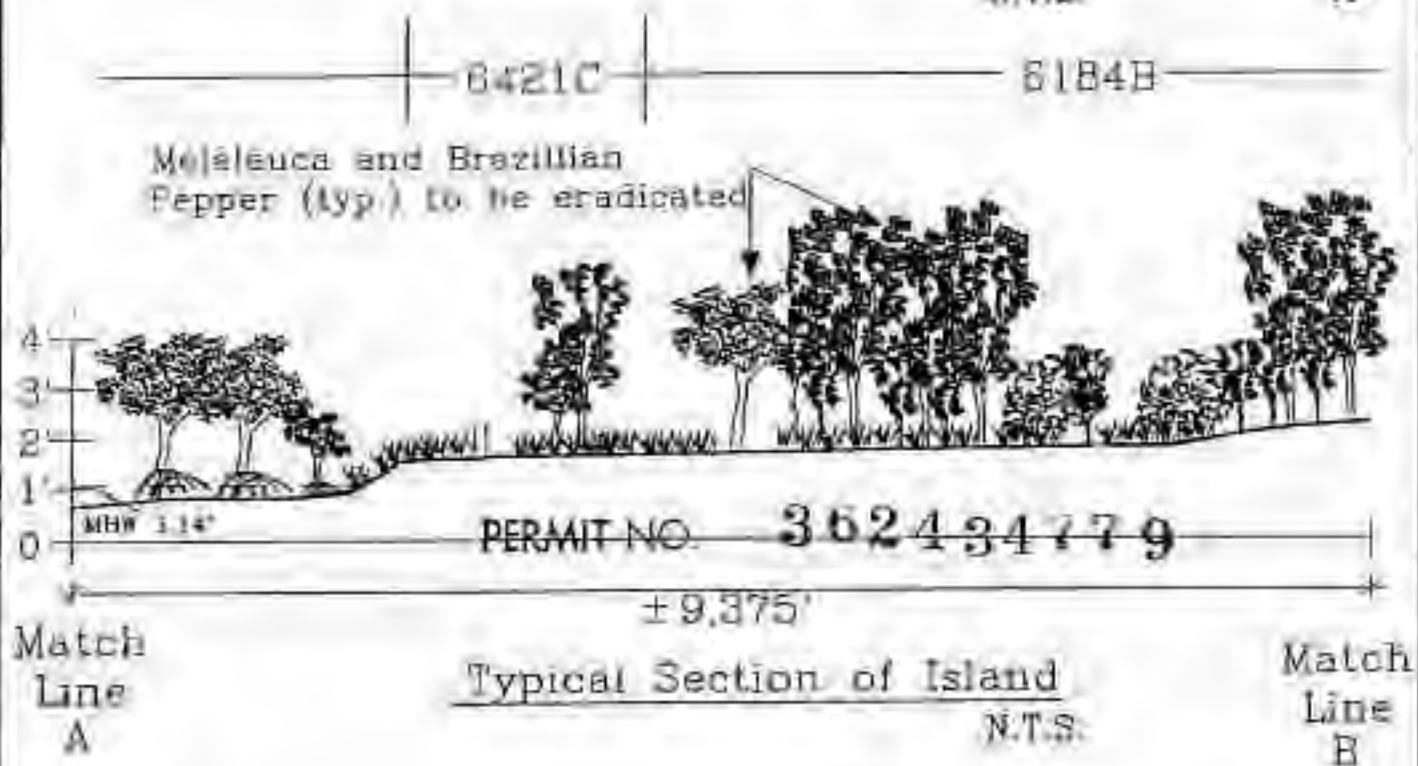
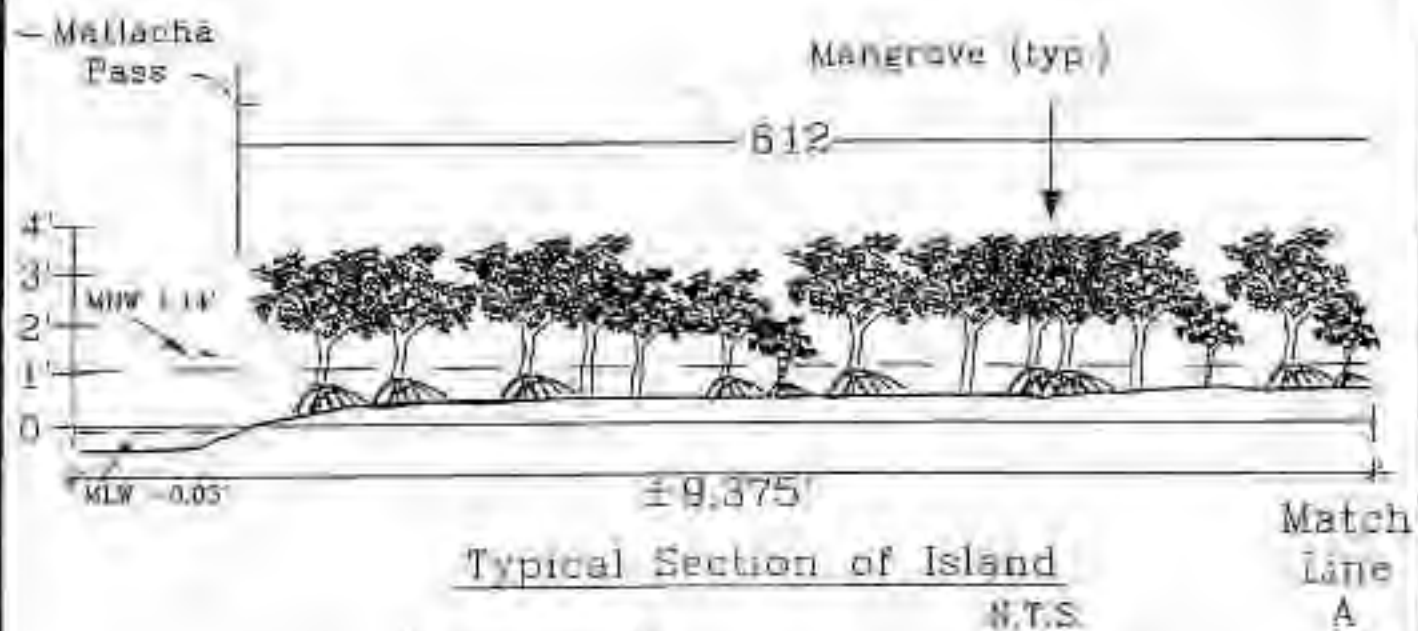
3. Location map and design drawings of existing and proposed conditions. Figure A - Location Map, Figures B & C - cross section drawings of existing vegetative conditions and proposed ditch blocks.

4. Detailed schedule for work implementation, including any and all phases. Construction activities are ongoing for seven phases until complete.

5. Proposed success criteria and associated monitoring plan. The monitoring plan includes an extensive quantitative analysis procedure that includes hydrologic, vegetative, and wildlife evaluation as stipulated in the permit. The mitigation bank permit success criteria requirements include appropriate percent cover of desirable vegetation, presence, and richness of various flora and fauna species.

6. Long term maintenance plan. In order to achieve the success criteria, the mitigation banker has incorporated a routine maintenance schedule to ensure minimal regeneration and coverage of exotic and nuisance species.

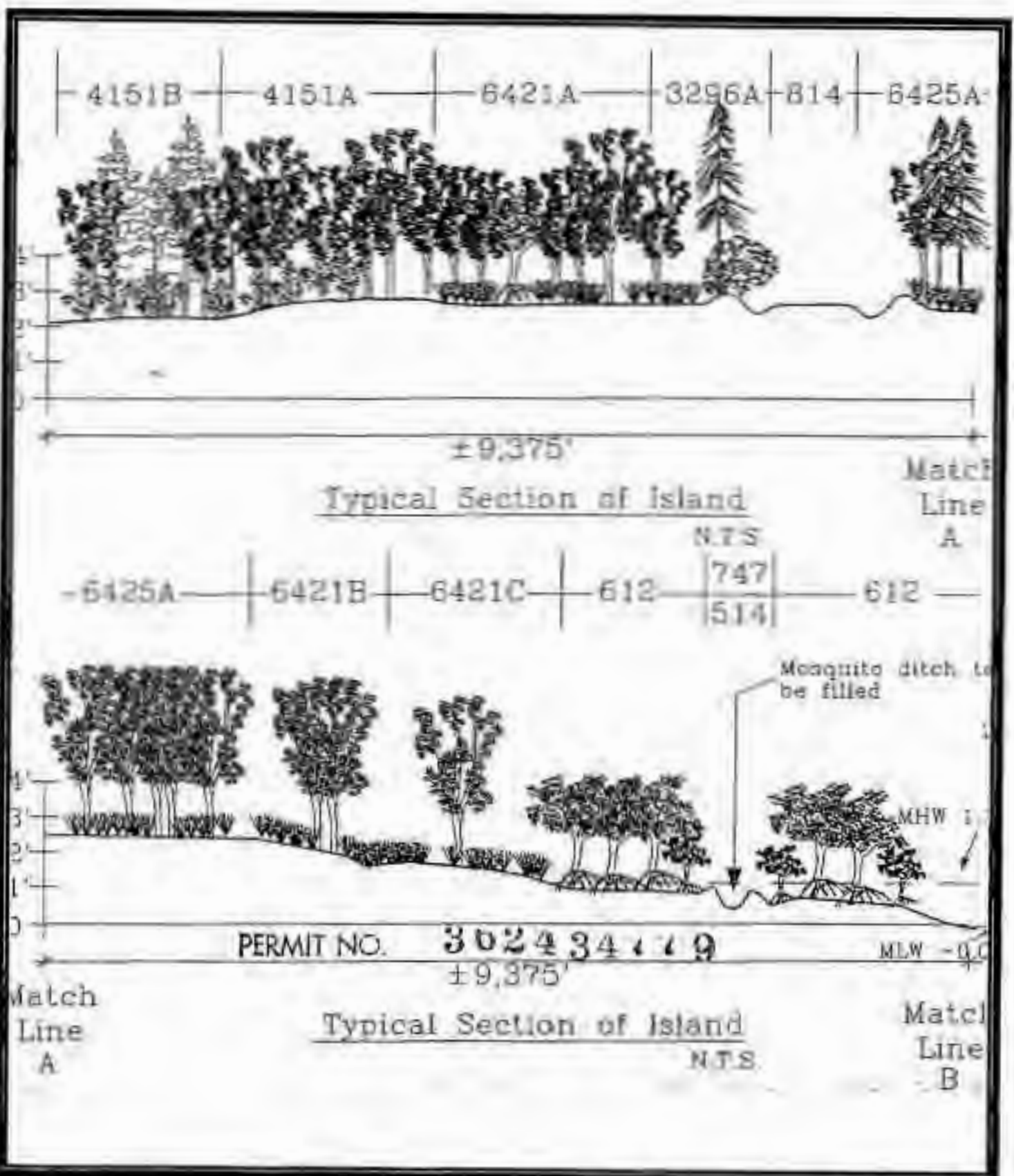
7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion under Comment D.



FDOT - District 1
MITIGATION AREA
(Charlotte Harbor)

LITTLE PINE ISLAND
MITIGATION BANK
(SW 52)

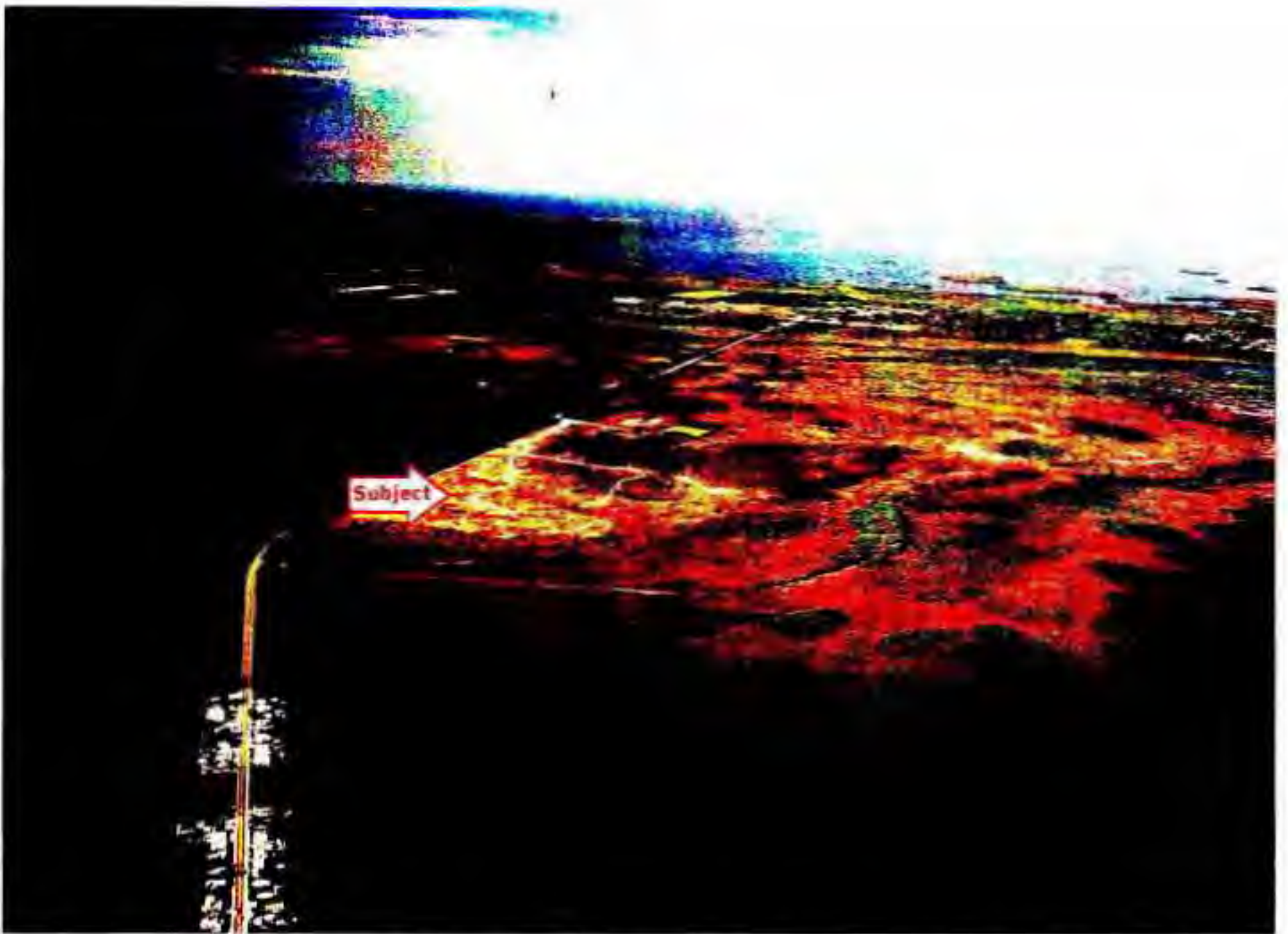
FIGURE B
TYPICAL VEGETATIVE
CROSS SECTION



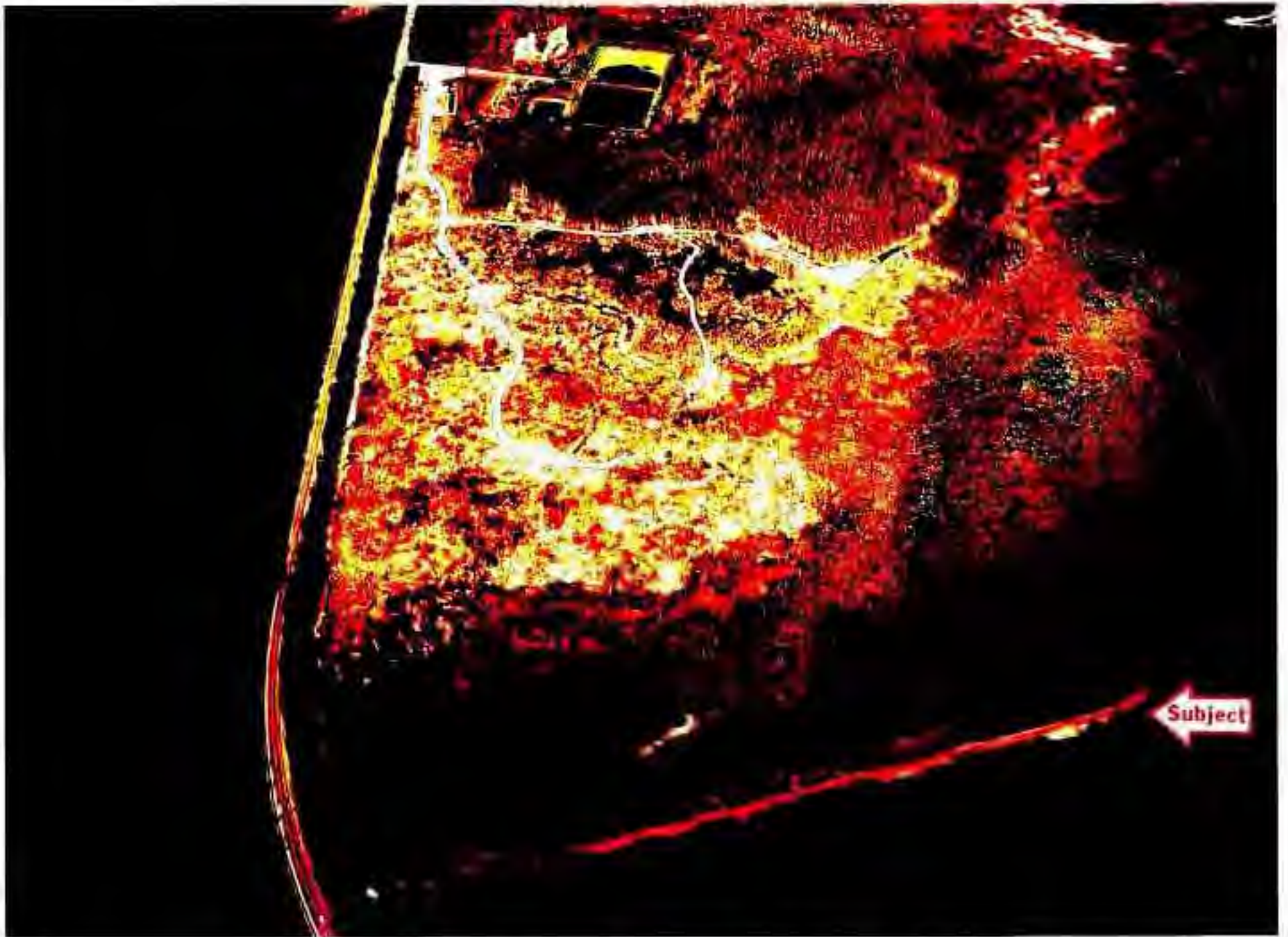
FDOT - District 1
MITIGATION AREA
(Charlotte Harbor)

LITTLE PINE ISLAND
MITIGATION BANK
(SW 52)

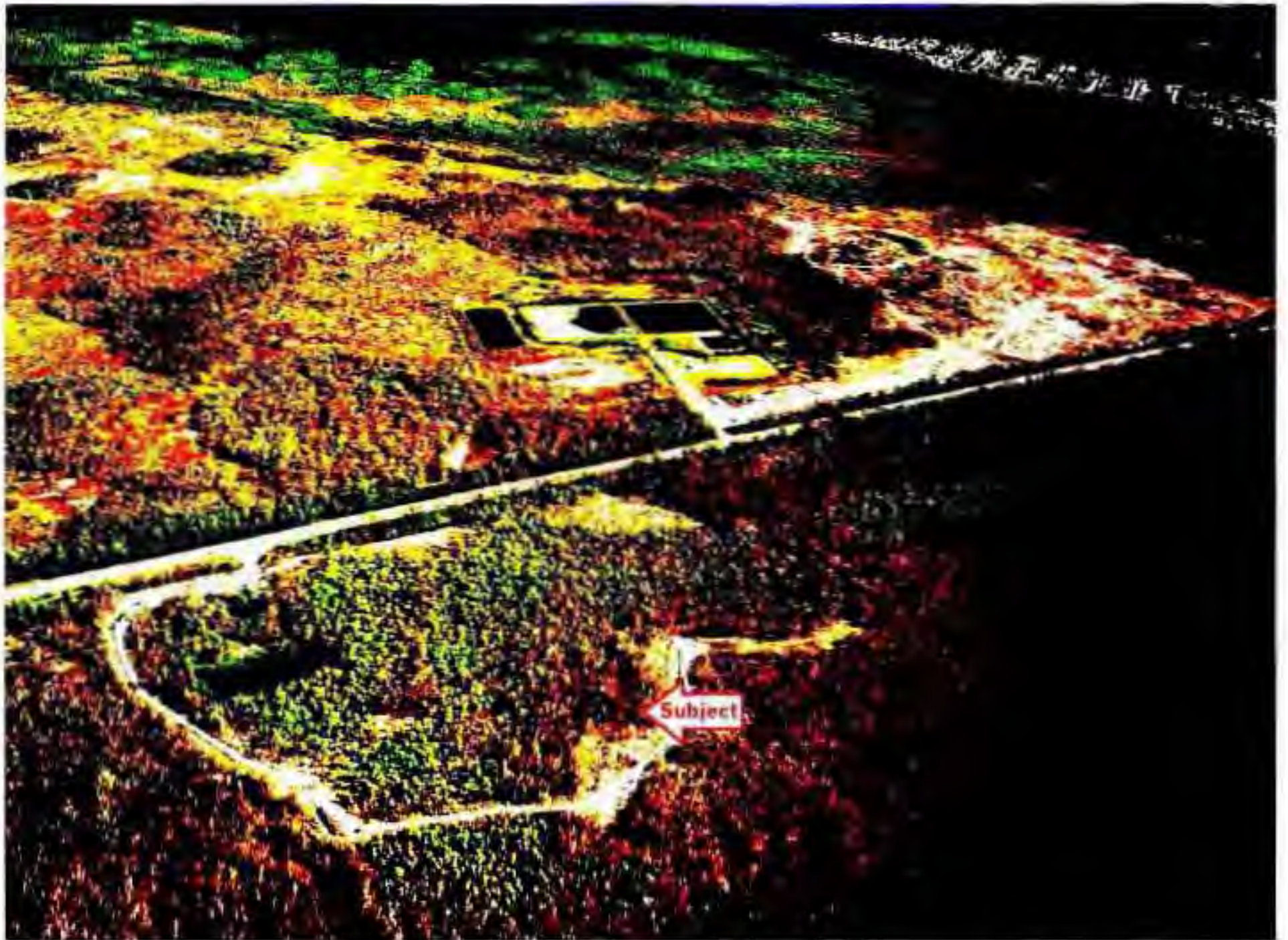
FIGURE B
TYPICAL VEGETATIVE
CROSS SECTION



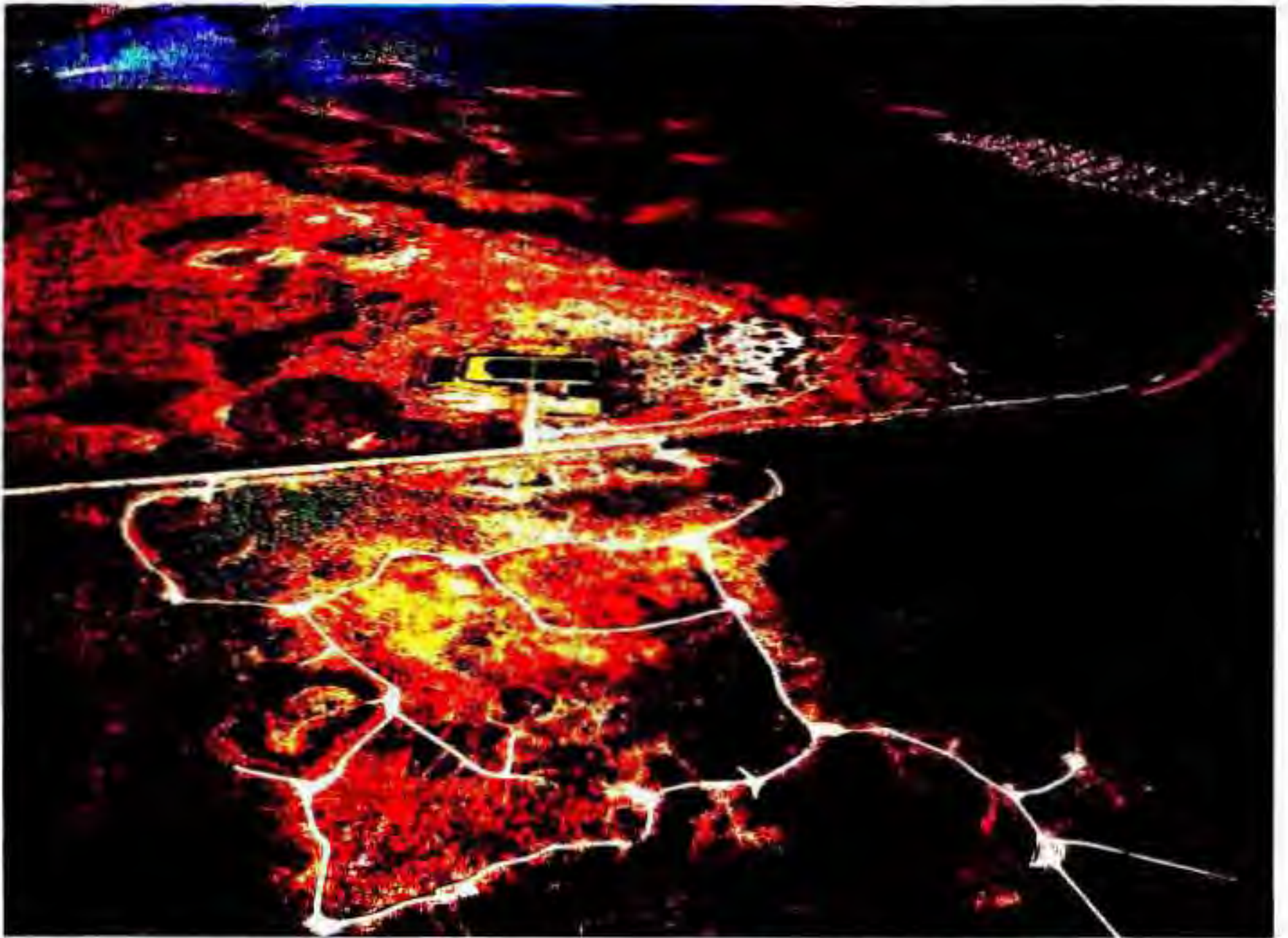
SEPTEMBER 1997 - PHASE I EXOTIC VEGETATION REMOVAL COMPLETE AT LITTLE PINE ISLAND - VIEW FROM MATLACHA PASS AQUATIC PRESERVE



SEPTEMBER 1997 - PHASE I HYDROLOGIC RESTORATION AT LITTLE PINE ISLAND - DRAINAGE CANALS ARE FILLED TO RESTORE SHEET FLOW



SEPTEMBER 1997 - COMMENCEMENT OF EXOTIC VEGETATION REMOVAL FROM FORESTED WETLANDS AT LITTLE PINE ISLAND



FEBRUARY 2000 - EXOTIC VEGETATION REMOVAL AND HYDROLOGIC RESTORATION OF LITTLE PINE ISLAND COMPLETED IN PHASES I, II, AND V. TEMPORARY ROADS REMOVED FROM PHASES I AND II.



Dense melaleuca infestation in former herbaceous wetlands has greatly reduced wetland functions including wildlife habitat at Little Pine Island



All exotic vegetation is cut using chain saws and manual labor so as to minimize the impacts to wetland habitat



Temporary roads are underlain by filter cloth so as to reduce impacts to habitat and facilitate road removal



**April 1997 -
commencement of
exotic vegetation
removal from Phase I
herbaceous wetlands
at Little Pine Island**



**August 1997 - initial
regrowth of native
herbaceous wetland
plants at Little Pine
Island Phase I**



**November 1997 -
wetland dependent
wading birds return to
Phase I wetlands at
Little Pine Island**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Boran Ranch Mitigation Bank**

Project Number: **SW 53**

Project Manager: Wade Waltmyer, Senior Biologist, Earth Balance, Inc. Phone No: (941) 426-7878

County: DeSoto

Location: Section 29, T38S, R23E

IMPACT INFORMATION

(1) <u>FM 1986401, Ft.Green/Ona Rd.- (Seg. 1)</u>	ERP #: <u>4317734.000</u>	COE #: <u>199801201</u>
(2) <u>FM 1938851, SR 72 – Sarasota Co. Line to SR 70</u>	ERP #: <u>4317646.000</u>	COE #: <u>199801103</u>
(3) <u>FM 1941021, US 17 - SR 64 to Peace Bridge</u>	ERP #: <u>4316955.000</u>	COE #: <u>199405245</u>
(4) <u>FM 1937911, US 17 - CR 74 to CR 764 North</u>	ERP #: <u>4113562.002</u>	COE #: <u>199500627</u>
(5) <u>FM 1986371, Ft.Green/Ona Rd.- (Seg. 2)</u>	ERP #: <u>4317734.001</u>	COE #: <u>199801201</u>
(6) <u>FM 1986371, Ft.Green/Ona Rd.- (Seg. 3)</u>	ERP #: <u>4317734.002</u>	COE #: <u>199801201</u>
(7) <u>FM 1937981, US 17-CR 764 S. to CR 764 N.</u>	ERP #: <u>4317646.002</u>	COE #: <u>199500267</u>
(8) <u>FM 4154901, US 17- Charlotte C.L. to SW Collins (2009)*</u>	ERP #: _____	COE #: _____
(9) <u>FM 1938982, US 17 – CR 760A to Heard Street (2011)*</u>	ERP #: _____	COE #: _____
(10) <u>FM 4178761, US 17 – SW Collins to CR 760A (2013)</u>	ERP #: _____	COE #: _____

Drainage Basin(s): Peace River Water(s): Peace River, Horse Ck., Brandy Br., Buzzard's Roost Br. SWIM water? N

Impact Acres / Habitat Types (FLUCFCS)

- (1) FM 1986401 – 2.08 acres - 617
- (2) FM 1938851 - 1.19 acres – 615

- (3) FM 1941021 – 1.84 ac. – 615
- 0.46 ac. – 641
- TOTAL 2.30 acres

- (4) FM 1937911 – 0.27 ac. – 630
- (5) FM 1986371 – 7.22 ac. – 641

- (6) FM 1986371 - 0.68 ac. – 615
- 0.43 ac. - 617
- 4.12 ac. - 640
- TOTAL 5.23 acres

- (7) FM 1937981 – 3.00 ac. – 630
- 0.58 ac. – 641
- TOTAL 3.58 acres

- (8) FM 4154901 – 5.0 ac. – 641
- (9) FM 1938982 – 1.0 ac. – 641

- (10) FM 4178761 – 0.2 ac. – 641
- 1.5 ac. – 643
- TOTAL 1.7 acres

TOTAL - 29.57 acres

*Note – These roadway segments also have anticipated forested wetland impacts, which will be compensated by purchasing forested wetland credits from the Peace River Mitigation Bank (SW 85) located in DeSoto County.

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration Enhancement Preservation Mitig.: **estim. 28-30 credits**
SWIM project? Aquatic Plant Control project? Exotic Plant Control Project?
Mitigation Bank? If yes, give DEP/WMD mit bank permit #: 4914074.04 COE # 199601134 (IP-ML)
Drainage Basin(s) : Peace River Basin Water Body(s): un-named SWIM water body?

Project Description

- A. Overall project goal:** Restoration, enhancement and preservation of freshwater forested and non-forested wetlands previously impacted by agricultural ditching. Restoration and preservation of upland habitat conditions.
- B. Brief description of current condition:** Site is comprised of 132 wetland acres and 272 upland acres (total –404 acres). Wetlands and uplands were historically drained by agricultural ditches and converted to improved pasture for cattle grazing (Figure C – Aerial). Since restoration & enhancement activities were conducted in 1997-98, vegetative composition within wet pastures were restored to diverse and desirable marsh habitat (refer to photos).
- C. Brief description of proposed work:** Riser structures were installed in three outfall ditches to enhance & restore proper wetland hydrology. The top 6 inches of the pasture surface soils were scraped/stockpiled, the underlying 6 inches of soil matrix was scraped and removed from the site. The original topsoil was evenly distributed across the pasture, which allowed appropriate hydroperiods for creation and regeneration of marsh and wet prairie habitat. The existing native upland habitat was preserved and converted uplands planted with appropriate species. The project is currently in the maintenance & monitoring period, which includes implementing a prescribed burn plan (Figure F).
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The mitigation will enhance, restore and preserve wetland and upland habitat that appropriately and adequately compensates for the proposed wetland impacts. No forested wetland credits were available by the time Projects 8-10 were added to the mitigation program. However, the Peace River Mitigation Bank (also permitted and managed by Earth Balance) was permitted in 2006 to provide appropriate forested wetland mitigation credits. Projects 1-7 were permitted with every acre of impact appropriately and adequately mitigated by purchasing one credit. By 2006, the UMAM wetland mitigation assessment methodology was incorporated for Boran Ranch, so the quantity of credits necessary to compensate for the impacts is typically less than one credit for each impact acre. The UMAM assessment for the proposed wetland impacts will be conducted by FDOT prior to permitting and provided to the WMD for determining how many credits to purchase from the bank. The following information indicates the wetland impact, habitat type (FLUCFCS), and associated mitigation habitats & credits purchased to date, and anticipated credits for the FDOT projects designated for mitigation at Boran Ranch:
- (1) FM 1986401 – Impact - 2.08 ac. (617) – Mit. 2.08 credits of mesic hammock
 - (2) FM 1938851 – Impact - 1.19 ac. (615) – Mit. 1.19 credits of mesic hammock
 - (3) FM 1941021 – Impact - 1.84 ac. (615) + 0.46 ac. (641) = 2.30 ac. – Mit. 1.84 credits, mesic hammock, 0.46 credits marsh
 - (4) FM 1937911 – Impact - 0.27 ac. (630) – Mit. 0.27 credits of mesic hammock
 - (5) FM 1986371 – Impact – 7.22 ac. (641) – Mit. 7.22 credits of marsh
 - (6) FM 1986371 – Impact – 1.11 ac. (615, 617) + 4.12 (641) – 5.23 ac. – Mit. 1.11 credits mesic hammock, 4.71 credits marsh
 - (7) FM 1937981 – Impact – 3.00 ac. (630) + 0.58 ac. (641) = 3.58 ac. – Mit. 3.47 credits mesic hammock, 0.11 credits marsh
 - (8) FM 4154901 – Impact 5.0 ac. (641) – Estimated mit. 3.0 to 4.0 credits of marsh
 - (9) FM 1938982 – Impact 1.0 ac. (641) – Estimated mit. 0.5 to 0.8 credits of marsh

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: During mitigation selection for the proposed FDOT projects, the Boran Ranch Mitigation Bank was the most cost-effective option to appropriately and adequately compensate the proposed wetland impacts.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: No SWIM projects are available or currently proposed within the drainage basin to offset the specific impacts associated with the identified road projects.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Boran Ranch Mitigation Bank

Contact Name: Wade Waltmyer, Earth Balance, Inc.

Phone Number: (941) 426-7878

Entity responsible for monitoring and maintenance: Earth Balance

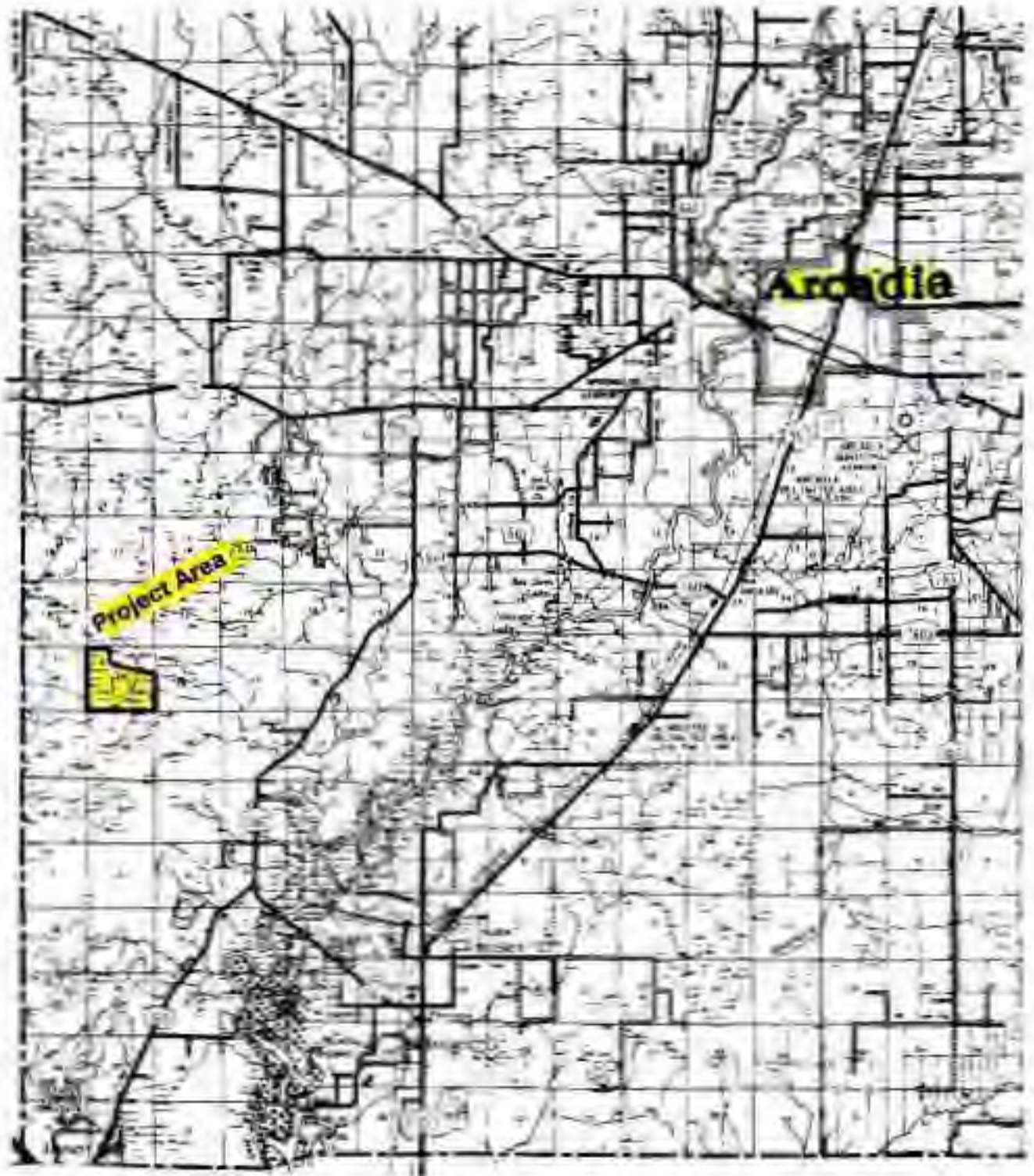
Proposed timeframe for implementation: Commence: 1998 Complete: Construction complete, currently monitoring.

Project cost: \$670,500 (TOTAL payment through Project #7)

- (1) FM 1986401 – 2.08 credits x \$30,000 = \$62,400 (Purchased Summer, 2001)
- (2) FM 1938851 - 1.19 credits x \$30,000 = \$35,700 (Purchased Spring, 2002)
- (3) FM 1941021 – 2.30 credits x \$30,000 = \$69,000 (Purchased Spring, 2002)
- (4) FM 1937911 - 0.27 credits x \$30,000 = \$8,100 (Purchased Summer, 2001)
- (5) FM 1986371– 7.22 credits x \$30,000 = \$216,600 (Purchased Summer, 2001)
- (6) FM 1986371– 5.82 credits x \$30,000 = \$174,600 (Purchased Spring 2002)
- (7) FM 1937981 - 3.58 credits x \$30,000 = \$107,400 (Purchased Summer, 2001)
- (8) FM 4154901 – estimated 4.0 credits x \$72,000 = \$288,000 (Estimated purchase – summer, 2007)
- (9) FM 1938982 – estimated 0.8 credits x \$72,000 = \$57,600 (Estimated purchase – fall, 2008)
- (10) FM 4178761 – estimated 1.5 credits x \$72,000 = \$108,000 (Estimated purchase – fall, 2009)

Attachments

1. Detailed description of existing site and proposed work. Reference previous discussion, ACOE & SWFWMD Permits, attached site photographs of pre- (April, 1997) and post-construction during monitoring (2000).
2. Recent aerial photograph with date and scale. Figure C - 1995 Infrared Aerial.
3. Location map and design drawings of existing and proposed conditions. Figure A – Location Map, Figures B & D, Existing & Proposed Habitat Conditions.
4. Detailed schedule for work implementation, including any and all phases. Construction activities are complete, current maintenance & monitoring until required success criteria are met.
5. Proposed success criteria and associated monitoring plan. Success criteria for each enhancement & restoration habitat area (upland & wetland) are specified in the permits, monitoring plan is depicted on Fig. E.
6. Long term maintenance plan. The long-term maintenance plan is specified in the permits, includes minor use of herbicide control and long-term prescribed fire management plan (Figure F).
7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion under Section D.



FOOT - District 1
MITIGATION AREA
(Peace River Basin)

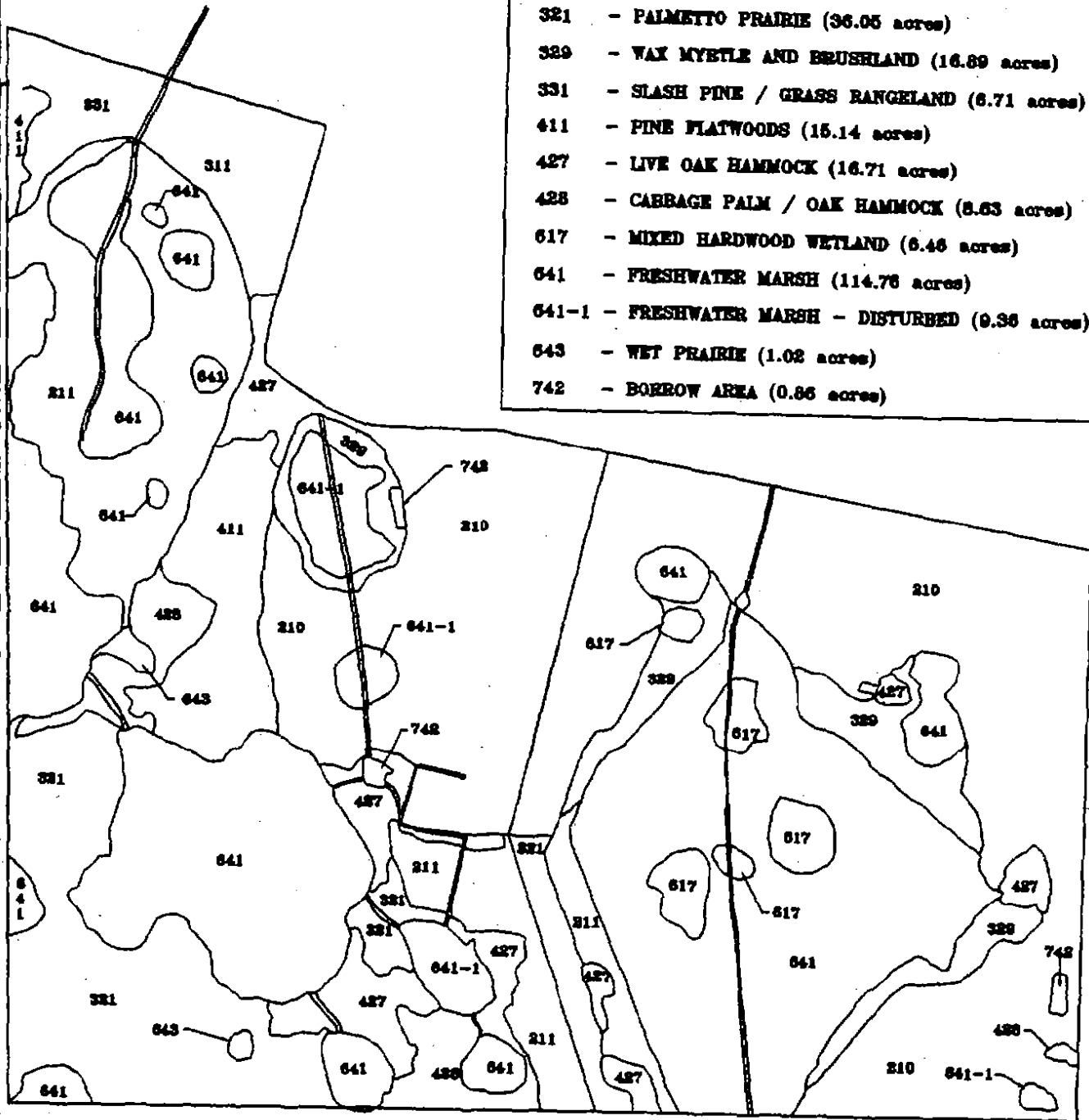
BORAN RANCH
MITIGATION BANK
(SW 53)

FIGURE A
PROJECT LOCATION

NORTH ^
SCALE 1 in. = 750 ft.

LEGEND

- 210 - CROP AND PASTURELAND (118.11 acres)
- 211 - IMPROVED PASTURE (41.24 acres)
- 311 - GRASS RANGELAND (10.43 acres)
- 321 - PALMETTO PRAIRIE (36.05 acres)
- 329 - WAX MYRTLE AND BRUSHLAND (16.89 acres)
- 331 - SLASH PINE / GRASS RANGELAND (6.71 acres)
- 411 - PINE FLATWOODS (15.14 acres)
- 427 - LIVE OAK HAMMOCK (16.71 acres)
- 428 - CABBAGE PALM / OAK HAMMOCK (8.63 acres)
- 617 - MIXED HARDWOOD WETLAND (6.46 acres)
- 641 - FRESHWATER MARSH (114.76 acres)
- 641-1 - FRESHWATER MARSH - DISTURBED (9.36 acres)
- 643 - WET PRAIRIE (1.02 acres)
- 742 - BORROW AREA (0.86 acres)



FDOT - District 1
MITIGATION AREA
(Peace River Basin)

BORAN RANCH
MITIGATION BANK
(SW 53)

FIGURE B
EXISTING LAND USE /
HABITAT TYPES



FDOT - District 1
MITIGATION AREA
(Peace River Basin)









BORAN RANCH
MITIGATION BANK
(SW 53)

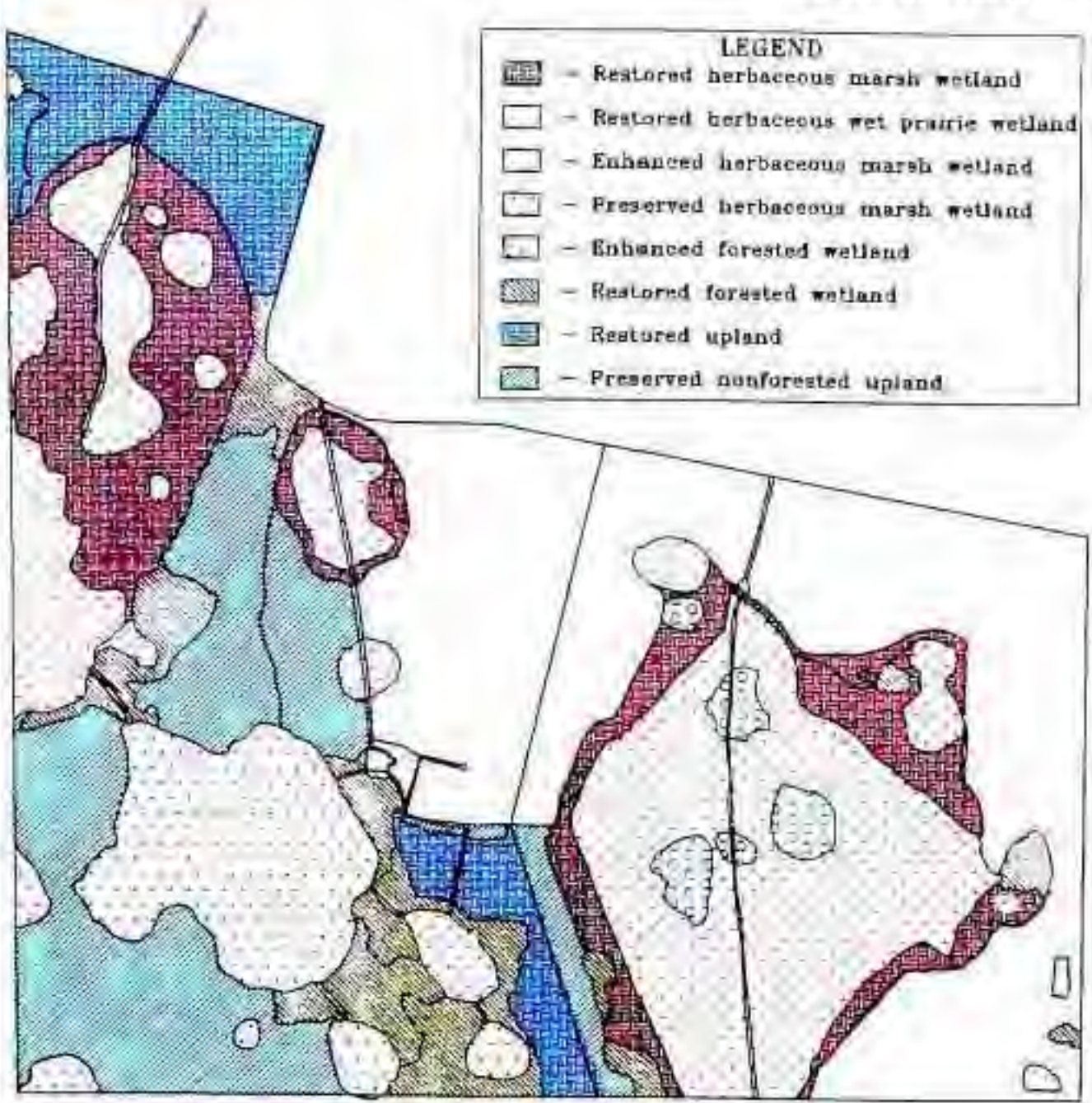
FIGURE C
INFRARED AERIAL (1995)

SCALE 1 in. = 750 ft.



LEGEND

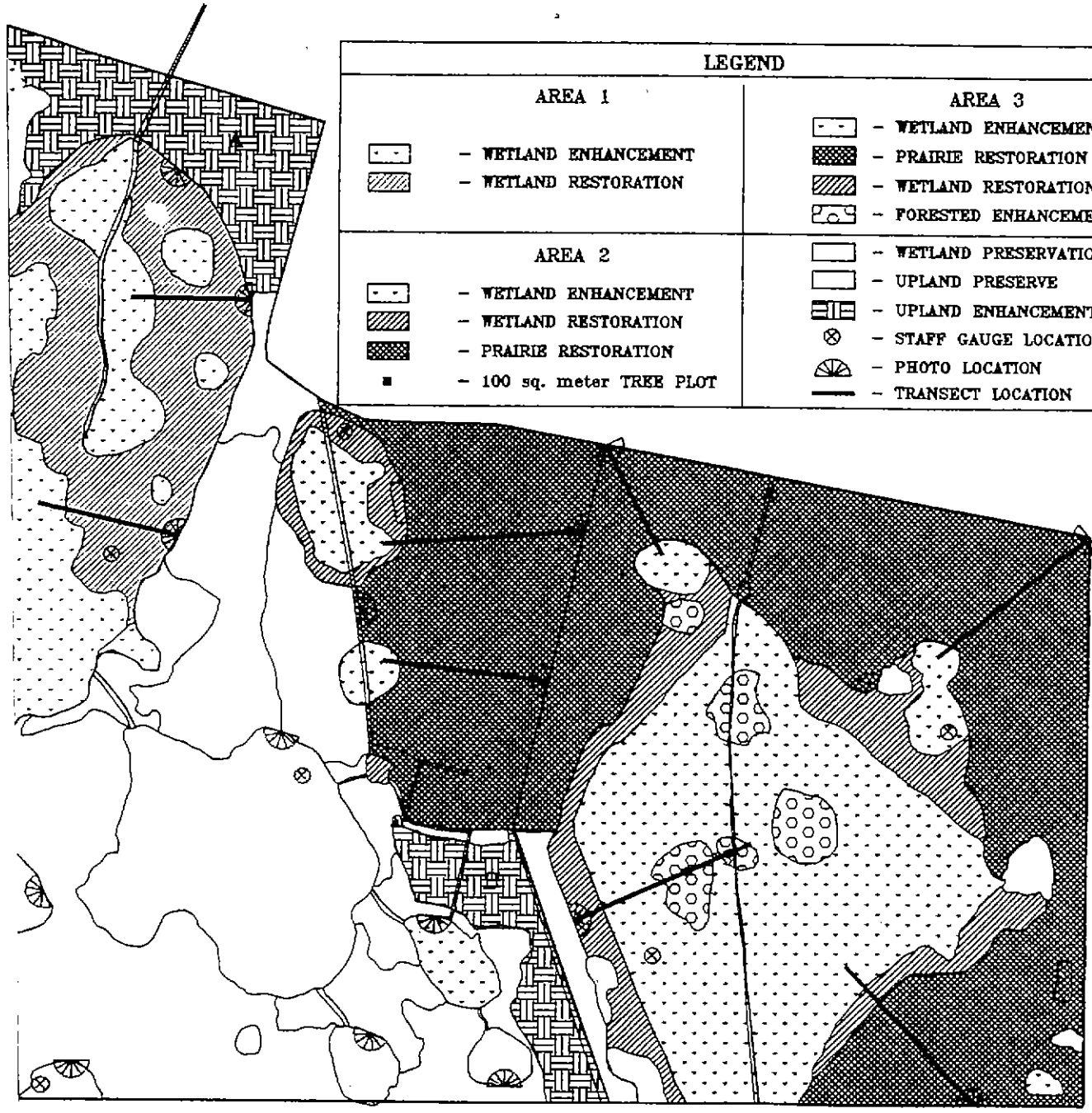
	- Restored herbaceous marsh wetland
	- Restored herbaceous wet prairie wetland
	- Enhanced herbaceous marsh wetland
	- Preserved herbaceous marsh wetland
	- Enhanced forested wetland
	- Restored forested wetland
	- Restored upland
	- Preserved nonforested upland



**FDOT - District 1
MITIGATION AREA
(Peace River Basin)**

**BORAN RANCH
MITIGATION BANK
(SW 53)**

**FIGURE D
PROPOSED LAND USE /
HABITAT TYPE**



LEGEND	
AREA 1	AREA 3
- WETLAND ENHANCEMENT	- WETLAND ENHANCEMENT
- WETLAND RESTORATION	- PRAIRIE RESTORATION
- WETLAND RESTORATION	- WETLAND RESTORATION
- WETLAND RESTORATION	- FORESTED ENHANCEMENT
- WETLAND ENHANCEMENT	- WETLAND PRESERVATION
- WETLAND RESTORATION	- UPLAND PRESERVE
- PRAIRIE RESTORATION	- UPLAND ENHANCEMENT
- 100 sq. meter TREE PLOT	- STAFF GAUGE LOCATION
	- PHOTO LOCATION
	- TRANSECT LOCATION








FDOT - District 1
MITIGATION AREA
(Peace River Basin)

BORAN RANCH
MITIGATION BANK
(SW 53)

FIGURE E
MONITORING PLAN
Scale 1 in. = 750 ft.



LEGEND

	BARKWOOD FIRE EXCLUSION
	HERBACEOUS MARSH CENTER 3 - 10 YEAR ROTATION
	UPLAND 2 - 4 YEAR ROTATION
	HERBACEOUS MARSH / WET PRAIRIE 2 - 4 YEAR ROTATION
	HARD FIRE LINES / VEHICULAR ACCESS
	PEDESTRIAN TRAILWAYS
	FENCE LINE - FIRE BREAKS



**FDOT - District 1
MITIGATION AREA
(Peace River Basin)**

**BORAN RANCH
MITIGATION BANK
(SW 53)**

**FIGURE F
MANAGEMENT PLAN
Scale 1 in. = 750 ft.**

Boran Ranch Mitigation Bank



T6 Restoration/Transition Area - April 1997



T6 Restoration/Transition Area - September 2000

**FDOT - District 1 Mitigation Site
(Peace River Basin)**

**Boran Ranch Mitigation Bank
(SW 53)**

Boran Ranch Mitigation Bank



T7 Restoration/Transition Area - April 1997



T7 Restoration/Transition Area - September 2000

**FDOT - District 1 Mitigation Site
(Peace River Basin)**

**Boran Ranch Mitigation Bank
(SW 53)**

Boran Ranch Mitigation Bank



T7 Enhancement/Transition Area - April 1997



T7 Enhancement/Transition Area - September 2000

**FDOT - District 1 Mitigation Site
(Peace River Basin)**

**Boran Ranch Mitigation Bank
(SW 53)**

Boran Ranch Mitigation Bank



TB Restoration Area - April 1997



TB Restoration Area - September 2000

**FDOT - District 1 Mitigation Site
(Peace River Basin)**

**Boran Ranch Mitigation Bank
(SW 53)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Anclote Parcel**

Project Number: **SW 54**

Project Manager: Clark Hull, Environmental Program Director

Phone No: (352) 796-7211 ext. 4302

County(ies): Pasco

Location : Sections 7, 18 T26S, R17E

IMPACT INFORMATION

(WPI): 7115974 (FM) 2563361 - SR 54 Mitchell to Gunn

ERP #: 43016251.002 COE #: 199905202 (IP-RGW)

(WPI): 7115977 (FM) 2563391 - SR 54 Suncoast to US 41

ERP #: 43016251.000 COE #: 199504576 (IP-ES)

Drainage Basin(s): Upper Coastal

Water Body(s) : Anclote River (South Prong)

SWIM water body? N

Impact Acres / Type:

WPI: 7115974 - SR 54 (Mitchell to Gunn)

WPI: 7115977 - SR 54 (Suncoast to US 41)

1.6 ac. 621 (Fluccs code)

1.3 ac. 617 (Fluccs code)

2.8 ac. 630 (Fluccs code)

0.8 ac. 619 (Fluccs code)

2.2 ac. 641 (Fluccs code)

3.0 ac. 621 (Fluccs code)

TOTAL: 6.6 acres

0.5 ac. 641 (Fluccs code)

1.4 ac. 641x (Fluccs code)

TOTAL 7.0 acres

TOTAL: 13.7 acres

MITIGATION ENVIRONMENTAL INFORMATION

{tc \11 "MITIGATION ENVIRONMENTAL INFORMATION}

Mitigation: Creation Enhancement Preservation Mitigation Area: 82 ac. For WPI: 7115974

Enhancement Preservation Mitigation Area: 103 ac. For WPI: 7115977 **TOTAL: 185 Ac.**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin(s): Upper Coastal Water Body(s): Anclote River SWIM water body? N

Project Description

{tc \12 "Project Description} **A. Overall project goal:** Acquisition, enhancement, and long-term management of 185 acres of high quality habitat including a portion of the Anclote River and associated mixed hardwood floodplain forest, mixed forested (cypress dominant) wetland, and buffers of pine flatwoods, and oak hammocks. This includes creation of 6-acres of freshwater marsh (with a perimeter 4-acres of planted cypress for mitigation of Starkey Blvd. proposed wetland impacts) in a borrow pit which exists on the property (site photos). The parcel is divided into two areas to mitigate for the two DOT projects. The northern 82-acres includes the marsh creation and mitigates for WPI: 7115974 (6.6 ac. impacts) because of the higher quantity of proposed marsh impacts (Fluccs 641). The southern 103-acres mitigates for WPI 7115977 (7.0 ac. impacts). Long-term management will be conducted by the WMD-Land Management Dept. and will primarily include prescribed burning and maintaining security.

B. Brief description of current condition: The parcel is in relatively high quality condition except for a borrow pit (which has been converted to a marsh and cypress fringe) and the lack of prescribed burn management in the uplands. Wetland and upland habitat is adjacent to the Anclote River floodplain, high quality habitat and abundant wildlife use. The mixed forested wetland habitat (139 acres) includes a diversity of tree species (refer to photos). The wetlands are bordered by pine flatwoods and oak hammocks (40 acres). The uplands require enhancement through prescribed burning. The parcel is located adjacent to other public lands and private property (Starkey family) which are in native habitat conditions (Figure A). A borrow pit (total 10 acres) has been filled to provide marsh habitat (6 acres – DOT mitig.) and surrounded by a perimeter of cypress (4 acres – County mitig. for Starkey Blvd.). The adjacent public property covers over 15,000 acres of native habitat, the majority acquired by the Turnpike and deeded to the WMD to provide mitigation for wetland impacts associated with constructing the Suncoast Parkway.

Mitigation Project – Anclote Parcel, Page 2

C. Brief description of proposed work: Acquisition and enhancement of the 185-acre parcel through fee simple purchase by the WMD (completed 2000). Of that total area, constructed 6- acres of freshwater marsh by filling and planting an existing borrow pit (currently under maintenance and monitoring). The adjacent perimeter 4- acres cypress creation will also be deeded to the WMD upon achieving mitigation success criteria. The uplands will be enhanced by implementing a prescribed burn management plan as an extension of adjacent WMD property, burn cycle 4-5 years.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The proposed mitigation will create and preserve wetlands providing functions similar to those lost due to the two nearby SR 54 roadway projects in the same drainage basin, along with enhancement of upland habitat buffers adjacent to preserved native habitat associated with SWFWMD-owned tracts (Starkey Wilderness Preserve, Anclote River Ranch, Serenova Preserve – total 25,000 acres). The SR 54-Mitchell to Gunn impacts (6.6 acres) will be mitigated with 6 acres of marsh creation and forested wetland preservation (76 acres) for a total of 82 acres (12:1 ratio). The SR 54-Suncoast to US 41 impacts (7 acres) will be mitigated with enhancement of pine flatwoods and oak hammocks (34 acres) that buffer the wetlands, and forested wetland preservation (69 acres) for a total of 103 acres (15:1 ratio). The acquisition, preservation, and enhancement of this 185-acre tract mitigates the 13.7 acres of proposed wetland impact at a cumulative ratio of 14- to - 1.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: No mitigation banks currently exist or proposed in the Upper Coastal drainage basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : No SWIM projects are available in this basin.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Southwest Florida Water Management District

Contact Name: Mark Brown, WMD Environmental Scientist Phone Number: (352) 796-7211 ext. 4488

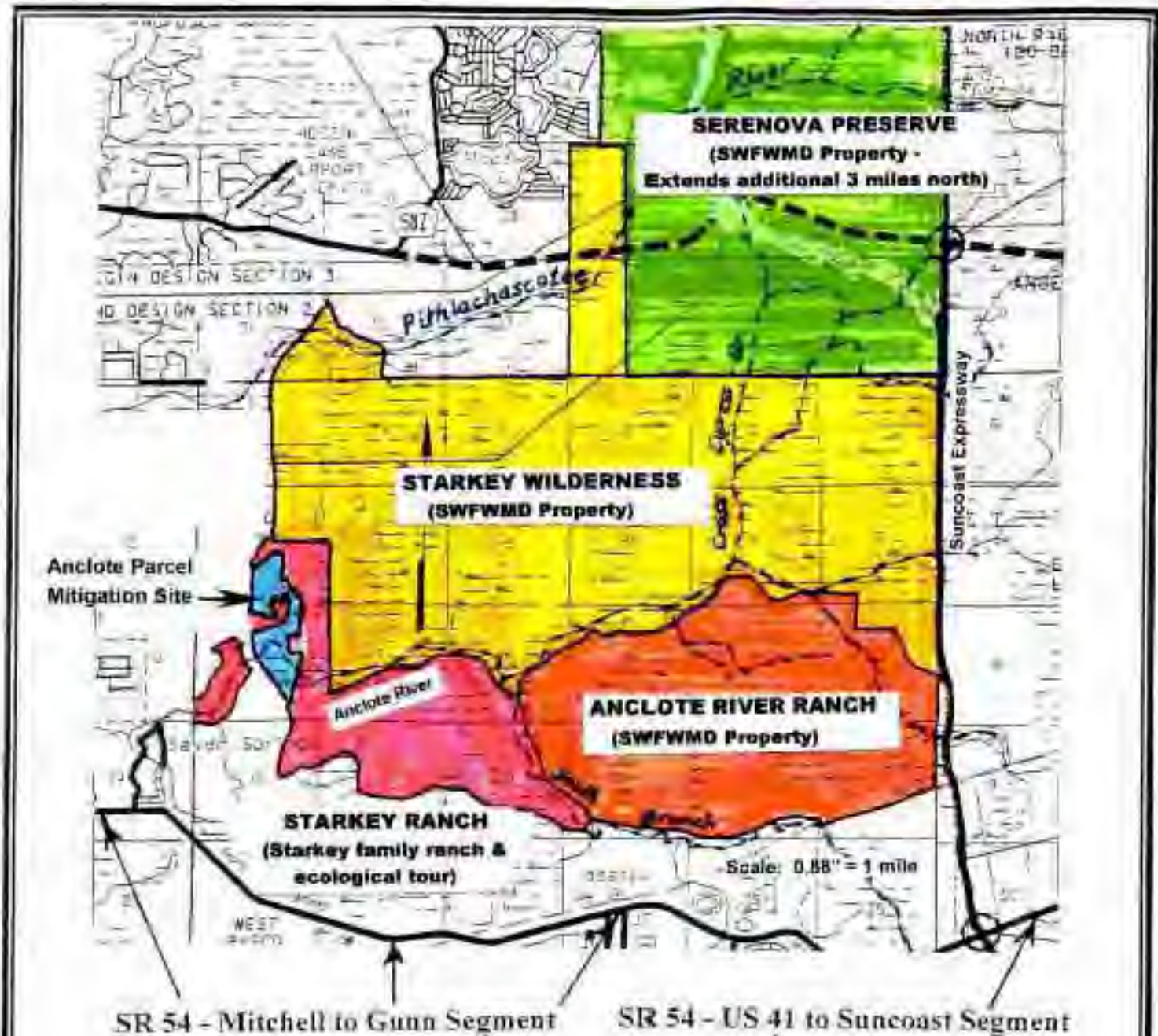
Entity responsible for monitoring and maintenance: Southwest Florida Water Management District

Proposed timeframe for implementation: Commence: July 1999 Acquired: April, 2000

Project cost: \$ 675,000 (total); maintenance & management provided by the WMD-Land Management Dept.

Attachments

- 1. Detailed description of existing site and proposed work. Refer to previous discussion and vegetative descriptions with the site photos. Additional site descriptions available from Clark Hull & Mark Brown (WMD).
- 2. Recent aerial photograph with date and scale. Refer to Fig. D (1995 Infrared).
- 3. Location map and design drawings of existing and proposed conditions. Fig. A - Location Map, Figure D.
- 4. Detailed schedule for work implementation, including any and all phases. Beyond regular management, only construction is associated with the creation of marsh & cypress habitat in the borrow pit (site photo).
- 5. Proposed success criteria and associated monitoring plan. The native habitat is high quality that doesn't require success criteria & monitoring, the creation of marsh & cypress habitat has success criteria & monitoring associated with the permitting of the Starkey Blvd. mitigation plan. Currently within the maintenance & monitoring phase.
- 6. Long term maintenance plan. Prescribed management plans (primarily burn management) to be conducted in conformity with the adjacent SWFWMD property (Starkey Wilderness Preserve, Anclote River Ranch, Serenova Preserve).
- 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous text concerning mitigation site and SR 54 impacts. Additional site evaluation and WRAP analysis available from Mark Brown.



SWFWMD-FDOT
MITIGATION SITE

ANCLOTE RIVER TRACT
PASCO COUNTY

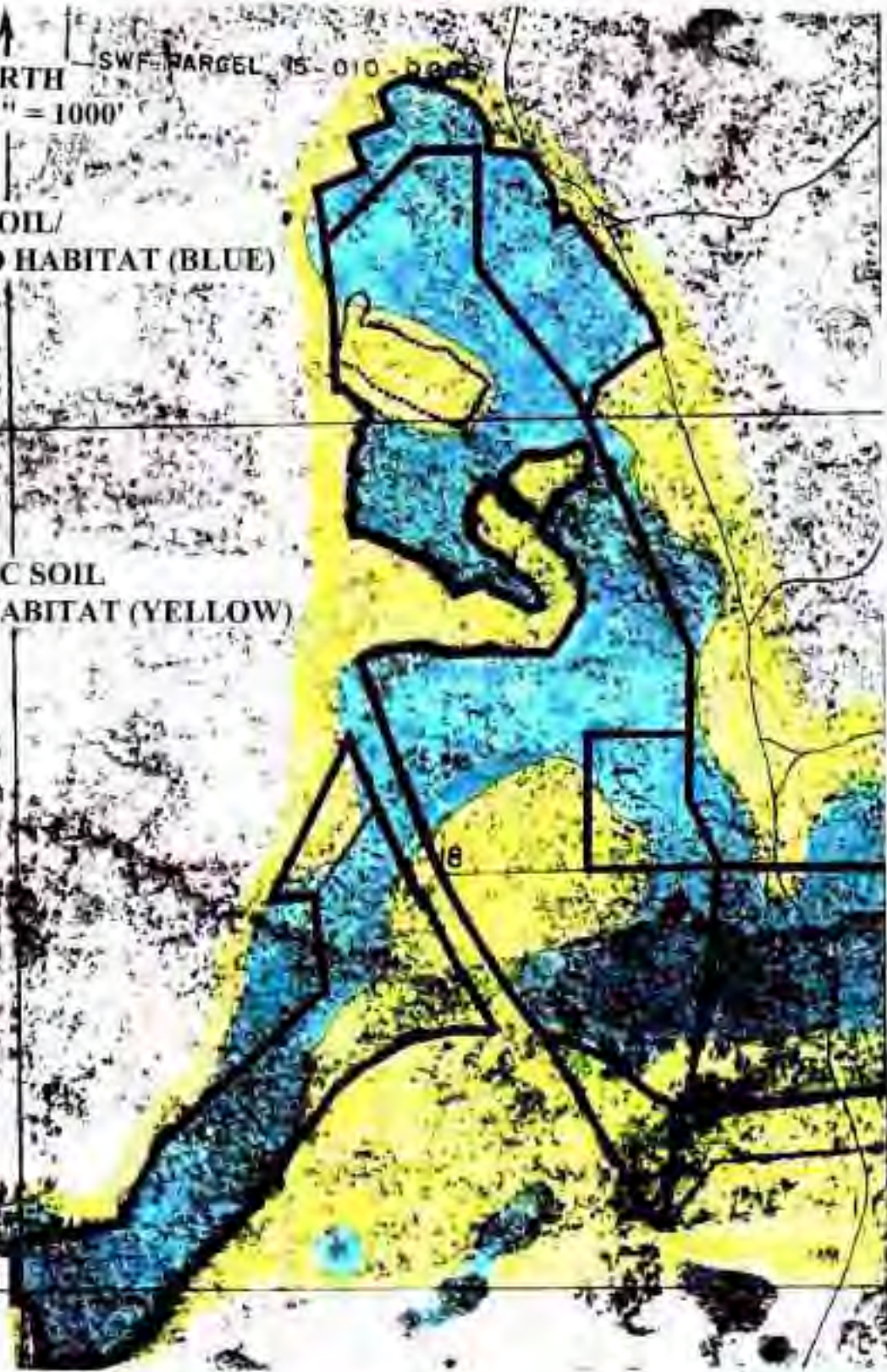
FIGURE A. LOCATION MAP

NORTH
SCALE 1" = 1000'

HYDRIC SOIL/
WETLAND HABITAT (BLUE)

NON-HYRIC SOIL
UPLAND HABITAT (YELLOW)

T 26 S



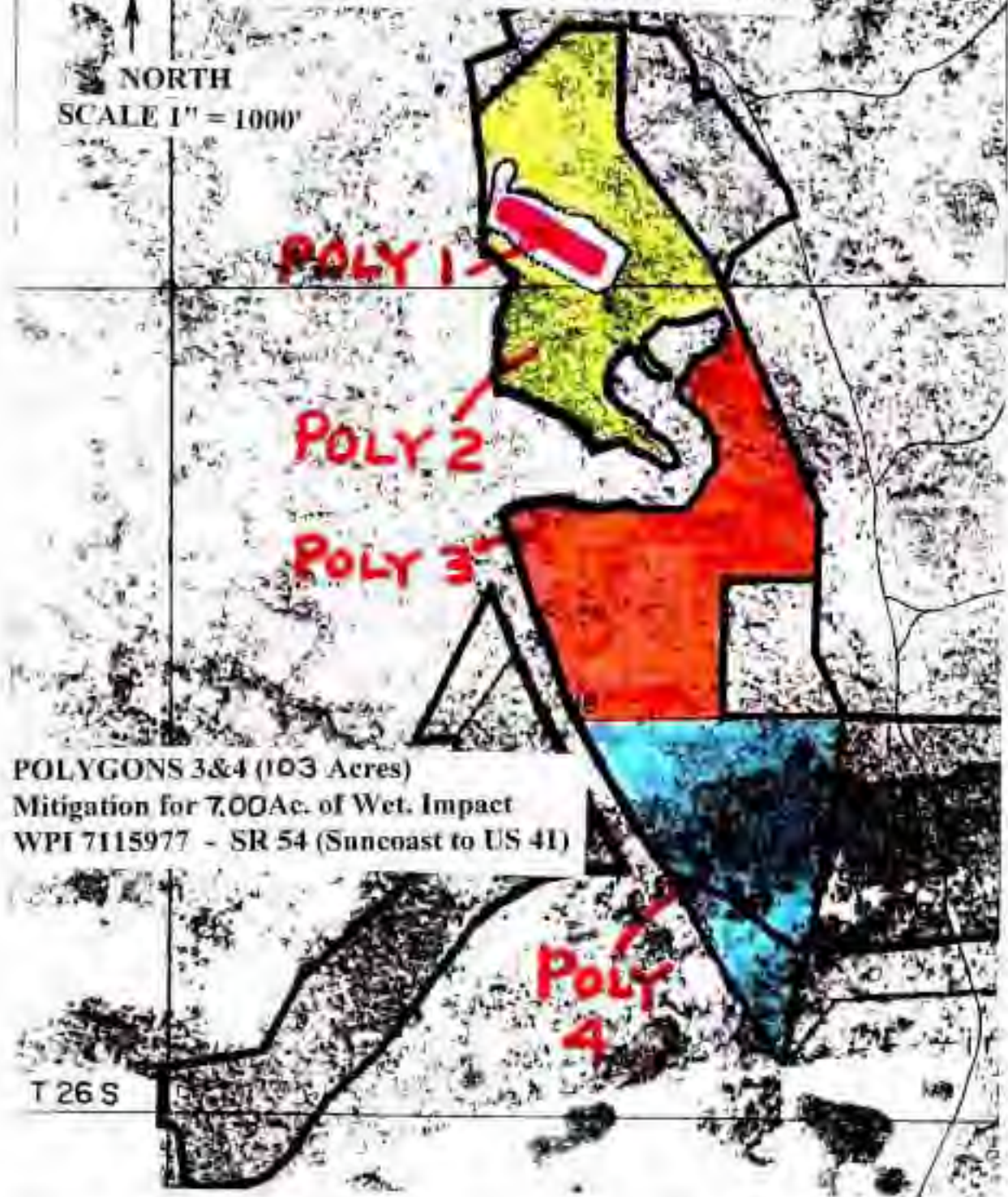
SWFWMD-FDOT
MITIGATION SITE

ANCLOTE RIVER TRACT
PASCO COUNTY

FIGURE B-WETLAND &
HYDRIC SOILS MAP

POLYGONS 1&2 (82 Acres)
Mitigation for 6.60Ac. of Wet. Impact
WPI 7115974 - SR 54 (Mitchell to Gunn)

NORTH
SCALE 1" = 1000'



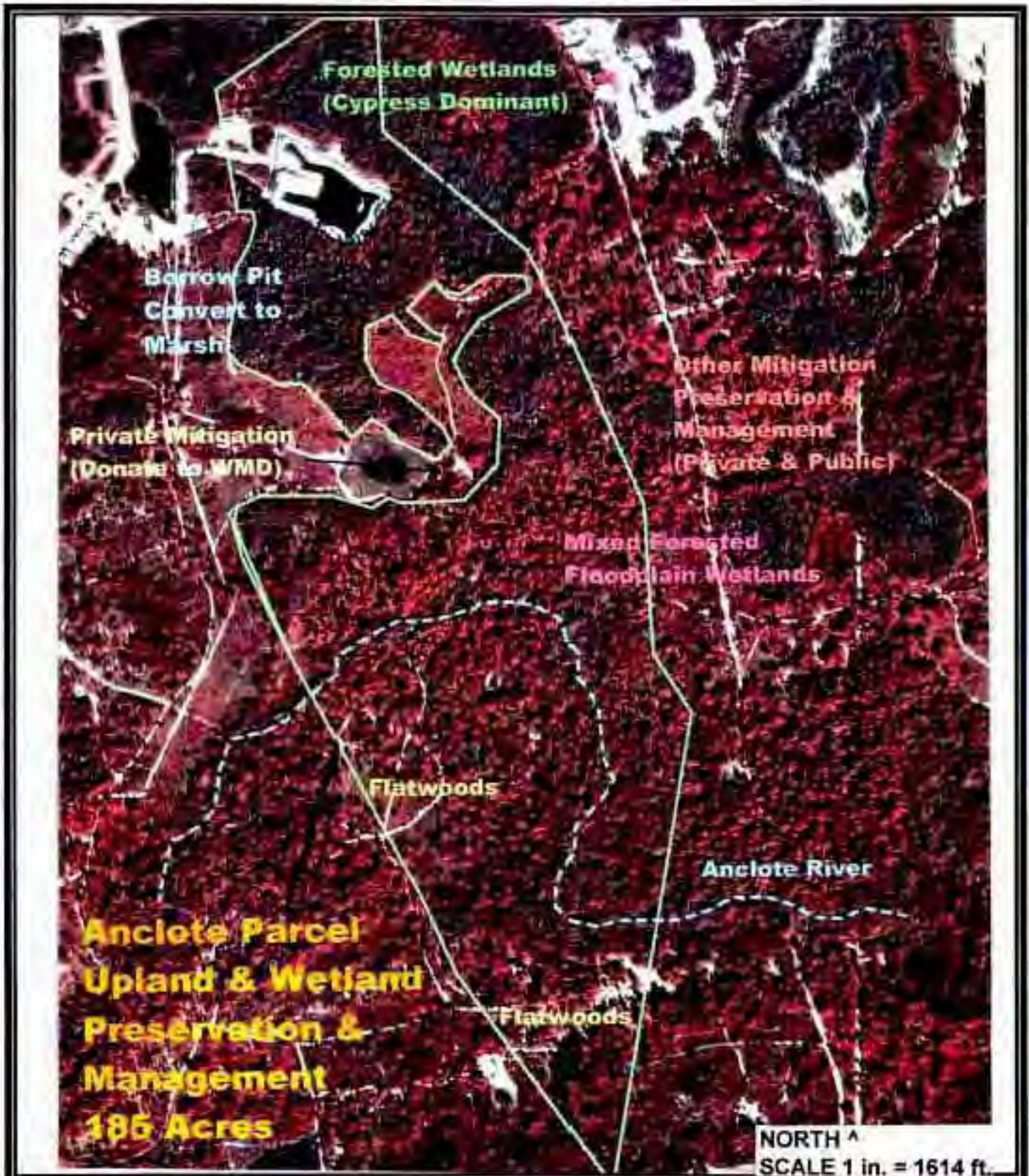
POLYGONS 3&4 (103 Acres)
Mitigation for 7.00Ac. of Wet. Impact
WPI 7115977 - SR 54 (Suncoast to US 41)

T 26 S

SWFWMD-FDOT
MITIGATION SITE

ANCLOTE RIVER TRACT
PASCO COUNTY

FIGURE C - "WRAP" POLYGON
LOCATIONS (ON-SITE MIT.)



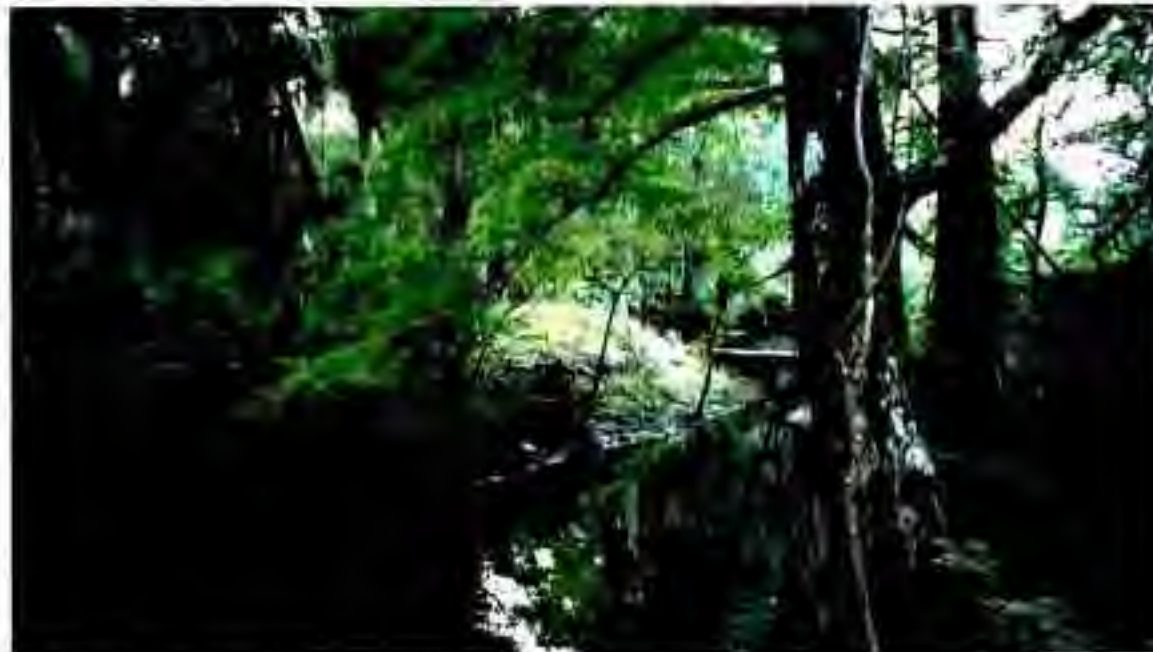
FDOT - District 7
MITIGATION SITE
(Upper Coastal Basin)

ANCLOTE
PARCEL
(SW 54)

FIGURE D
INFRARED AERIAL (1995)
VEGETATIVE COMMUNITIES



The mixed forested wetland within the northern portion of the tract is dominated by bald cypress with additional dense canopy coverage provided by red maple, tupelo, dahoon holly, and a perimeter of water & laurel oaks.



The Anclote River meanders through the southern portion. The river has an incised channel predominantly bordered with mixed forested wetlands dominated by laurel oak, red maple, and cabbage palm.

**FDOT - District 7 Mitigation Site
(Upper Coastal Basin)**

ANCLOTE PARCEL (SW 54)



One of the pine flatwood communities at the site. These areas have not received prescribed burns for several years, allowing the overgrowth of palmetto, and generation of wax myrtle and oak species. These areas will be enhanced by scheduled mechanical thinning and roller chopping of the shrubs and palmetto, followed by prescribed fires every 3-4 years. This restores desired flatwood conditions, increases the foraging opportunities for wildlife while decreasing the potential of wildfires.



One of several small oak hammocks located along the perimeter of some wetlands and on sand deposits formed due to periodic overflow of the Anclote River. These hammocks have dominant canopy coverage provided by live oaks, scattered cabbage palm, few remnant pines (slash & loblolly), over saw palmetto. These areas also need prescribed burns to minimize palmetto density.

**FDOT - District 7 Mitigation Site
(Upper Coastal Basin)**

ANCLOTE PARCEL (SW 54)



Within the site's southern forested wetlands, cypress are not as dominant compared to the northern portion. Water & laurel oaks are still dominant along the outer perimeter of the wetland, tupelo and maple in the interior. Due to shorter hydroperiods compared to the cypress dominated wetlands, more shrub and ground cover vegetation and diversity is present. Dominants include Virginia willow, wax myrtle (on hummocks), maple saplings, and various fern species (chain, swamp, & royal ferns).



Another view of the Anclote River on the parcel. With the addition of the Anclote Parcel, Anclote River Ranch, Starkey Wilderness Preserve, and private mitigation opportunities deeded to the WMD (Figure A), several miles of the Anclote River and the contributing Cross Cypress Branch will be preserved from impacts associated with extensive development activities within western Pasco County.

**FDOT - District 7 Mitigation Site
(Upper Coastal Basin)**

ANCLOTE PARCEL (SW 54)



September, 2000 - Current site conditions of the former borrow pit in the northern portion of the parcel. A dewatering ditch (right) maintains a lower water table as the borrow pit grade is raised to construct wetland habitat. Adjacent to the former pit, stockpiled muck will be placed on top of the fill material to provide organics and wetland plant seed source. Forested wetlands border the former pit, a perimeter of created cypress habitat is proposed (mitigation for other activity, deeded to the WMD), followed by an interior of marsh creation to mitigate for the DOT projects.



A constructed wetland adjacent to a marsh & oak hammock (background) to be deeded to the WMD once the wetland mitigation meets success criteria. This area is designated as "Private Mitigation" on Figure D. Maidencane, arrowhead, various sedge species, and small cypress plantings are shown above, dog fennel invasion due to extended dry season conditions.

**FDOT - District 7 Mitigation Site
(Upper Coastal Basin)**

ANCLOTE PARCEL (SW 54)

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District
Mitigation Project Name: **Upper Hillsborough 4&5**
Project Manager: Mary Barnwell, SWFWMD Sr. Land Management Specialist
County: Pasco

Project Number: **SW55**
Phone No: (352)796-7211, ext. 4475
Location: S 28 & 38, T 25 S, R 22 E

IMPACT INFORMATION

FM: 2012081 (Int.-4, County Line Rd. to Memorial., Seg.1) ERP #: 4311869.09 COE #: 199501846
Drainage Basin(s): Hillsborough River Water Body(s): none SWIM water body? N

Impact Acres / Types (FLUCFCS): FM 2012081 6.57 ac. - 617
6.98 ac. - 641
Total: 13.55 ac.

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Restoration 10 ac. Enhancement 110 ac. Mitigation Area: **120 Acres**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N
Drainage Basin(s): Hillsborough River Water Body(s): Hillsborough River SWIM water body? N

Project Description

A. Overall project goal: Restore hydrologic and hydraulic conditions to wetlands adjacent to the Hillsborough River floodplain, removing a fill road and large ditches in order to restore wetland conditions, functions, and habitat value.

B. Brief description of current condition: This portion of the WMD's Upper Hillsborough tract covers 302 acres (Figures A-D). Wetland areas covering 110 acres have substantial opportunities for hydrologic enhancement and restoration (Fig. D). Prior to restoration, large ditches (30-40 ft. across top-of-bank, 5-8 ft. deep, over 1.3 miles long) and an adjacent levee fill road were historically constructed through and adjacent to wetlands to effectively maintain the water levels below surface grades, resulting in very minimal wetland hydroperiods. Forested wetlands (101.3 acres) and non-forested wetlands (8.7 acres, Wetlands 9 and 15 are shallow borrow pits with vegetative cover) were impacted by construction of the levee fill road, and adjacent large ditches that connected and drained wetlands to allow direct groundwater discharge into the Hillsborough River floodplain. The wetlands exhibited various signs of decreased water levels such as tree fall, soil loss, upland species encroachment, and changes in plant species composition (site photos). The groundwater drawdown allowed extensive cover of nuisance upland species such as pokeweed to invade Wetlands 4 and 5, and dog fennel within the man-made ponds (Wetlands 9 and 15).

C. Brief description of proposed work: The ditches were backfilled by material pushed in from the levee road during the spring and summer, 2001. Some of the restored wetland grades were planted with cypress to restore 10 acres within the former ditches and supplemental plantings of cypress were conducted within Wetland 2. Herbaceous species (predominantly maidencane) have recruited as well as naturally regenerated from restoring the wetland flow regimes and hydroperiods. Eleven surficial aquifer monitor wells were installed within the enhanced wetlands during the construction period in the Spring, 2001, during which time there was no groundwater within six feet of the grade elevation within each of those wetlands. Since completion of construction, the groundwater and surficial hydrology and hydraulic flow patterns have been restored to historic conditions. The restored hydrology has resulted in the mortality of the pokeweed and dog fennel, allowing for the natural regeneration of maidencane, ferns, and other appropriate hydrophytic species.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): Being located within a dense industrial area along Interstate-4, the wetland impacts associated with the roadway improvements were very low quality systems. Restoration construction on the Upper Hillsborough tract has resulted in large-scale improvement in wetland functions that appropriately and adequately compensate for the I-4 wetland impacts.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: No mitigation banks currently exist or proposed in the Hillsborough River drainage basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : The only SWIM project within this basin is Lk. Thonotassassa which has been constructed and serves as mitigation to off-set wetland impacts associated with another DOT project.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD, Operations Div.

Contact Name: Mary Barnwell, Sr. Land Management Specialist Phone Number: (352) 796-7211 ext. 4475

Entity responsible for monitoring and maintenance: SWFWMD – Tech. Services & Land Management

Proposed timeframe for implementation: Commence: January 1999 Complete: September 2001 (Construction)

Project cost: \$230,000.00 (total);

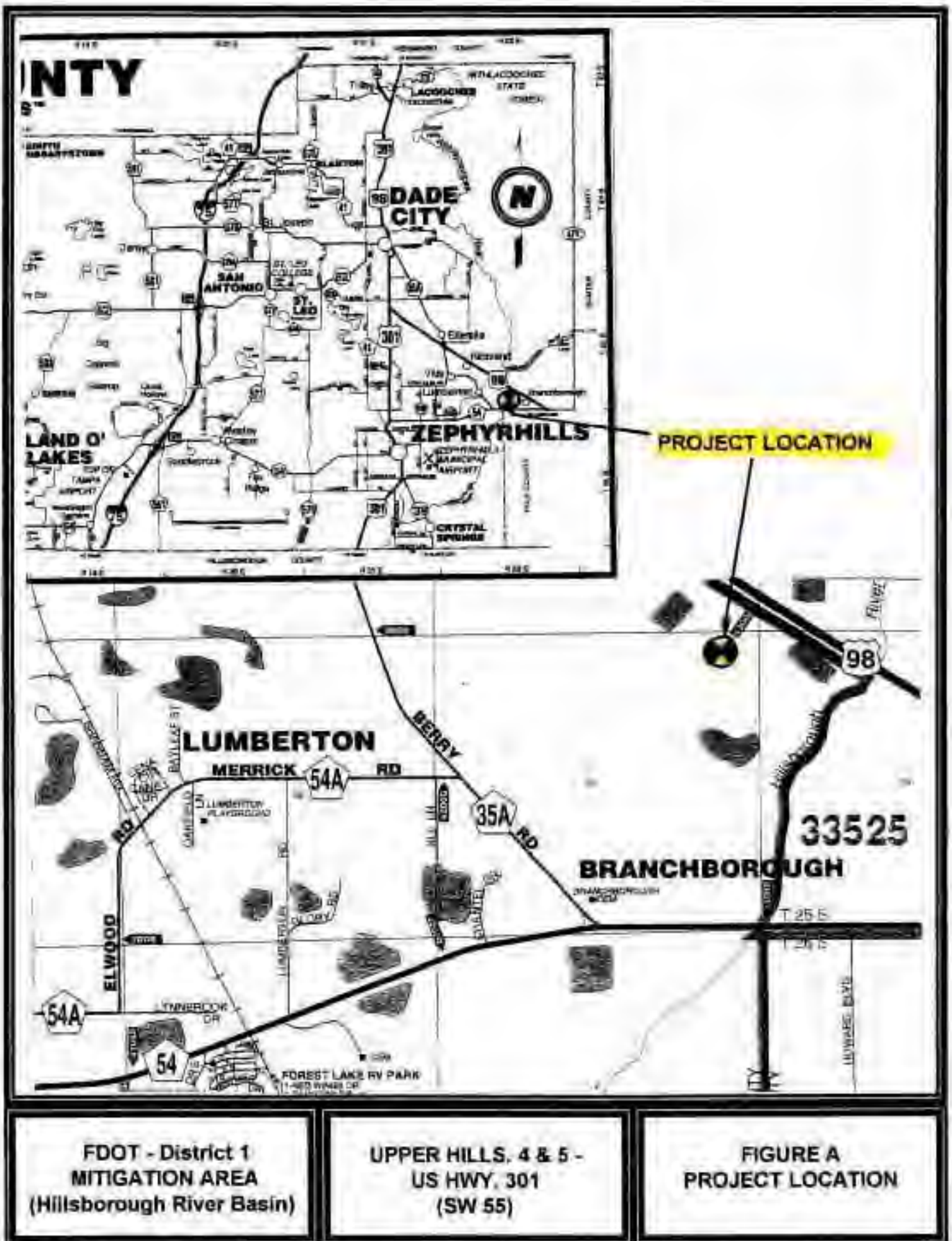
Design \$82,000

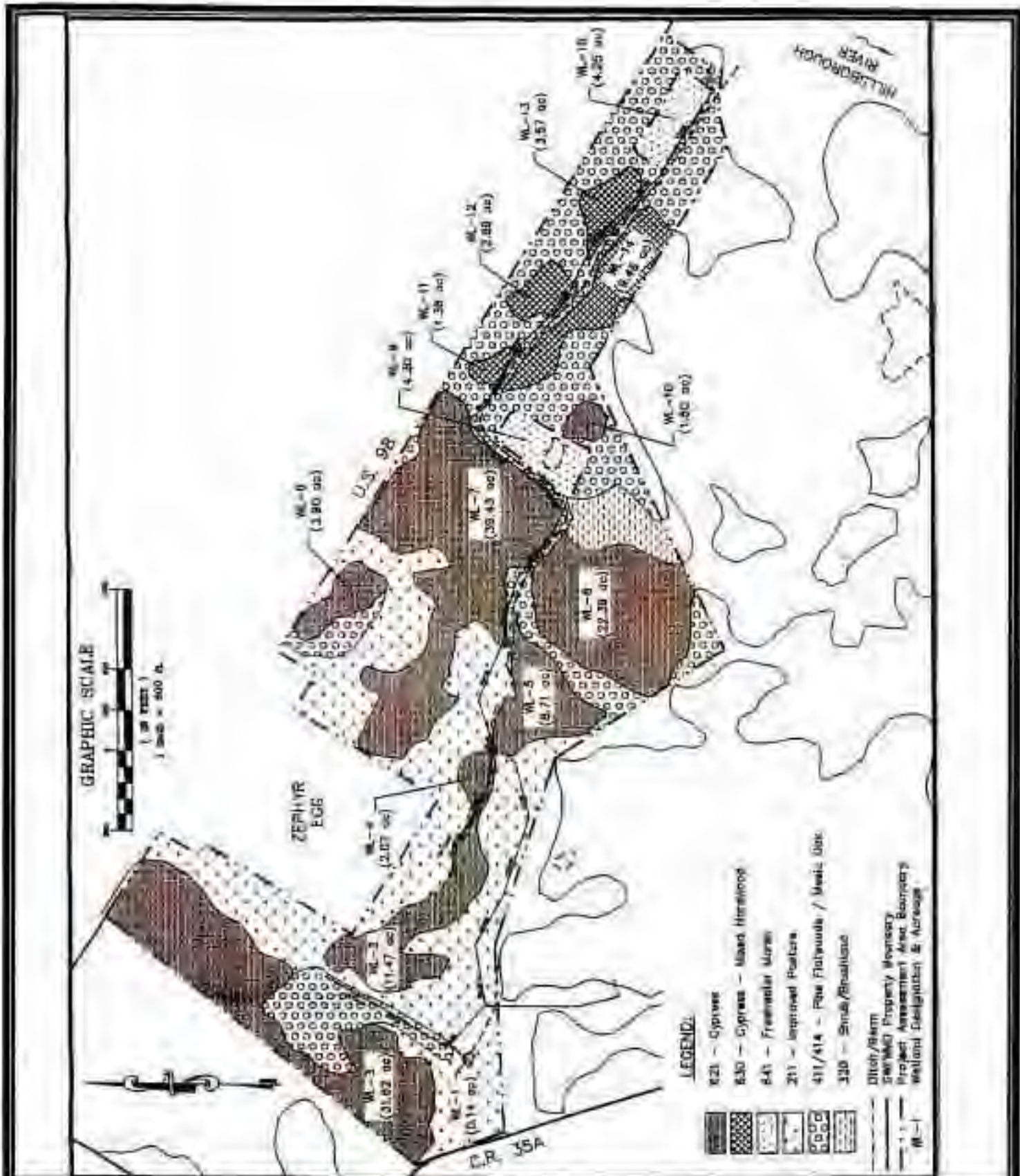
Construction & Planting \$128,000

Maintenance & Monitoring \$20,000

Attachments

- x 1. Detailed description of existing site and proposed work. Refer to previous discussion and site photographs.
- x 2. Recent aerial photograph with date and scale. Figure D - 1995 Infrared Aerial.
- x 3. Location map and design drawings of existing and proposed conditions. Figures A-D, photos depict pre-post construction.
- x 4. Detailed schedule for work implementation, including any and all phases. Construction was completed in Sept. 2001, followed by cypress planting, and a minimum three years of monitoring.
- x 5. Proposed success criteria and associated monitoring plan. Success criteria includes documentation of hydrologic restoration of the enhanced wetlands and vegetative re-establishment in the filled ditches, and eradicating and maintaining exotic vegetation below 5% coverage. Monitoring will include qualitative evaluation of the enhanced wetlands (habitat, vegetation, hydrology, wildlife).
- x 6. Long term maintenance plan. Maintenance to control nuisance & exotic vegetation will be conducted as needed for a minimum 3 years and until success criteria is met.
- x 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion under Comment D.

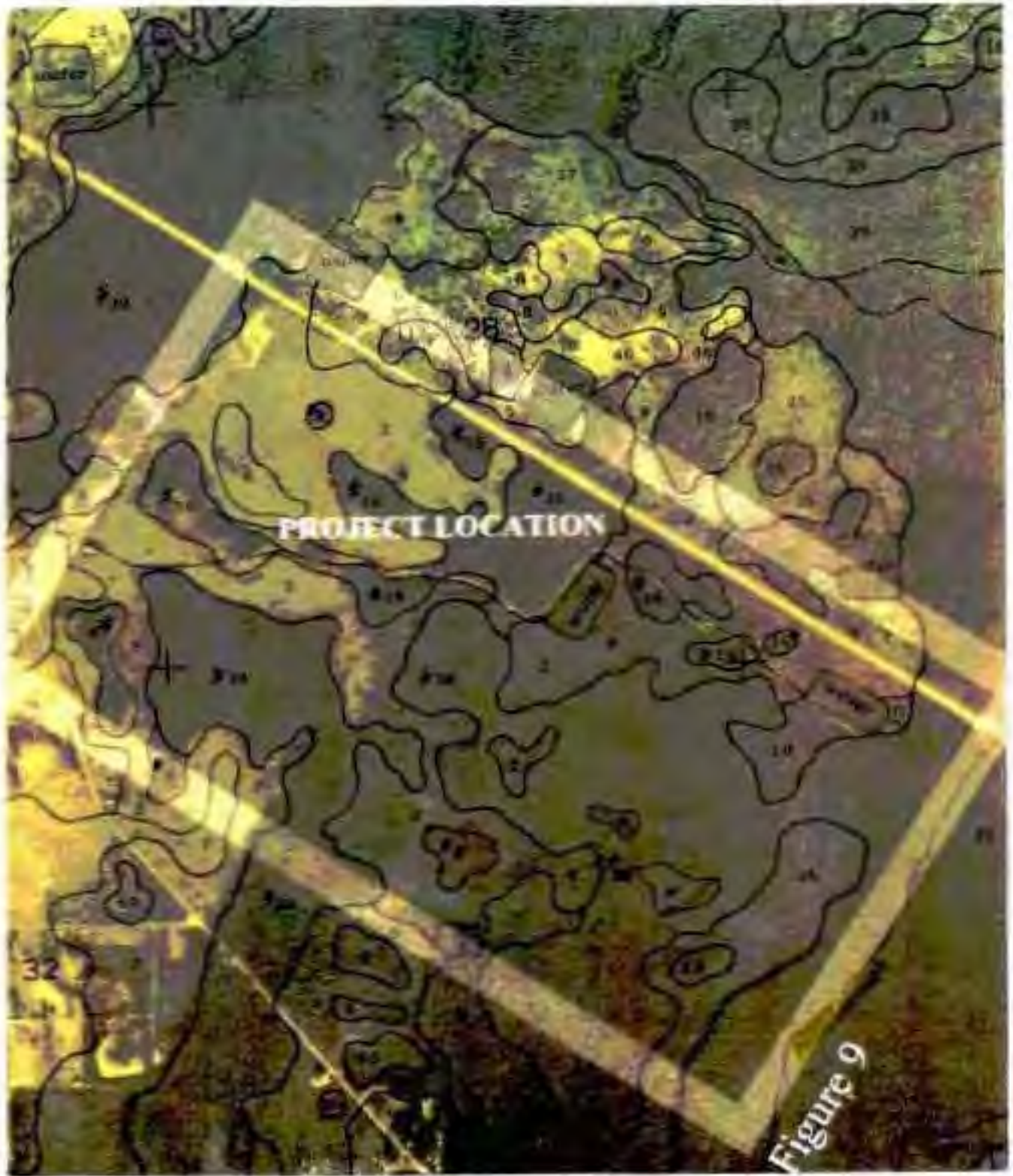




**FDOT - District 1
 MITIGATION AREA
 (Hillsborough River Basin)**

**UPPER HILLS. 4 & 5 -
 US HWY. 301
 (SW 55)**

**FIGURE B
 LAND USE / HABITAT TYPE**



* HYDRIC SOILS

FDOT - District 1
MITIGATION AREA
(Hillsborough River Basin)

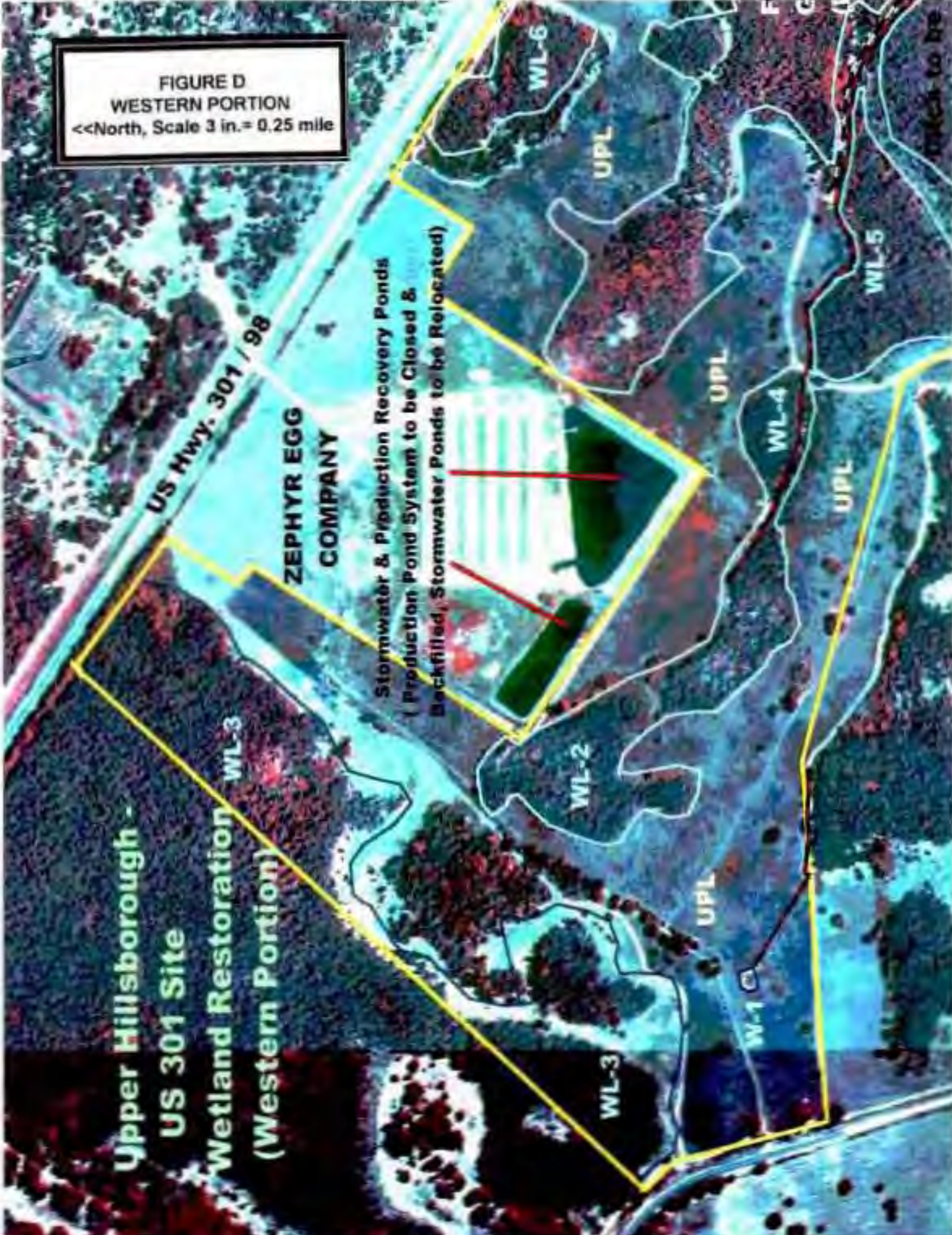
UPPER HILLS. 4 & 5 -
US HWY. 301
(SW 55)

FIGURE C
PASCO CO. SOIL SURVEY
Scale 4 in. = 1 mile, North ^

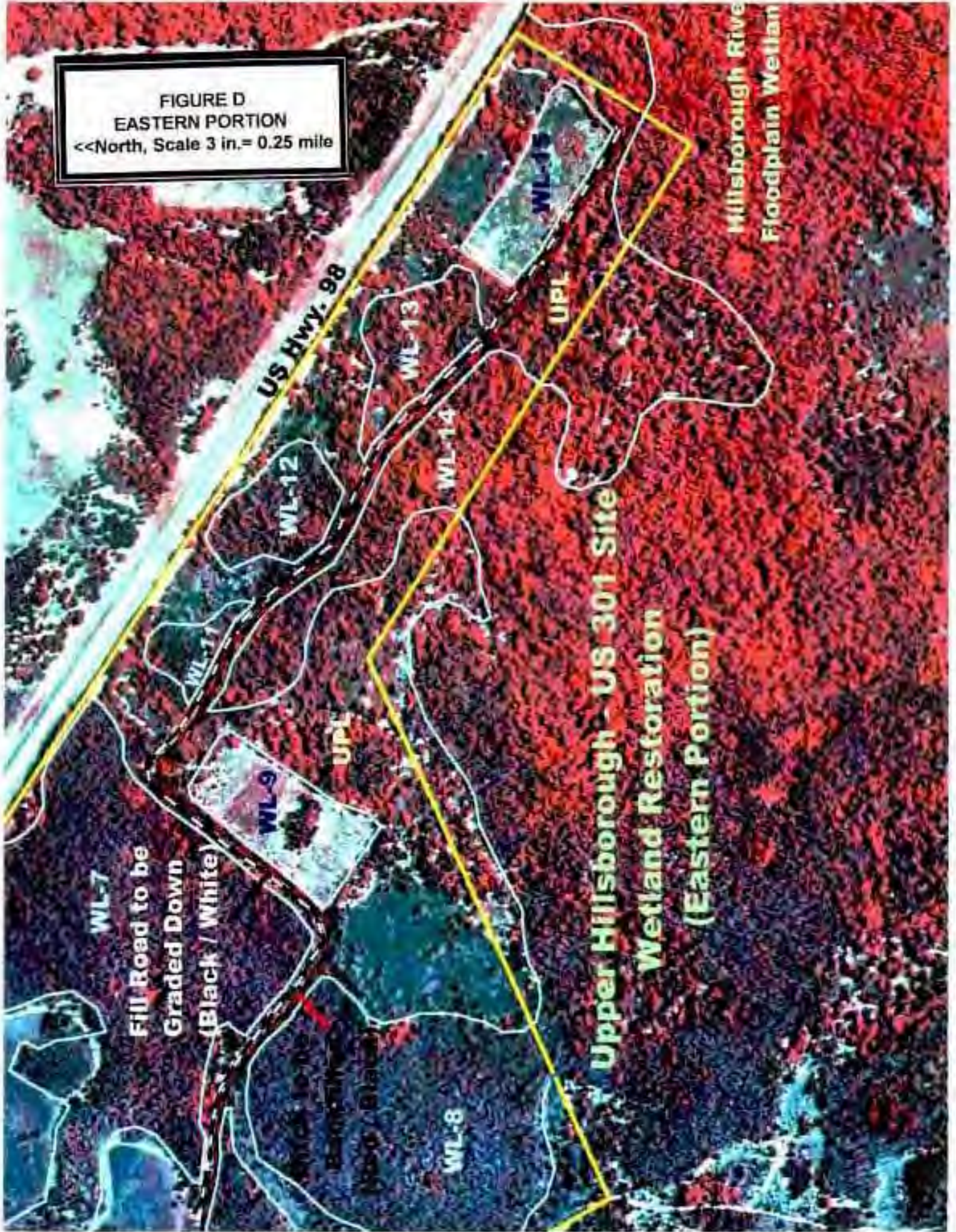
**FIGURE D - ENTIRE PROJECT
INFRARED AERIAL (1995)
←North, Scale 3 in. = 0.5 mile**



FIGURE D
WESTERN PORTION
←North, Scale 3 in. = 0.25 mile



**FIGURE D
EASTERN PORTION
<<North, Scale 3 in. = 0.25 mile**



**Upper Hillsborough - US 301 Site
Wetland Restoration
(Eastern Portion)**



Wetland 5 - The perimeter ditches not only dewater the adjacent wetlands (left) and groundwater, but the adjacent spoil ridge detains contributing upland surface water from reaching the wetlands.



Same view as above photo after spoil material was backfilled. Silt screens installed to minimize erosion into the adjacent wetland while ground cover is establishing. Note where practical, construction worked around the drip line to preserve trees located on previous spoil ridge.

**FDOT - District 7 Mitigation Site
(Hillsborough River Basin)**

**Upper Hillsborough 4&5 - US 301
(SW 55)**



Deep (4-5 ft.) perimeter ditch dredged adjacent to Wetland 2 (right).



*Same view as above photo after spoil material was backfilled.
Preserved oak tree (left) on top of spoil mound depicts
the amount of graded material required to fill the perimeter ditch.*

**FDOT - District 7 Mitigation Site
(Hillsborough River Basin)**

**Upper Hillsborough 4&5 - US 301
(SW 55)**



Ditch connecting Wetlands 2 and 4 depict the 5-6 ft. decrease in grade elevation between the Wetland 4 grade (right) and the ditch bottom grade (left).



Wetland 2 - Tree fall & stress associated with the adjacent dewatering, after backfilling the adjacent ditch, the wetland will be planted with additional cypress.

**FDOT - District 7 Mitigation Site
(Hillsborough River Basin)**

**Upper Hillsborough 4&5 - US 301
(SW 55)**



Typical view of a wetland-cut ditch that bisects a wetland into Wetlands 7 and 8. Nuisance species like ragweed and pokeweed are common ground cover species.



The tram fill road adjacent to a ditch, the fill material will be backfilled into the ditch.

**FDOT - District 1 Mitigation Site
(Hillsborough River Basin)**

Upper Hillsborough 4&5 - US 301 Site



Wetland 5 - Muck oxidation due to exposed soils are common conditions of the dewatered wetlands.



Wetland 8 - Elevated lichen lines represent historic seasonal high water elevations, no moss collars are indicative of minimal depths & duration of surface water (hydroperiod).

FDOT - District 1 Mitigation Site
(Hillsborough River Basin)

Upper Hillsborough 4&5 - US 301 Site



View of the major east-west ditch segment cutting through Wetlands 11-13. Pines have been logged off the tram road (right), just prior to grading fill back into the ditch.



View of the filled east-west ditch and removed tram road, just after construction and prior to tree planting, wetland groundwater and surface water sheet flow hydrology is restored.

**FDOT - District 7 Mitigation Site
(Hillsborough River Basin)**

**Upper Hillsborough 4&5 - US 301
(SW 55)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Cockroach Bay Restoration – Freshwater

Project Number: SW 56

Project Manager: Brandt Henningson, PhD. SWIM Environmental Scientist

Phone No: (813) 985-7481 ext. 2202

County: Hillsborough

Location : Sec. 21, T32S, R18E

IMPACT INFORMATION

- | | | |
|--|----------------------------|----------------------------------|
| (1) <u>FM: 2569571, US 19 - Drew to Railroad</u> | ERP #: <u>4411760.000</u> | COE #: <u>199400606 (NW-PB)</u> |
| (2) <u>FM: 2557031, SR 60 – Cypress St. to Fish Creek *</u> | ERP #: <u>43002958.004</u> | COE #: <u>200205816 (IP-MN)</u> |
| (3) <u>FM: 2558881, US 301- Sligh to Tampa Canal **</u> | ERP #: <u>43024246.000</u> | COE #: <u>200206711 (IP-JPF)</u> |
| (4) <u>FM: 2568812, US 19 (SR 55) – Seville Dr. to SR 60</u> | ERP #: <u>44025287.002</u> | COE #: <u>20062199 (IP-JPF)</u> |
| (5) <u>FM: 2569941, CR 296 Connector, 40th St. to 28th St.</u> | ERP #: <u>43008898.006</u> | COE #: <u>20031070 (IP-JPF)</u> |
| (6) <u>FM: 2569942, CR 296 Connector, NB I-275 Interchange to WB SR 692</u> | ERP #: <u>43018980.001</u> | COE #: <u>20049454 (IP-JPF)</u> |
| (7) <u>FM: 2555991, SR 676 (Causeway)-US 301 to US 41**</u> | ERP #: <u>43027063.000</u> | COE #: <u>2004-5583 (IP-MIS)</u> |

Drainage Basin: Tampa Bay Drainage Basin Water Body: Old Tampa Bay, Alligator Ck., Delaney Ck., Fish Creek
SWIM water body? Y- Old Tampa Bay

Impact Acres / Habitat Types (FLUCFCS):

(1) <u>0.2 ac. 618</u>	(3) <u>3.0 ac. 641</u>	(6) <u>1.1 ac. 643</u>	(7) <u>0.2 ac. 510</u>
<u>0.3 ac. 641</u>	(4) <u>0.2 ac. 619</u>		<u>0.2 ac. 610</u>
TOTAL: 0.5 Acres	(5) <u>1.0 ac. 631</u>		<u>1.0 ac. 641</u>
			TOTAL: 1.4 acres
(2) <u>0.8 ac. 641</u>		TOTAL: 8.0 acres	

* The total wetland impacts of this SR 60 project include 16.6 acres. The ditch, pond, and mangrove impacts of this project (5.1 acres) are being mitigated at the Tappan Tract (SW 62). The saltwater marsh impacts (10.9 acres) are being mitigated at Cockroach Bay – Saltwater (SW 77) and Apollo Beach (SW 67).

** The forested wetland impacts associated with these two projects are being mitigated at Boyd Hill Nature Pk. (SW 71).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation Enhancement X Restoration Mitigation Area: 34 ac. SWIM project? Y
Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N Drainage Basin(s):
Tampa Bay Drainage Water Body(s): Tampa Bay, Cockroach Bay SWIM water body? Y

PROJECT DESCRIPTION

A. Overall project goals: Cockroach Bay includes a multi-agency (USACOE, SWFWMD, FDEP, Hills. Co. Parks) wetland and upland habitat ecological restoration effort on property (total 651 acres) acquired by Hillsborough County. The SWFWMD – SWIM Section is responsible for the initial habitat creation & restoration activities, Hillsborough Co. Parks will conduct the perpetual management of the site. The designated mitigation area includes freshwater marsh habitat creation (26 acres) and restoration of coastal hammock habitat buffer (7 acres).

B. Brief description of current condition: Prior to construction, the area was a fallow farm field with invasion of exotic and nuisance vegetation such as ragweed, fennel, and various nuisance grass species (refer to photographs). Other species such as Brazilian pepper, salt-bush, and elderberry had also invaded the site. As noted on the difference between the 1958 and 1989 NRCS Soil Surveys (Fig. D), the site didn't have presence of hydric soils and was historically farmed but allowed to go fallow, allowing the nuisance and exotic species to heavily invade. The groundwater elevations and evaluations for any saltwater intrusion were monitored for a few years in order to ensure the freshwater wetland components could be successfully created and maintained in perpetuity.

C. Brief description of proposed work: Construction of palustrine marsh habitat with diverse and variable vegetative zones commenced in early, 2004 (Figures E, F and Table 1). A coastal hammock buffer was restored by eradication of exotic and nuisance species, and supplemental plantings around the marsh to provide cover for wildlife use. Since the entire area is considered upland, fallow farm fields, the mitigation qualifies as wetland creation and upland habitat restoration.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority of the proposed wetland impacts include low quality palustrine marsh habitat. The proposed creation of palustrine marsh habitat (26 acres) and restoration of upland habitat buffer (7 acres) will adequately mitigate for these DOT impacts at a cumulative ratio of 4.3-to-1. This wetland creation and coastal hammock restoration was constructed in 2004 and has been buffered with the restoration of adjacent forested upland habitat.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The only mitigation bank in the basin is the Tampa Bay Mitigation Bank, which is also within the Cockroach Bay area. The mitigation bank had not been constructed or had available mitigation bank credits prior to the selection of this Cockroach Bay project.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: This project is part of a large SWIM restoration effort for the Cockroach Bay area. The Cockroach Bay restoration effort has been guided by the Cockroach Bay Restoration Alliance, made up of stakeholders including the agencies, landowners, and the Tampa Bay Mitigation Bank. The SWFWMD - SWIM Section has coordinated the wetland creation and the majority of the upland restoration activities of the entire Cockroach Bay project area. Hillsborough County Parks is responsible for the stormwater facilities, some upland restoration, and perpetual maintenance & management activities. Even though there are various restoration phases throughout the Cockroach Bay Habitat Restoration area, they are all inter-related based on site conditions, an ecological transition of upland habitat to wetlands, followed by salinity gradients of freshwater to estuarine wetlands. A braided tidal wetland creation project (15 acres) was also selected and constructed in 2005 for the FDOT mitigation program (SW 75 Cockroach Bay Restoration – Saltwater). Because of the extensive planning and evaluation of the restoration, being co-located with on-going restoration efforts that are managed and maintained by Hillsborough County, the designated mitigation portions have been very successful.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Southwest Florida Water Management District or designee

Contact Name: Brandt Henningson, PhD, SWIM Environ. Scientist Phone Number: (813) 985-7481 ext. 2202

Entity responsible for monitoring and maintenance: SWFWMD, Hillsborough County or designee

Proposed timeframe for implementation: Commence: Design & Permitting, 2002-03

Complete: Const. & Planting, 2003-04, followed by a minimum three years maintenance & monitoring

Project cost: \$ 741,458 (total);

\$150,000 for design

\$591,458 for const., planting, and maintenance & monitoring

Attachments

- 1. Detailed description of existing site and proposed work. Refer to Attachment A.
- 2. Recent aerial photograph with date and scale. Figures B & C - 1995 Infrared Aerial.
- 3. Location map and design drawings of existing and proposed conditions. Figure A - Location Map, design plans on Figures E & F.
- 4. Detailed schedule for work implementation, including any and all phases. The construction commenced in late 2003 and completed in early 2004, followed by a minimum of 3 years of maintenance & monitoring.
- 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.
- 6. Long term maintenance plan. Refer to Attachment B.
- 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion under Comment D.

Attachment A – Site Conditions & Proposed Plan

The exotic and nuisance species had recruited and generated throughout the fallow farm fields. Construction of palustrine marsh habitat provide a valuable component of habitat diversity for wildlife use to inter-relate between the restored upland and existing, restored, and created estuary habitat at Cockroach Bay. Due to the extensive design effort associated with the entire Cockroach Bay restoration, additional groundwater salinity data for the Cockroach Bay area was required to determine the extent of freshwater and various saltwater wetland creation and restoration components. The additional data was critical to ensure the various restoration segments will function as proposed.

The majority of land area within the Tampa Bay Drainage Basin has some degree of saltwater influence during hurricane conditions, extreme spring tides, and/or major flood events (25 year, 50 year, and/or 100 year). These potential oligohaline conditions apply to both the freshwater wetland impact areas as well as created freshwater wetlands at Cockroach Bay. The species planting at the freshwater mitigation site (Table 1) are capable of enduring these very periodic events.

Attachment B – Maintenance & Monitoring, Success Criteria

The maintenance activities are conducted by Hillsborough County staff with assistance from the SWFWMD, and primarily related to control of invasive exotic vegetation. Maintenance is scheduled for quarterly for the first few years after planting to allow for establishment of desirable plants, and less frequent maintenance as the habitat matures. After this period, maintenance activities will be conducted as needed by Hillsborough County staff to maintain the success criteria. Inspections on a semi-annual basis are anticipated to evaluate vegetative conditions, debris, and any nuisance & exotic vegetation. After each inspection, proper maintenance activities are conducted to correct any problems.

Monitoring will be conducted semi-annually, with annual reports for three years post-construction. Monitoring will include qualitative evaluation and photo documentation of the mitigation area, to evaluate and document species survival, coverage, wildlife use, exotic & nuisance species coverage, and recommended actions needed to ensure or enhance success. The success criteria includes a minimum 90% survivorship for planted material for one-year post planting, a total 85% cover of planted and recruited desirable species, and less than 5% exotic and nuisance species cover.



FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)

COCKROACH BAY-
FRESHWATER
(SW 56)

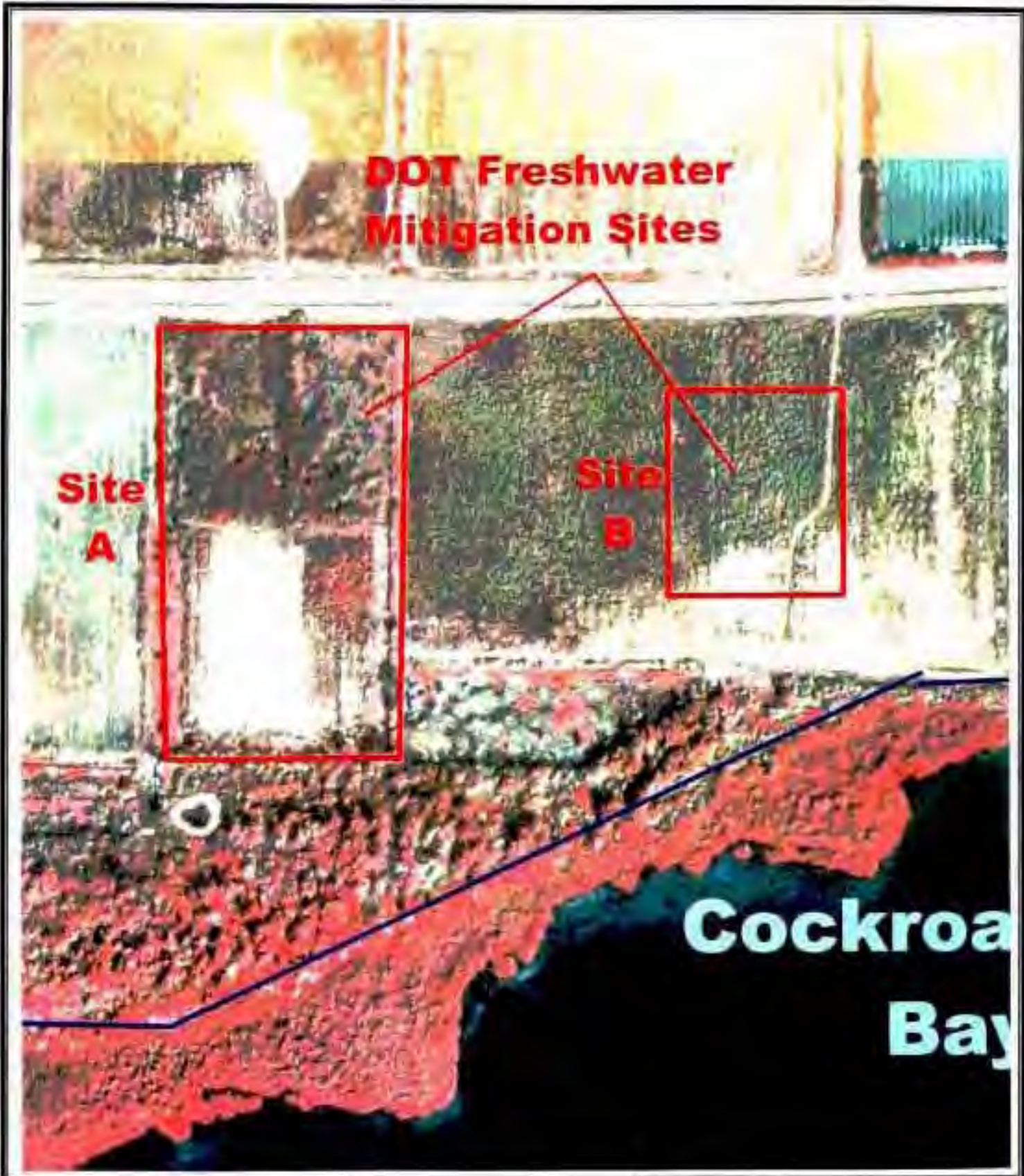
FIGURE A – Location Map
^ North



FDOT – District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)

COCKROACH BAY-
FRESHWATER
(SW 56)

FIGURE B – Infrared Aerial (1995)
Scale 1 in = 1365 ft. , ^ North



**FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**COCKROACH BAY-
FRESHWATER
(SW 56)**

**FIGURE C – Infrared Aerial (1995)
Scale 1 in. = 380 ft., ^ North**

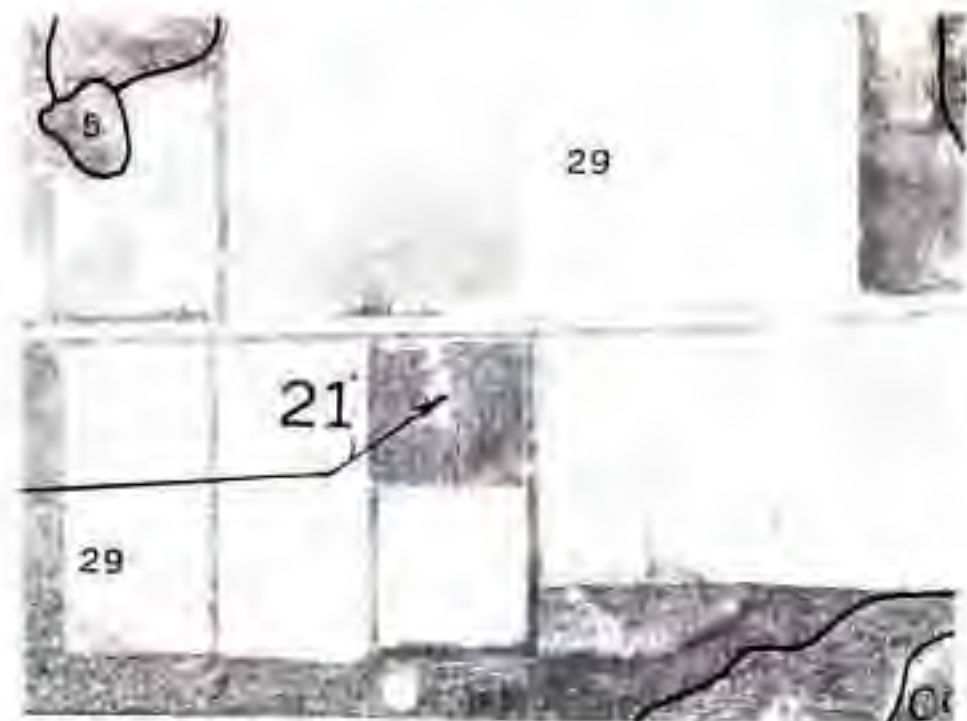
**1958 Soil Survey
(1949 Aerial)**

**Lh – Leon fine sand
(Non-hydric soil)
Land use – row crops**



**1989 Soil Survey
(1982 Aerial)**

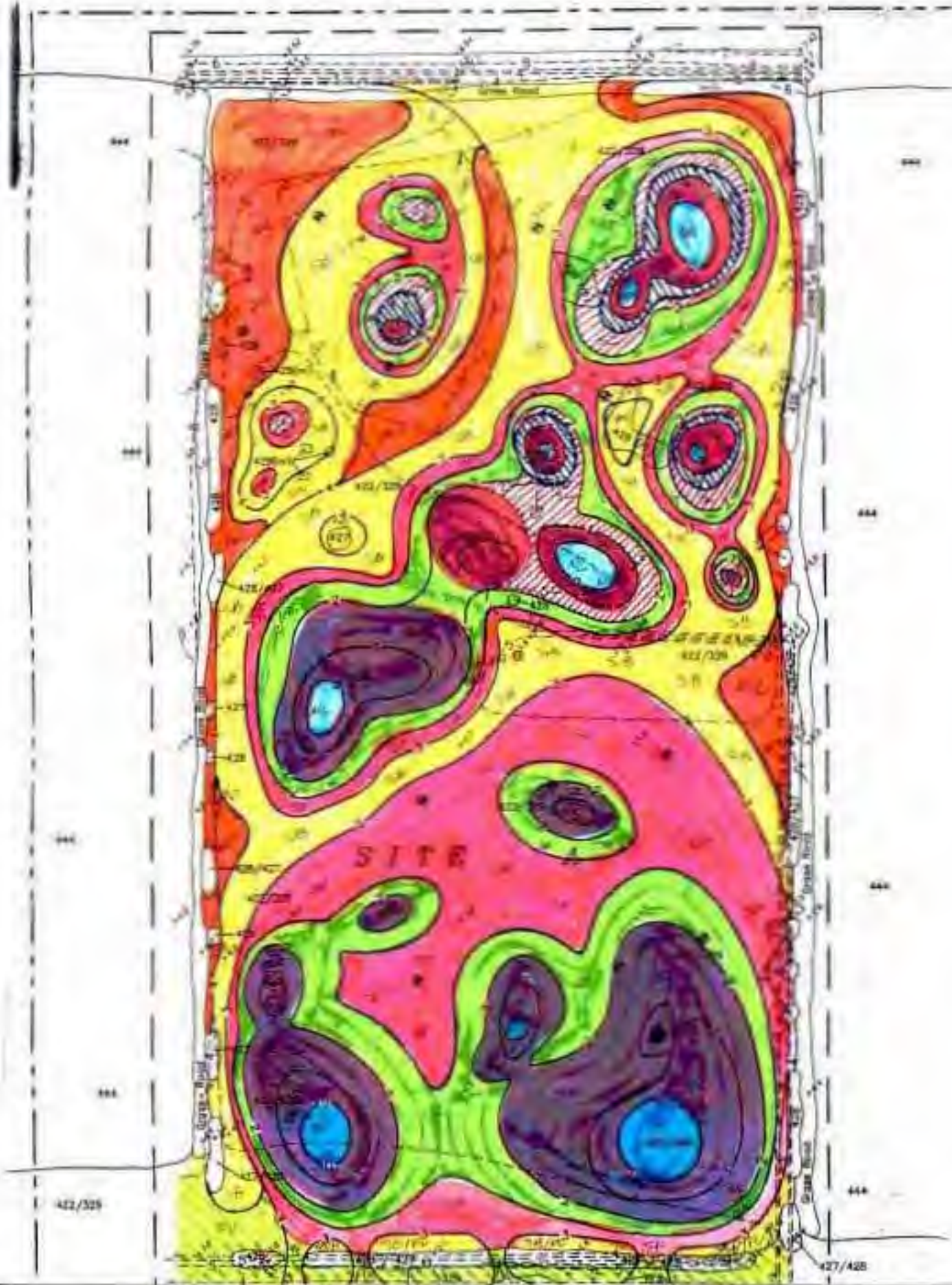
**29 – Myakka fine sand
(Non-hydric soil)
Land use – North
Row crops,
South & East
Exotic & nuisance
Species**



**FDOT – District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**COCKROACH BAY-
FRESHWATER
(SW 56)**

**FIGURE D – 1958 & 1989
Hills. Co. Soil Survey
Scale 6.4 in. = 1 mile, ^ North**



**FDOT – District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**COCKROACH BAY-
FRESHWATER
(SW 56)**

**FIGURE E
SITE A – 30% Design Plans
Scale 1 in. = 155 ft., ^ North**

Table 1 Preliminary list of species proposed for the Cockroach Bay Freshwater Habitat Restoration Project

Symbol	Zone/species	common name	elevation
OW	 Open water/Submergent		< 0'
RM	<i>Ruppia maritima</i>	seaweed (natural recruitment)	
	Deep Emergent		
NO	 <i>Nymphalis odorata</i>	white waterlily	0 to 1'
NL	 <i>Najas lunum</i>	spatterdock	0 to 1'
	Shallow Emergent		
SV	 <i>Scirpus scabellus</i>	soft-stem bulrush	0 to 2'
SR	 <i>Scirpus rostratus</i>	salt marsh bulrush	0 to 2'
PC	 <i>Pontederia cordata</i>	pickersweed	1 to 2'
SL	 <i>Sagittaria lancifolia</i>	duck potato	1 to 3'
BM	 <i>Bowlesia mannieri</i>	water hyssop	1 to 3'
JR	 <i>Juncus roemerianus</i>	black needlerush	2 to 3'
AD	<i>Acrostichum danneifolium</i>	leather fern	2 to 3'
CA	<i>Cymum americanum</i>	string lily	2 to 3'
	High Marsh/Wet Prairie/Glade		
SP	 <i>Spartina patens</i>	marshhay cordgrass	2 to 3'
SV	<i>Sporobolus virginicus</i>	seashore dropseed	2 to 3'
DS	<i>Distichlis spicata</i>	saltgrass	2 to 3'
BS	<i>Blechnum serrulatum</i>	swamp fern	2 to 4'
PV	 <i>Paspalum vaginatum</i>	seashore paspalum	2 to 4'
BF	<i>Borrichia frutescens</i>	seaside oxeye	2 to 4'
LC	<i>Lycium carolinianum</i>	Christmasberry	2 to 4'
CO	<i>Cephalanthus occidentalis</i>	buttonbush	2 to 4'
SB	 <i>Spartina bakeri</i>	sand cordgrass	3 to 4'
MC	 <i>Muhlenbergia capillaris</i>	hairawn muhly	3 to 5'
MY	<i>Myrica cerifera</i>	wax myrtle	3 to 5'
	Coastal Hammock		
SA	<i>Sabal palmetto</i>	cabbage palm	> 3'
SR	<i>Sorenoa repens</i>	saw palmetto	> 3'
QV	<i>Quercus virginiana</i>	live oak	> 3'
SC	<i>Sideroxylon celastrinum</i>	saffron plum	> 3'
ZF	<i>Zanthoxylum fagara</i>	wild lime	> 3'
CA	<i>Chiococca alba</i>	snowberry	> 3'
EH	<i>Erythrina herbacea</i>	coralbean	> 3'
FS	<i>Fouquieria segetalis</i>	Florida privet	> 3'



Historically an area used for row crops, the proposed freshwater wetland creation site has generated to extensive cover of exotic and nuisance species such as Brazilian pepper, dog fennel, ruderal grass species, and Australian pine (background left).



View of the same area, connecting to the right side of the above photograph. Desirable species such as cabbage palm will be incorporated into the creation project.

**FDOT – District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**COCKROACH BAY – FRESHWATER
(SW 56)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District
Mitigation Project Name: Lake Panasoffkee Restoration (SWIM) Project Number: SW 57
Project Manager: Mike Holtkamp, SWFWMD-Operations Director Phone No: 352-796-7211 ext. 4524
County: Sumter Location: Sec.18,19,20,28,29,32,33,T19S, R22E
Sec. 4,3 T20S, R22E

IMPACT INFORMATION

FM 4063291 – I-75, Lk. Panasoffkee Bridge ERP #: 4320508.00 COE #: 200000754 (NPR-KF)
Drainage Basin(s) : Withlacoochee River Water Body(s) : Lake Panasoffkee SWIM water body? Y

Acres / Types (FLUCFCS): TOTAL 5.93 ac. 500

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration X Enhancement Preservation Mitigation Area: +/- 75 ac.
SWIM project? Y Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N
Drainage Basin(s): Withlacoochee River Basin Water Body(s): Lake Panasoffkee SWIM water body? Y

Project Description

A. Overall project goal: Lake Panasoffkee has suffered due to the extensive buildup of inorganic sediments and shallowing of the lake has destroyed fish spawning areas, promoted nuisance/exotic species growth along the shoreline and substantial bands of nuisance emergent vegetation in the lake. The restoration plan proposes several steps to improve the fisheries habitat, restore the shoreline, and facilitate navigation.

B. Brief description of current condition: Lake Panasoffkee has accumulated sediment and silted in hard bottom areas that historically served as fish beds. In many areas the nuisance emergent vegetation is extremely dense due to the shallowing of the lake.

C. Brief description of proposed work: The Lake Panasoffkee Restoration Council has recommended removal of the inorganic sediments from the lake bottom and hydraulic dredging will be a major element of the restoration plan. The dredging will follow a six step approach presented in the Lake Panasoffkee Restoration Plan (Attachment A) as reported to the State Legislature. STEP 1 included a Pilot Project of dredging completed in the summer, 2000. The dredging plan included various areas and proposed final grade depths associated with the lake. STEP 2 includes dredging almost 5 million cubic yards of sediments from approximately 1,010 acres (30% of the lake bottom grade) to hard bottom. Approximately 75 acres of this phase of this phase will mitigate for the proposed open water wetland impacts associated with the construction of the I-75 bridge crossing over Lake Panasoffkee. This phase was conducted in 2004.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The FDOT project impacts included open water habitat associated with the area between the two I-75 bridge spans that cross along the southeast portion of Lake Panasoffkee. The roadway open water wetland impacts and location match the habitat improvements associated with Lake Panasoffkee.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection, there wasn't an existing or proposed mitigation bank within the Withlacoochee River Basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : Lake Panasoffkee is a SWIM project and the FDOT mitigation program provides much needed funds to this multi-million dollar project while adequately and appropriately compensating for unavoidable impacts to the lake.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Contractor selected by the SWFWMD

Contact Name: Mike Holtkamp – SWFWMD- Operations Director Phone Number: 352-796-7211 ext. 4524

Entity responsible for monitoring and maintenance: Contractor selected by the SWFWMD.

Proposed timeframe for implementation: Commence: Spring, 2004 Complete: Winter, 2004

Project cost: \$469,733 - Estimate for 75 acres of sediment removal under STEP 2 construction.

Attachments

1. Detailed description of existing site and proposed work. Refer to Attachment A.

2. Recent aerial photograph with date and scale. Figure B - 1995 infrared aerial.

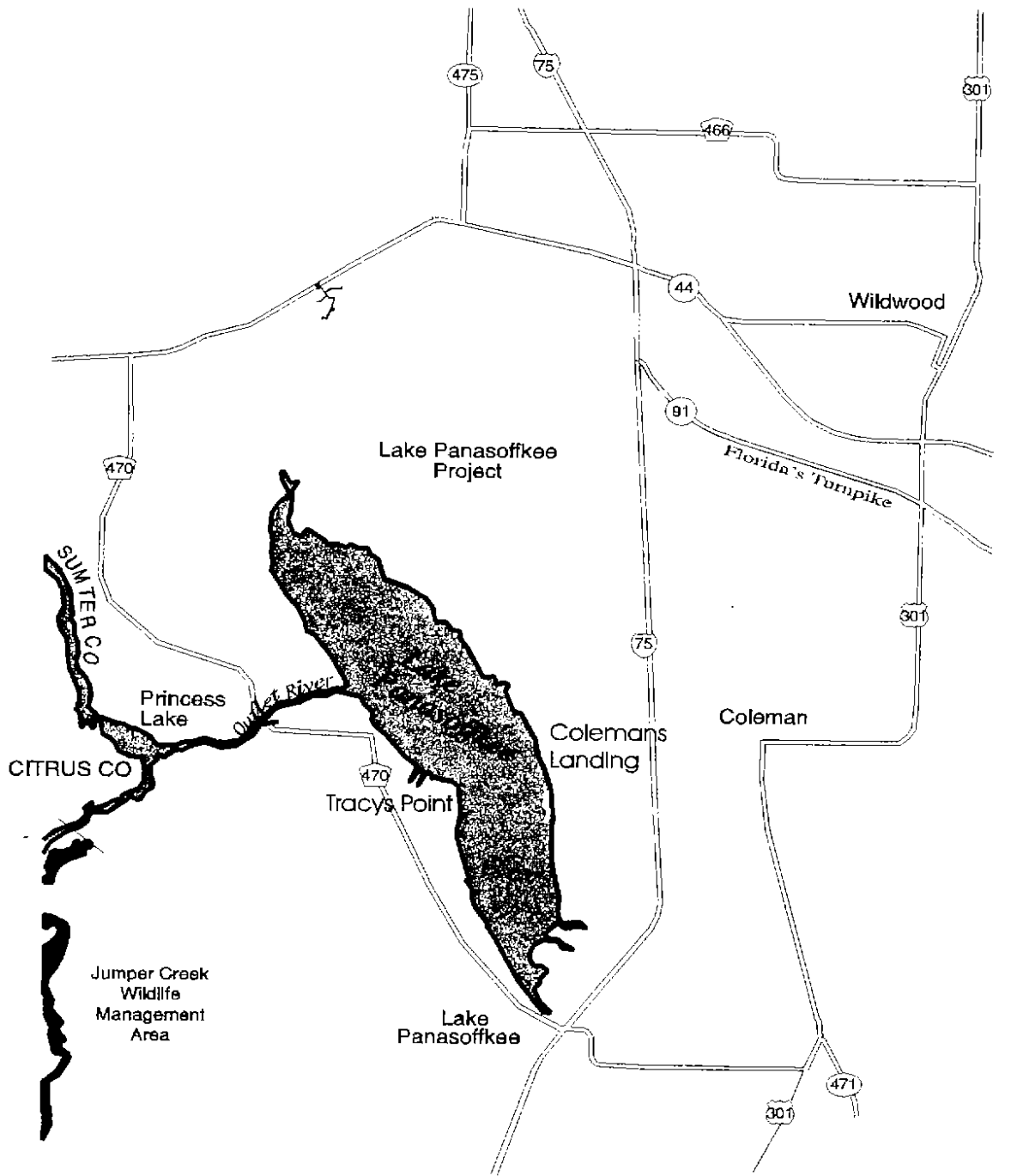
3. Location map and design drawings of existing and proposed conditions. Figure A-Location Map, Attachment A has the proposed conditions.

4. Detailed schedule for work implementation, including any and all phases. Design of STEP 2 (portion proposed for DOT mitigation) was finalized in 2001. Construction of STEP 2 of the restoration project was conducted in 2004.

5. Proposed success criteria and associated monitoring plan. This project proposes to create open water habitat in Lake Panasoffkee, an Outstanding Florida Water. The bottom elevations will be deep enough to exclude emergent species, thus ensuring the persistence of open water habitat. Therefore, it was determined monitoring and success criteria wasn't necessary.

6. Long term maintenance plan. The mitigation is associated with the larger Lake Panasoffkee dredging project being implemented by the WMD. Maintenance will primarily be related to control of invasive aquatic vegetation with a more intensive early effort to allow for the plants to become established and less frequent herbicide control as the project matures. This activity is not proposed for FDOT mitigation credit.

7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to Comment D.



**FDOT - District 5
MITIGATION SITE
(Withlacoochee River Basin)**

**LAKE PANASOFFKEE
RESTORATION
(SW 57)**

**FIGURE A
LOCATION MAP**



**FDOT - District 5
MITIGATION SITE
(Withlacoochee River Basin)**

**LAKE PANASOFFKEE
RESTORATION
(SW 57)**

**FIGURE B
INFRARED AERIAL
(1995)**

Attachment A

Concerned for the health of Lake Panasoffkee, the Legislature passed the Chapter 98-69, Laws of Florida, creating the Lake Panasoffkee Restoration Council (Council). The Legislature charged the Council with identifying strategies to restore the lake. Specifically, the Council was to look at sport fish population recovery strategies, shoreline restoration, sediment removal, exotic species management, floating tussock management and removal, navigation, water quality and fisheries habitat improvement. The Council established that of the seven restoration issues identified in the enacting legislation, its primary objectives in priority order were: fisheries habitat improvement, shoreline restoration, and navigation.

Based on the studies reviewed, presentations by agency experts and the knowledge and life long experience of members of the Council, it was concluded that the primary cause of adverse impacts to the water resources of the lake was due to the accumulation of sediments causing a reduction in the fisheries habitat, shoreline degradation and impediments to navigation. Accumulated sediment had silted in hard bottom areas which served as fish bedding areas, and in other areas emergent vegetation had become extremely dense due to shallowing. In addition, the growth of vegetation has progressed to such an extent that more than 800 acres of historic lake bottom are now covered with a mix of woody/shrubby vegetation. In order to reclaim these areas it was determined that substantial amounts of chiefly inorganic sediments would have to be removed from the lake bottom and that hydraulic dredging would likely be a major element of any restoration plan.

The Council, in consideration of the recommendations of its Advisory Group voted at its October 12, 1998 to include in their 1998 report to the Legislature the following recommendation and request:

Design and seek regulatory approval for removal of sediments following a systematic six step approach to insure maximum benefit to the restoration of the lake while insuring all necessary environmental safeguards are implemented.

The six steps are fully described in the *Lake Panasoffkee Restoration Council Report to the Legislature, November 25, 1998*. Step 2 proposes to restore the littoral zone of the lake by removing flocculent sediment to expose hard lake bottom. Step 3, which involves the removal of emergent vegetation will restore 800 acres of open water. Together these two steps are proposed to provide mitigation for the open water impacts identified in this application. Steps 2 and 3 are described below.

Step Two - Dredge to Hard Bottom from the 35-foot Contour

The prime historic fish bedding areas in Lake Panasoffkee are known to have existed in areas around Grassy Point and Shell Point located on the lake's northeast side (Figure 1). Extensive deposits of snail shells occur throughout this area, and sport fish, particularly redear ("shell cracker") and other sunfish ("bream") are known to have spawned there.

Hard bottom can be reached with the least sediment removal in the Grassy and Shell Point areas and in a narrow band bordering much of the western shoreline. It is documented that in areas where accumulated sediment deposits are five feet or less, the lakeward most edge of the area could be fairly well defined by the 35-foot contour. For this reason, it is proposed that many historical bedding areas could be restored by dredging in two areas from the 35-foot contour toward shore while removing sufficient material to expose the hard bottom (e.g., shell deposits, sand, etc.). It was also recognized that there are substantial sediment deposits (i.e., greater than 20 feet deep) in the north end of the lake, that two major inflows, Little Jones and Big Jones creeks, enter the lake in this area, and that it is highly likely that sediments in this area would be carried into the two cleared spawning zones if not lowered to the 35-foot contour as well.

For this reason, it is recommended that sediments in this area be dredged even though hard bottom would not be reached. It should be noted that very little submersed vegetation occurs in the north end of the lake, that fish usage appears low perhaps due to lack of cover, and that there is probably more organic sediment deposited here than in most areas of the lake. To accomplish Step Two, it is estimated that as much as 4.9 million cubic yards of sediment will have to be removed and that approximately 900 acres (30 percent) of the lake bottom will be restored.

Step Three - East Side Emergent Removal - Tied to 35-foot Contour: There is a broad band of emergent vegetation along the eastern shoreline of Lake Panasoffkee that runs from just south of Shell Point to the southern end of the lake (see Figure 2). This band of emergent vegetation is composed largely of pickerelweed, cattail and arrowhead. Although much of the vegetation is rooted to the lake bottom, a substantial amount could be classified as tussocks and much of the tussock problem on the lake is generated by this band of vegetation. The band is more than 1,000 feet wide in some sections and is so dense and impenetrable that much of it does not provide productive fish habitat. Removal of this vegetation would improve fish habitat, restore much of the eastern shoreline and improve navigation. Dredging to a depth of two to three feet will open the area to fish and encourage the growth of submersed vegetation while discouraging emergents. It is proposed that sediment be dredged from the 35-foot contour toward the shore, and the area be sloped or stepped so that a narrow emergent zone is preserved. The entire



Figure 1. Step Two - Dredge to hard bottom from 35-foot contour - initially dredging on east side of lake in vicinity of Shell and Grassy Points, along most of western shoreline. Although sediment deposits are deep, the north end is dredged to prevent increased flow that does being incorporated into hard bottom areas.

project area is almost 800 acres, and this step would remove upwards of 3.2 million cubic yards of sediment and open up approximately 388 acres for possible colonization by submersed plants. Cost \$4,589,000.

It should be noted that land bordering the entire eastern shoreline of Lake Panasoffkee is in public ownership, and the proposed dredging will enhance public access to the lake's resources. Defined as the East Lake Panasoffkee property, approximately 9,950 acres were purchased through the Save Our Rivers program. The majority of the property consists of floodplain swamp, and most of the property remains in a relatively natural, unaltered condition. Public ownership of the property will contribute directly to the long-term protection and management of the lake (SWFWMD 1996).



Figure 2.

Step Three - Removal of East side emergent vegetation and sediments from the All Channel

Step Two - Removal of wood/debris/low vegetation and associated sediments

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Barr Hammock - Ledwith Prairie

Project Number: SW 58

Project Manager: Ramesh Buch, Program Supervisor
Alachua County Forever Program

Phone No: (352) 264-6800

County: Alachua

Location: Sections 1, 2, T12S, R19E

IMPACT INFORMATION (Proposed Construction Date)

- | | | |
|--|----------------------------|--------------------------------------|
| (1) <u>FM 238641 - SR 500 (US 27), Levy Co. to SR 326</u> | ERP #: <u>43014024.002</u> | COE #: <u>NPR (isolated wetland)</u> |
| (2) <u>FM 238678 - SR 500 (US 27), SR 326 to CR 225A</u> | ERP #: <u>438697.01</u> | COE #: <u>199702099 (NW)</u> |
| (3) <u>FM 238719 – SR 40, SR 328 to SW 80th</u> | ERP #: <u>44022268.00</u> | COE #: <u>NPR (isolated wetland)</u> |
| (4) <u>FM 238720 – SR 40, US 41 to CR 328 (2011)</u> | ERP #: _____ | COE #: _____ |

Drainage Basin(s) : Ocklawaha River Basin Water Body(s):None SWIM water body? N

Acres / Types of Impact (FLUCFCS): (1) FM 238641 - 3.50 ac. 640
(2) FM 238678 - 1.09 ac. 641
(3) FM 238719 – 0.08 ac. 641 **TOTAL: - 4.78 ac.**
(4) FM 238720 – 0.11 ac. 510

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation ___ Restoration X Enhancement X Preservation Mitigation Area: **70 acres**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin: Ocklawaha (also referred to as Florida Ridge Basin) Water Body: Ledwith Lake SWIM water body? N

Project Description

A. Overall project goal: As part of the Alachua County Forever land acquisition program, the project goal includes the public acquisition, preservation, and enhancement of 2,303 acres of high quality upland and wetland habitat (Figure A). The acquisition includes a 353-acre portion of an approximately 1,800-acre marsh prairie referred to as Ledwith Lake (Figures B & C). The northern boundary of the tract adjoins another large marsh prairie (Levy Lake). This 3,100-acre marsh has been placed within a conservation easement through the NRCS – Wetland Reserve Program. In turn, the Levy Lake property is contiguous to several thousand acres of regionally significant preserved habitat associated with Paynes Prairie State Preserve (Figure B). The Ocklawaha basin has minimal coverage of wetland habitat, with the majority associated with the Ledwith and Levy Lakes. As a result, acquisition and preservation of the Barr Hammock - Ledwith Prairie property was considered an important and critical pursuit to protect important and rare water and wetland resources in the basin. The nomination and selection of this tract to the FDOT mitigation program was conducted in 2001, with the acquisition finalized by Alachua County in September, 2006.

- B. Brief description of current condition:** The northern portion of the tract includes a mixture of upland mixed coniferous/hardwood habitat, along with mixed hardwood wetland forests. The forested wetland habitat has diverse canopy coverage provided by sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), loblolly bay (*Gordonia lasianthus*), laurel oak (*Quercus laurifolia*), swamp chestnut oak (*Quercus michauxii*) and other hardwood species. The forested upland component includes pignut hickory (*Carya glabra*), live oak (*Quercus virginiana*) and pine (*Pinus taeda*). The Ledwith Lake marsh prairie has a few pockets of open water and extensive herb coverage provided by pickerelweed (*Pontederia cordata*), smartweed (*Polygonum* spp.), maidencane (*Panicum hemitomom*), spatterdock (*Nuphar lutea*), and soft rush (*Juncus effuses*) (refer to photos). Extensive vegetative diversity and wildlife presence have been documented in the marsh and adjacent upland habitat. Natural resource evaluations were conducted for Alachua County and are available from Ramesh Buch or Mark Brown (SWFWMD).
- C. Brief description of proposed work:** This Barr Hammock - Ledwith Prairie acquisition is part of an east-west corridor of proposed public land acquisitions between Ocala National Forest and the Waccasassa River. A hydrologic evaluation of Levy Lake and Ledwith Lake will determine if and when the surface water elevations should be revised with the existing culverts and flashboard risers in order to enhance wetland hydroperiods (Photo 4). Other enhancement activities include the elimination of cattle grazing within the marsh prairie to minimize encroachment of nuisance vegetation, eradication of exotic and nuisance species, and adopting a prescribed fire plan for the tract.
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** With the minimal presence of public lands and few wetlands within this predominantly upland basin, there are very limited wetland enhancement & restoration opportunities in this basin. The Ledwith Lake marsh prairie is one of the few and largest wetlands within the basin, exhibits high quality wetland functions and value that deserve protection through a public land acquisition program. The marsh and adjacent forested wetland and upland habitats provide appropriate mitigation for the proposed wetland impacts. In 2007, the FDOT mitigation program will reimburse Alachua County for the costs associated with acquiring 60-acres of marsh prairie and 10-acres of mixed forested wetland habitat (70 acres x \$4,352 per acre = \$304,640). To date, all the anticipated FDOT wetland impacts in the basin are associated with non-forested habitat. However, reimbursement for a proportion of forested wetland habitat is conducted as a precaution in case there are unforeseen forested wetland habitat impacts associated with FDOT projects. The reimbursement of the land acquisition costs associated with 70 acres of the tract provides adequate and appropriate preservation mitigation credit to compensate for the proposed FDOT wetland impacts.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** At the time of mitigation selection and reimbursement to Alachua County, there were no existing or proposed mitigation banks within this basin.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** There are no SWIM projects or SWIM water bodies within this basin.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: No construction necessary, any revisions to Ledwith Lake hydrology will be conducted in coordination between Alachua County, FDEP, and the SJRWMD.

Contact Name: Ramesh Buch, Program Supervisor, Alachua County Forever

Phone Number: (352) 264-6800

Entity responsible for monitoring and maintenance: A joint agreement between Alachua County and FDEP staff (Paynes Prairie State Preserve) will coordinate the long-term maintenance & management of the tract. Monitoring not necessary or proposed for mitigation credit.

Proposed timeframe for implementation: Commence: Summer, 2001 Complete: Land acquisition in September, 2006, reimbursed for 70 acres by the SWFWMD in spring, 2007.

Project cost: \$304,640; reimbursement for acquisition (70 acres)

Attachments

- X 1. Detailed description of existing site and proposed work. The detailed evaluations of site conditions are available from Ramesh Buch and Mark Brown. There are no proposed work activities at this time. If the hydrology evaluation of Ledwith & Levy Lake determine the water levels should be modified to enhance the marsh prairie, such improvements will be conducted by Alachua County.
- X 2. Recent aerial photograph with date and scale. Figures B & C - Infrared aeriels – 1995.
- X 3. Location map and design drawings of existing and proposed conditions. Figure A - location map, Figures B & C depict habitat conditions.
- X 4. Detailed schedule for work implementation, including any and all phases. Refer to schedule provided above.
- X 5. Proposed success criteria and associated monitoring plan. The tract provides good habitat quality therefore no success criteria or monitoring plan is necessary.
- X 6. Long- term maintenance plan. In collaboration with FDEP, Alachua County will prepare and implement a perpetual management plan that will include appropriate land management activities such eradication of exotic and nuisance species and prescribed fire plan. A long-term maintenance plan is not included as part of this mitigation plan since only preservation credit is applied for the FDOTmitigation credit.
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous text.





Photo 1 - View of Ledwith Lake from the western marsh boundary. The marsh prairie has diverse vegetative cover including a dominance of pickerehweed, floating pennywort, smartweed, spatterdock, soft rush, and maidencane.



Photo 2 - View extending from right of Photo 1, open water areas in Ledwith Lake are few and predominantly located within the perimeter of the marsh prairie. Hardwood wetlands rim portions of the marsh, short transitions to upland hardwood hammocks.

**FDOT - District 5 Mitigation Site
(Ocklawaha Basin)**

**Ledwith Lake
(SW 58)**



Photo 3 - Some wetland hardwoods rim Ledwith Lake and within the hydrologic connection between Levy Lake and Ledwith Lake (shown above), dominance of laurel oak, red maple, sweetgum, and swamp chestnut oak that transition to upland hardwood hammocks of pignut hickory and live oak.



Photo 4 - The two outfall structures with flashboard risers that control the water elevation and flow from Ledwith Lake north to Levy Lake.

**FDOT - District 5 Mitigation Site
(Ocklawaha Basin)**

**Ledwith Lake
(SW 58)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Hampton Tract

Project Manager: Philip Rhinesmith, WMD Environmental Scientist

Project Number: SW 59

Phone: (352) 796-7211 ext. 4266

County(ies): Polk Location : Sections 22, 23, 25, 26, 27, 34, 35, 36 T25S, R23E ; Sections 30, 31 T25S R24E

IMPACT INFORMATION

(1) FM 2012092, I-4, US 98 to CR 557 (Sec. 3-5)*

ERP #: 43011896.026

COE #: 200204891 (IP-MGH)

(2) FM 2012041, I-4, CR 557 to Osceola (Sec. 6,7,9)**

ERP #: 43011896.032

COE #: SAJ-1994-3591 (IP-MGH)

Drainage Basin(s) : Withlacoochee River Water Body(s) : Lake Mattie, Lake Agnes SWIM water body? N

Impact Acres/ Types:

(1) FM 2012092 1.19 ac. 510 (Fluccs)

(2) FM 2012141 0.03 ac. 630 (Fluccs)

0.02 ac. 611

3.18 ac. 640

0.12 ac. 617

0.55 ac. 641

2.75 ac. 618

0.12 ac. 643

3.90 ac. 621

TOTAL 3.88 acres

8.63 ac. 630

0.04 ac. 640

0.94 ac. 641

1.36 ac. 643

TOTAL 18.95 acres

TOTAL 22.83

* Note – A portion of this I-4 project is located within the Peace River Basin and associated wetland impacts (total – 1.5 acres) will be mitigated at Tenoroc / Saddle Creek (SW 47).

** Note – A portion of this I-4 project (Seg. 7) is located within the Kissimmee Ridge basin and the associated wetland impacts (total – 2.35 acres) are mitigated at Reedy Creek Mitigation Bank (SW 49). Another portion of this I-4 project is located within the Ocklawaha basin and those wetland impacts (4.0 acres) are mitigated at Lake Lowery (SW 76).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration Enhancement Preservation

Mitigation Area: **1076 ac.**

Mixed Forested (Fluccs- 630)

684 acres

Cypress (Fluccs- 621)

309 acres

Marsh Slough (Fluccs- 643)

60 acres

Hydric Flatwoods (Fluccs- 625)

19 acres

Marsh (Fluccs- 641)

4 acres

TOTAL

1076 acres

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin: Withlacoochee River Water Body: Gator Cr., Colt Cr., Sapling Drain, Bee Tree Drain SWIM water? N

Project Description

A. Overall project goal: The Hampton Tract (Total -7640 acres) was acquired by the SWFWMD in late, 1999. The site has an extensive network of ditches that have excessively drained various wetland habitats throughout the property. With the use of at least 90-100 large ditch blocks and filling approximately 5 miles of ditches, the wetlands will be hydrologically enhanced, allowing other wetland functions and values to be restored and enhanced.

Mitigation Project - Hampton Tract

B. Brief description of current condition: The site has various wetland habitats covering over 2400 acres, dominated by cypress domes & strands, mixed forested floodplains, hydric pine flatwoods, and marshes (Figure F). Approximately 1000 wetland acres are hydrologically impacted by three major drainage ditch systems (Figure E, Colt Creek Drain, Sapling Drain, Bee Tree Drain). These ditches ultimately connect to Gator Creek along the western project boundary. Upland habitats (approx. 4200 acres) are dominated by pine flatwoods with some upland hardwood hammocks generally located along the perimeter of the forested wetlands. The remaining property is dominated by improved pasture (approx. 1000 acres) primarily located within the northeast and center of the tract. The pastures are separated and interspersed by various cypress strands & domes. The property is bordered to the north & west by extensive property owned and managed by the SWFWMD (Figures A,D), and to the east & south by low-density residential areas.

C. Brief description of proposed work: The Hampton Tract has been included in a Gator Creek Watershed Study (conducted by Polk Co. and the SWFWMD) to evaluate and determine design features necessary to restore the hydrology of the Hampton Tract without impacting adjacent landowners. The majority of wetland hydrologic restoration will be conducted by constructing ditch blocks (90-100, approximate locations on Figure F), that will redirect and detain surface and ground water in the wetlands. There are two miles of a large perimeter ditch located along the northeast property boundary, the adjacent spoil material has minimal tree cover and will be back filled into the ditch (Figure F). There is also a 2.5-mile ditch (Sapling Drain, Figure F - Central) that diverts all the historic water sheet flow away from a remnant marsh & cypress slough. That ditch will also be back filled to restore sheet flow through the slough. Monitor locations (23) have been designated with the installation of shallow monitor wells. These wells will be monitored on a semi-annual basis and surrounding wetland habitat conditions will be noted for a period of at least three years post-construction.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority (approximately 70%) of the proposed I-4 wetland impacts will be to forested wetland habitat. The Hampton Tract will have at least 993-acres of forested wetland hydrologic enhancement (cypress & mixed forested) plus the enhancement of marsh habitat (64 acres) and hydric pine flatwoods (19 acres). The cumulative mitigation area (1076 acres) and impact acreage (22.83 acres) result in an overall mitigation ratio of 47-to-1. The mitigation acreage and habitat associated with each section at Hampton is described in Attachment D. Even though the hydrologic restoration plan will benefit all the wetlands and uplands within and adjacent to the 7600-acre tract, wetlands without direct hydrologic enhancement (over 1400 acres) are not accounted for in the mitigation credit (reference green delineated wetlands on infrared aerials). The substantial wetland enhancement on a large-scale site will adequately and appropriately mitigate for these Interstate-4 wetland impacts within the Withlacoochee Basin. No other DOT projects are proposed for mitigation through the enhancement activities at the Hampton Tract.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: There are no established or proposed mitigation banks within the Withlacoochee River Basin at this time.

Mitigation Project - Hampton Tract

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : The only SWIM project within the Withlacoochee River Basin is the restoration of Lake Panasoffkee (SW 57). The lake is being restored through the re-establishment of the appropriate aquatic habitat, and is being proposed to mitigate for wetland impacts associated with the I-75 bridge widening over the southern portion of the lake.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: WMD Operations Department

Contact Name: Philip Rhinesmith, WMD Environmental Scientist

Phone Number: (352) 796-7211 ext. 4266

Entity responsible for monitoring and maintenance: The WMD will be responsible for monitoring and maintenance.

Proposed timeframe for implementation: Commence: Fall, 2000 Complete: Spring, 2005 (Construction)

Install Monitor Wells – Spring, 2001

Watershed Study – Complete, 2003

Design & Permitting – 2004 - 2005

Construction – 2006 -2007

Minimum 3 Years Maintenance & Monitoring

Project Cost: \$1,400,000 (total):

Watershed Study \$50,000

Design \$80,000

Construction \$1,230,000

Maintenance & Monitor \$40,000

Attachments

- X 1. Detailed description of existing site and proposed work. [Attachment A -Existing Site & Proposed Work.](#)
- X 2. Recent aerial photograph with date and scale. [Attached infra-red aerials \(1995\).](#)
- X 3. Location map and design drawings of existing and proposed conditions. [Figure A - Watershed Map, Figure B - Location Map. One set of infrared aerials \(Fig. E\) depict the major ditches \(yellow\) and natural wetland water flow patterns \(blue\). Another set of infrared aerials \(Fig. F\) and depict wetlands proposed for enhancement \(blue\) and minimal enhancement \(green\). The wetlands designated in green are not accounted for as mitigation credit. Additional design drawings will be prepared as part of the Gator Creek Watershed Study.](#)
- X 4. Detailed schedule for work implementation, including any and all phases. [The work schedule for proposed activities are presented under Project Implementation.](#)
- X 5. Proposed success criteria and associated monitoring plan. [Refer to Attachment B.](#)
- X 6. Long term maintenance plan. [Refer to Attachment B - Maintenance & Monitoring Plan, Success Criteria.](#)
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). [Attachment C.](#)

ATTACHMENT A - Existing Site & Proposed Work

The site is located within the Green Swamp (Area of Critical State Concern), and has over 60% of the adjacent property also under ownership of the SWFWMD (referred to as "Green Swamp East"). The site's habitat and land-use is dominated by approximately 2400 wetland acres (predominantly mixed forested and cypress systems), 4200 acres of pine flatwood & upland hardwood hammocks, and 1000 acres of improved pasture.

The site's natural drainage pattern meanders from east to west. During the late 1940's and early 1950's, the construction of large drainage ditches (Colt Creek Drain, Sapling Drain, Bee Tree Drain) and smaller connecting ditches resulted in a more direct drainage of surface and ground water west to connect with Gator Creek along the project's western boundary. In turn, Gator Creek has been ditched and connects to the Withlacoochee River approximately 4 miles northwest of the site (Figure B). However, the northern boundary of the Hampton Tract is adjacent to the forested floodplain associated with the Withlacoochee River. These ditched drainage systems

Mitigation Project - Hampton Tract

have directly impacted the hydroperiods and vegetative composition of a large percentage of the site's wetlands, particularly with the transition of obligate to more facultative species within the wetland, and allowing undesirable upland species to encroach along the wetland perimeters. The major ditches are designated with yellow lines and the natural surface water drainage patterns are marked with curved blue lines on the infrared aerial (Fig. E).

A combination of predominantly large ditch block construction (90-100), breach cuts within spoil ridges located within wetlands, and some total ditch backfilling (approx. 5 miles) will be conducted to hydrologically enhance the ditched wetlands, allowing the regeneration of more obligate species that have gradually decreased from the wetlands. This construction will also attenuate the surficial and groundwater hydrology for the entire tract. The constructed ditch blocks will include spoil material from the adjacent ditches, with a top top-of-block length of 50 to 100 feet, and gradual sideslopes (minimum 10:1) to the bottom ditch grades. Since the majority of the ditches on the site are 3-4 feet deep, these ditchblocks will extend 110 to 180 feet in total length. The ditchblocks will be stabilized with vegetative cover (predominantly maidencane) and, where necessary, stabilized on the downstream slope with structural support (liners with rip-rap rubble). These ditchblocks will also provide easier access for wildlife into the wetlands during wet season conditions. The following information describes the wetland enhancement aspects associated with each major drainage system.

Colt Creek Drain

The Colt Creek Drain includes a combination of isolated, partially connected, and forested wetland tributaries within the northern portion of the property. The highest concentration of isolated and partially connected wetlands for the entire Hampton Tract is associated with cypress systems within the northeast pastures. Historically, these wetlands were hydrologically connected with surface water that sheet flowed through minor drainageways and pine flatwoods during the wet season. The high concentration of perimeter ditches around the wetlands have connected and substantially altered those drainage patterns and the wetlands' hydroperiods. West of the pastures, the wetlands are more contiguous and less historically isolated, particularly for the unnamed tributary located south of the southeast-northwest access road leading to the rock mine (Figure F).

In order to restore the drainage patterns within each of these wetlands, the highest percentage of ditch blocks are proposed for the wetlands associated with the Colt Creek Drain. The ditch blocks will be strategically placed at certain locations within the perimeter ditches to divert contributing water across low elevation breach points into the adjacent wetlands. This is particularly more important for the elongated wetland strands than the cypress domes. In all cases, ditch blocks will be constructed within the ditch locations where the wetland surface and ground water outfalls through the ditch toward the next downstream wetland system. This is generally at the location where the ditch crosses the wetland/upland boundary. This will not only detain water within the wetland throughout the rainy season to restore hydroperiods, but contribute groundwater hydration of wetlands during the dry season. This is important since during recent drought periods, surface water was not only absent in the wetlands but also in the ditches. Soil borings at the 23 monitor locations during the spring, 2001 indicated groundwater was greater than 6 ft. below surface grade elevations within each of the wetlands. Extended dry season ground and surface water conditions not only stress vegetative conditions, but the surface water sources for all types of wildlife use, not just wetland dependent species. Even though the wetlands have natural cycles of below grade water elevations, the opportunity to maintain some surface water within the ditches without resulting in groundwater drawdown will allow an important water resource to be available for wildlife use during extended droughts.

As noted on Figure F (East aerial photo), there is a 2-mile long ditch along the northeastern property boundary proposed for backfill. As noted in the photos, this ditch and adjacent road berm are large and block historic surface water flow to the on-site wetlands from adjacent property. Unlike some of the smaller ditches associated with Colt Creek, wildlife accessibility of the wetlands and crossing from the adjacent property is difficult, particularly during the rainy season conditions when the perimeter ditch water storage is very deep. With construction equipment access to this ditch and associated spoil material, backfilling this ditch will not only enhance the hydrology of the wetlands but allow more wildlife movement through and around the wetlands and

Mitigation Project - Hampton Tract

adjacent property, which includes other WMD property north of the Hampton Tract. The backfilled ditch will have native seed source material transferred to re-establish an appropriate wetland buffer habitat of facultative sedges, rushes, etc.

The WMD has converted the land use of the northeast upland pastures to silviculture. However, pines were planted at least 50 feet from the wetlands and this buffer is allowed to naturally generate foraging sedges and rushes to replace the bahia. With the introduction of pines to replace open pasture, additional vegetative cover will encourage more wildlife to cross from the native habitat areas west and north of these sections. In addition, the meandering alignment of the wetland strands allow corridor connections to other native habitat.

As noted, there is an unnamed tributary to the Colt Creek Drain south of the main access road to the former limerock mine in the northwest corner of the property. This tributary commences near Rock Ridge Road at the entrance gate (Section 36), and extensively meanders west through Sections 35 and 27. Due to the meandering and contributing water flow from adjacent wetlands, the ditch was constructed from the area of monitor site 14 and extends northwest to a wetland near the rock mine. This ditch was dredged through uplands and wetlands (e.g. Wetlands 31, 164, 195, Figure F - Central) to adequately circumvent the meandering flow into a relative direct alignment off the property. The ditch blocks are proposed at the locations where the ditch crosses wetland/upland boundaries to restore the water flow into the meandering systems. Along with the ditch blocks, adequate breach points in the spoil ridges adjacent to the wetland ditch segments will be constructed only where necessary by pushing spoil segments back into the ditch. In order to minimize impacts to trees throughout the property, every effort will be made to utilize only spoil material without tree cover for both ditch blocks, backfilling ditch segments, and creation of breach points. Graded spoil material will commence at the dripline of any adjacent trees in order to not impact roots or result in disruption of spoil material.

Sapling Drain

Sampling Drain is a large, straight, east-west ditch that conveys substantial volumes of water from a large contributing watershed. The majority of the existing central pasture north and south of the drain was historically a wet prairie slough. Remnant portions of the slough (Wetland 194, 220, Figure F - Central) will be substantially enhanced from a restored sheet flow pattern. The current vegetative cover is predominantly bahia, fennel, and pine trees with a few pockets of dewatered cypress domes (refer to photo). This remnant slough was the heart of the historic wet prairie and this enhancement effort will restore an east-west wetland & wildlife corridor across the property to Gator Creek. This will attenuate and sheet flow surface water to replace the straight ditch. Some minimal coverage of desirable hydrophytic vegetation is currently present within the cypress portions of the slough, however supplemental plantings (predominantly soft rush, maidencane, and pickerelweed) will be conducted in those areas where natural regeneration does not provide at least 80% cover of hydrophytic vegetation.

However, it's noted that much of the pasture northeast of Wetland 194 have average grade elevations less than 6 inches above that of the remnant slough. It has been decided to not plant pines in this pasture, nor detain surface water flow when it does extend beyond the slough. These pastures have been periodically mowed which minimize regeneration of fennel, and allows soft rush to generate in the collector swales. The cattle have been removed and the restored hydrology associated with filling Sapling Drain is expected to result in regeneration and recruitment of soft rush and other hydrophytic vegetation in the pasture. Documentation of these conditions will be noted throughout the restoration and monitoring effort and even though not accounted for in the mitigation credits, this natural regeneration of substantial wet prairie acreage is expected to become an additional ecological benefit of the restoration effort.

Bee Tree Drain

Bee Tree Drain was dredged across a meandering mixed forested wetland and the adjacent upland habitat. Like the previously discussed unnamed tributary of the Colt Creek Drain, restoring the wetland flow patterns will be conducted by constructing ditch blocks at the wetland/upland boundary. Portions of spoil material along the ditch

Mitigation Project - Hampton Tract

segments within the wetlands will also be backfilled to create appropriate breach points necessary to restore historic flow patterns. One of the most drastic water diversions is the drain outfalling from Wetland #224 near monitor location #22 (Figure F – Central). This diversion takes the majority of the natural water flow that historically flowed north and directly west into a borrow pit within the Gator Creek floodplain.

Gator Creek

Gator Creek is a major north-south drainage feature in the Green Swamp. Historically, this floodplain had minimal definition of a creek channel, more dependent on water sheet flow like the other wetland strands on the property. With the demand to increase drainage to the Withlacoochee River, a large ditch was dredged through the floodplain. As seen on the aerials, the portion of the Gator Creek ditch that crosses the Hampton Tract was dredged along the western edge of the floodplain, as opposed through the floodplain core which has slightly lower grade elevations. Even though the floodplain still maintains high quality habitat, the transition toward more facultative species such as laurel oak has replaced the dominance of the obligate tree species, even within the wetland core.

With the increased residential development activities in the Green Swamp during the last 20 years, filling the Gator Creek ditch to restore sheet flow patterns is unfortunately not feasible. A Gator Creek watershed study is being conducted for the WMD and Polk County to evaluate and determine future maintenance and management activities. Due to potential flooding impacts to residential development south and east of the Hampton Tract, there are limited opportunities to divert water flow from the large ditch into the Gator Creek floodplain. However, some breaches within the spoil material adjacent to the ditch will be constructed to match natural grade. This will allow some water attenuation within the adjacent floodplain when the ditch water flow does periodically overflow the banks.

In addition, filling the short ditch segments of the connecting Sapling Drain and Bee Tree Drain portions within the Gator Creek floodplain will provide some wetland enhancement opportunities. This will allow more attenuation of contributing groundwater and sheet flow throughout the floodplain that is currently direct channel flow from the east. Since laurel oaks presently cover the spoil ridges, unfortunately this backfilling operation will result in loss of the majority of those trees. Care will be given to minimize impacts to the larger trees on the spoil, but with the contributing seed source, oaks will recruit and supplemental plantings of maples and cypress (1 gallon containerized, 10 ft. centers) will also be conducted to quickly regenerate the forested component for the displaced trees on the spoil. As noted, the combination of the breach cuts within the Gator Creek spoil and filling the connector ditches to attenuate more contributing hydrology to this floodplain will be an ecological benefit. However, it's difficult to quantify the degree and limits of this enhancement relative to the Gator Creek ditch that has to be maintained open instead of backfilled. As a result, upon additional evaluation determination, the restoration effort does not designate mitigation credit for the approximately 270 acres of the Gator Creek forested wetland floodplain that crosses through the Hampton Tract.

ATTACHMENT B - Maintenance & Monitoring Plan, Success Criteria.

Maintenance & monitoring activities are anticipated for a minimum three years and until success criteria is met. Maintenance activities will be predominantly associated with evaluating and ensuring the structural integrity and suitability of the ditch blocks. At any time should any ditch blocks or associated wetland enhancement areas are not performing as proposed, corrective action will be taken which will include additional block support, backfilling extra ditch segments, and/or constructing additional breaches within spoil ridges through the wetlands. These inspections will be conducted on a monthly schedule throughout the first rainy season post-construction, and quarterly for at least two more years. Additional maintenance will be perpetually conducted as part of a long-term management plan for the Hampton Tract. One of the primary components of the management plan includes prescribed burns. Such burns can periodically encroach too far into drained forested wetlands, which has resulted in vegetative impacts and loss of organic topsoil. With the restored hydrology of those drained wetlands on-site, the prescribed burns will only encroach along the transitional perimeters of the forested wetlands. These

Mitigation Project - Hampton Tract

transitional areas often become too dense with vegetative species such as wax myrtle and smilax, limiting some wildlife movement. So periodic burns to include the upland buffers and wetland transition will allow for more wildlife use of all habitat areas.

The 23 monitoring stations will be monitored for water levels, flow patterns, vegetative components, and wildlife activities on a semi-annual basis pre- and post- construction, which will be for a minimum three years post-construction. This will provide at least two years of pre-construction hydrologic monitoring to compare with post-construction monitoring to ensure the surface water hydrology has been restored and document any potential problems. Additional documentation will be conducted of habitat conditions within the Gator Creek floodplain (including the trees planted within the filled floodplain ditches), any supplemental plantings within the Sapling Drain restored slough, and the natural regeneration of wet prairie conditions within pastures north of the Sapling Drain (not accounted for in the mitigation credit).

Success criteria will include documentation of restored hydrologic and hydraulic flow regimes of those wetlands proposed for enhancement. It also includes documentation of ditch block stabilization, vegetative cover of totally filled ditches and, where necessary, rip-rap material. Shifts in vegetative cover and diversity will be noted in the monitoring reports, but no proposed specific criteria for species shifts since the majority of the major transitions will take place over 10-20 years. Planted trees in the Gator Creek floodplain will require 90% survivorship, and 30% canopy closure of planted and recruited trees in the displaced area.

A long-term maintenance & management plan will be prepared as an extension of the adjacent Green Swamp East & West Tracts, also referred to as the Green Swamp Wilderness Preserve. Specific issues such as prescribed burn parcels, fencing, silviculture operations, and wildlife management will be prepared by the Land Management Specialist who manages the Hampton Tract. For an example of the type of general management plans and procedures for the area, a copy of the "*Plan for Use & Management of the Green Swamp Wilderness Preserve*, SWFWMD, January, 1994" is available for review. Most of these same principles will be applied for the long-term management of the Hampton Tract.

ATTACHMENT C - DOT Mitigation

The wetland impacts associated with the two Interstate-4 projects were designated different areas of enhancement at the Hampton Tract. In order to evaluate which wetlands would and would not be documented for enhancement, all the site's wetlands were mapped, evaluated, and are depicted on Figure F. Those wetlands that are delineated with green boundaries are anticipated to have minimal habitat improvements and are not designated for mitigation credit. Those wetlands designated with blue boundaries will have hydrologic improvements and are accounted for mitigation credit. For those contiguous wetlands that cross into more than one section, the first section where the individual wetland is first designated has the total wetland acreage documented, as opposed to dividing the individual wetland's acreage based on each section. The following table designates the wetland enhancement acreage associated with the proposed activities at the Hampton Tract.

Sect. & Total Mitig. Acres	#630 –Enhanced Mix Wet. Forest	#621–Enhanced Cypress	#641 – Enhanced Marsh	#643 – Enhanced Marsh Slough	#625– Enhanced Hydric Flatwoods
22 - 235.9	73.8	162.1			
23 - 88.6	74.7	13.2	0.7		
26 - 57.7	52.7	5.0			
25 - 24.5		24.5			
36 - 103.8	78.8	25.0			
27 - 43.1	10.6	32.5			
34 - 139.8	76.8	13.2	1.4	48.4	

Mitigation Project - Hampton Tract

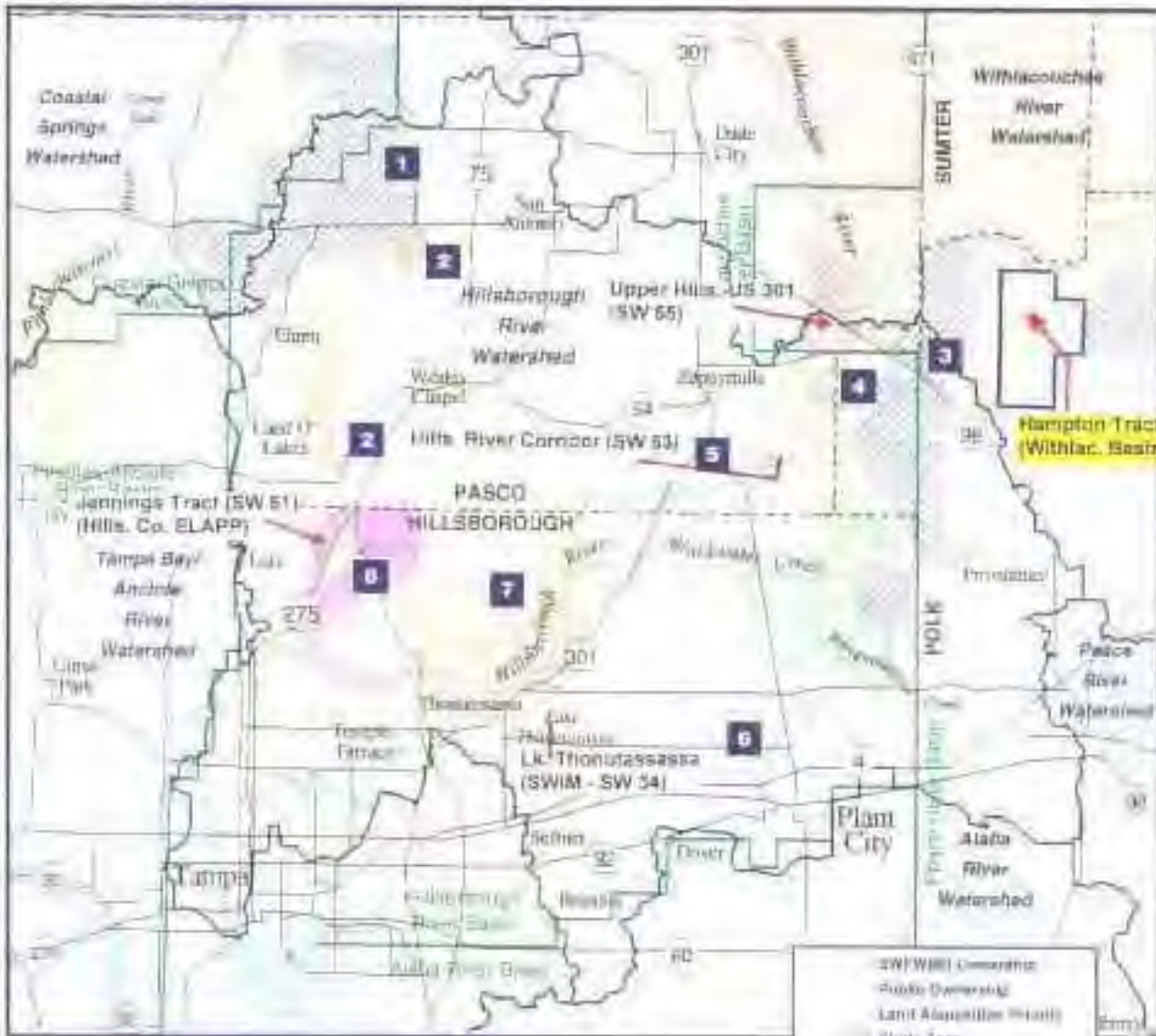
Sect. & Total Mitig. Acres	#630 –Enhanced Mix Wet. Forest	#621–Enhanced Cypress	#641 – Enhanced Marsh	#643 – Enhanced Marsh Slough	#625– Enhanced Hydric Flatwoods
35 - 154.7	153.1	1.6			
2 - 61.1	24.0	4.6	1.5	11.8	19.2
3 - 152.1	139.0	13.1			
11 - 14.6		14.6			
1076 Acres	683.5 Ac.	309.4 Ac.	3.6 Ac.	60.2 Ac.	19.2 Ac.

In order to provide appropriate habitat mitigation to offset the proposed impacts, the following breakdown of impacts to mitigation are provided based on the various sections at the Hampton Tract. With these projects currently going through the permitting phase, the impact acreage will be adjusted and final acreages placed within the 2003 DOT plan. Of the two Interstate 4 projects with wetland impacts being mitigated at the Hampton Tract, the eastern portion (Segments 6-9) currently proposes all non-forested wetland impacts. Since Section 34 at the Hampton Tract has the majority of non-forested wetland enhancement, these are designated as mitigation for the wetland impacts associated with the eastern segment.

<p>FM 2012092 – Interstate 4, US 98 to CR 557 Wetland Impacts, (Western Project – Segments 3-5) 1.19 acres – Streams & Waterway (510) 0.02 acre – Bay Swamp (611) 0.12 acre – Mixed Hardwood Forest (617) 2.75 acres – Willow & Elderberry (618) 3.90 acres – Cypress (621) 8.63 acres – Mixed Wetland Forest (630) 0.98 acres – Freshwater Marsh (640 & 641) 1.63 acres – Wet Prairie (643) 18.95 Acres – TOTAL</p>	<p>Mitigation – Sect. 22, 23, 26, 25, 36, 27, 35, 2, 3, 11 (all but Section 34)</p> <p>Mixed Forested Enhancement – 606.7 acres Cypress Enhancement – 296.2 acres Marsh Enhancement – 2.2 acres Marsh Slough – 11.8 Hydric Flatwoods – 19.2 acres TOTAL – 936.1 acres (ratio 49-to-1)</p>
<p>FM 2012141 – Interstate 4, CR 557 to Osceola Co. Wetland Impacts, (Eastern Project – Segments 6-9) 0.03 acre – Mixed Wetland Forest (630) 3.73 acres – Freshwater Marsh (640 & 641) 0.12 acre – Wet Prairie (643) 3.88 Acres – TOTAL</p>	<p>Mitigation – Section 34</p> <p>Mixed Forested Enhancement – 76.8 acres Cypress Enhancement – 13.2 acres Marsh Enhancement – 1.4 acres Marsh Slough Enhancement – 48.4 acres TOTAL – 139.8 acres (ratio 36-to-1)</p>

There will be temporary impacts associated with backfilling ditches and installing ditch blocks within upland and wetland-cut ditches. For any wetland-cut ditch impacts, mitigation for these impacts will be conducted by restoring the natural wetland grades within the ditches as well as the portions of backfilled spoil material disposed within the wetlands.


The combination of the wetland enhancement, along with the proposed upland habitat enhancement and management activities (not conducted for mitigation credit) will restore the major historic habitat features of the Hampton Tract. This will allow the wildlife species within the adjacent Green Swamp public property to gradually return and provide cumulative habitat and wildlife value and function to this large and important site within a Green Swamp tract that is designated as an “Area of Critical State Concern” (Figure D).



Hampton Tract (SW 59)
 (Withlac. Basin)

- 1 Pasco 1
- 2 Cypress Creek
- 3 Green Swamp
- 4 Upper Hillsborough
- 5 Hillsborough River Corridor
- 6 Cork Prairie
- 7 Lower Hillsborough
- 8 Lower Cypress Creek

- SW/WRM Ownership
- Roads Ownership
- Land Acquisition Priority
- Sludge Area
- Leak-Check Fee
- County Boundary
- State Boundary
- Waterline Boundary



10/01

**FDOT - District 1
 MITIGATION SITE
 (WITHLACOOCHEE BASIN)**

HAMPTON TRACT (SW 59)

**FIGURE A
 WATERSHED BASIN MAP**



FDOT - District 1
MITIGATION SITE
(WITHLACOOCHEE BASIN)

HAMPTON TRACT (SW 59)

FIGURE B
LOCATION MAP

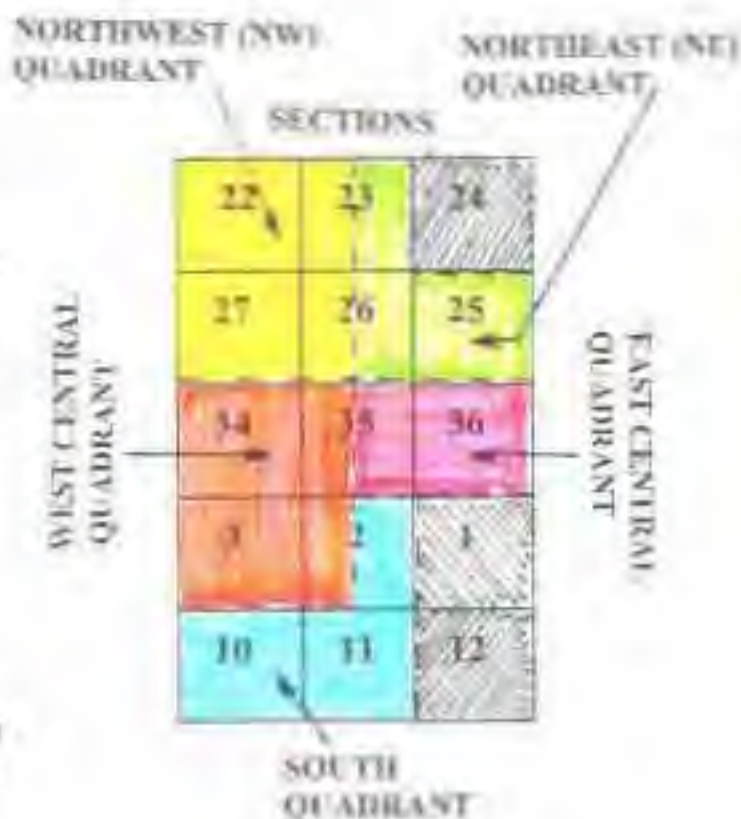
**HAMPTON TRACT
SOIL LEGEND**

- 5 - Eau Gallie fine sand
- 6* - Eaton mucky fine sand, dep.
- 7 - Pomona fine sand
- 9 - Lynne sand
- 10* - Malabar fine sand
- 13* - Samsula muck
- 17 - Smyrna and Myakka fine sands
- 18* - Floridana mucky fine sand, dep.
- 23 - Ona fine sand
- 25* - Placid and Myakka fine sands, dep.
- 32* - Kaliga muck
- 33* - Holopaw fine sand, depressional
- 35* - Hontoon muck
- 36* - Basinger mucky fine sand, dep.
- 40 - Wauchula fine sand
- 42 - Felda fine sand
- 48* - Chobee fine sand, depressional
- 58 - Udorthents, excavated
- 62 - Wabasso fine sand
- 67 - Bradenton fine sand
- 75* - Valkaria sand
- 78 - Paialely fine sand, stony subsurface
- 82* - Felda fine sand, frequently flooded
- 86* - Felda fine sand, depressional
- 87* - Basinger fine sand

* Hydric Soils

NORTH *

Scale - 3.75 inches = 1 mile



POLK SOIL SURVEY AERIAL DATE - 1974

FDOT - District 1
MITIGATION SITE
(WITHLACOOCHEE BASIN)

HAMPTON TRACT (SW 59)

FIGURE C
POLK CO. SOIL SURVEY
(LEGEND & QUADRANT MAP)



NORTH = SCALE 3.25 in. = 1 mile

FDOT - District 1
MITIGATION SITE
(WITHLACOCHEE BASIN)

HAMPTON TRACT (SW 59)

FIGURE C
POLK CO. SOIL SURVEY
(NW QUADRANT)



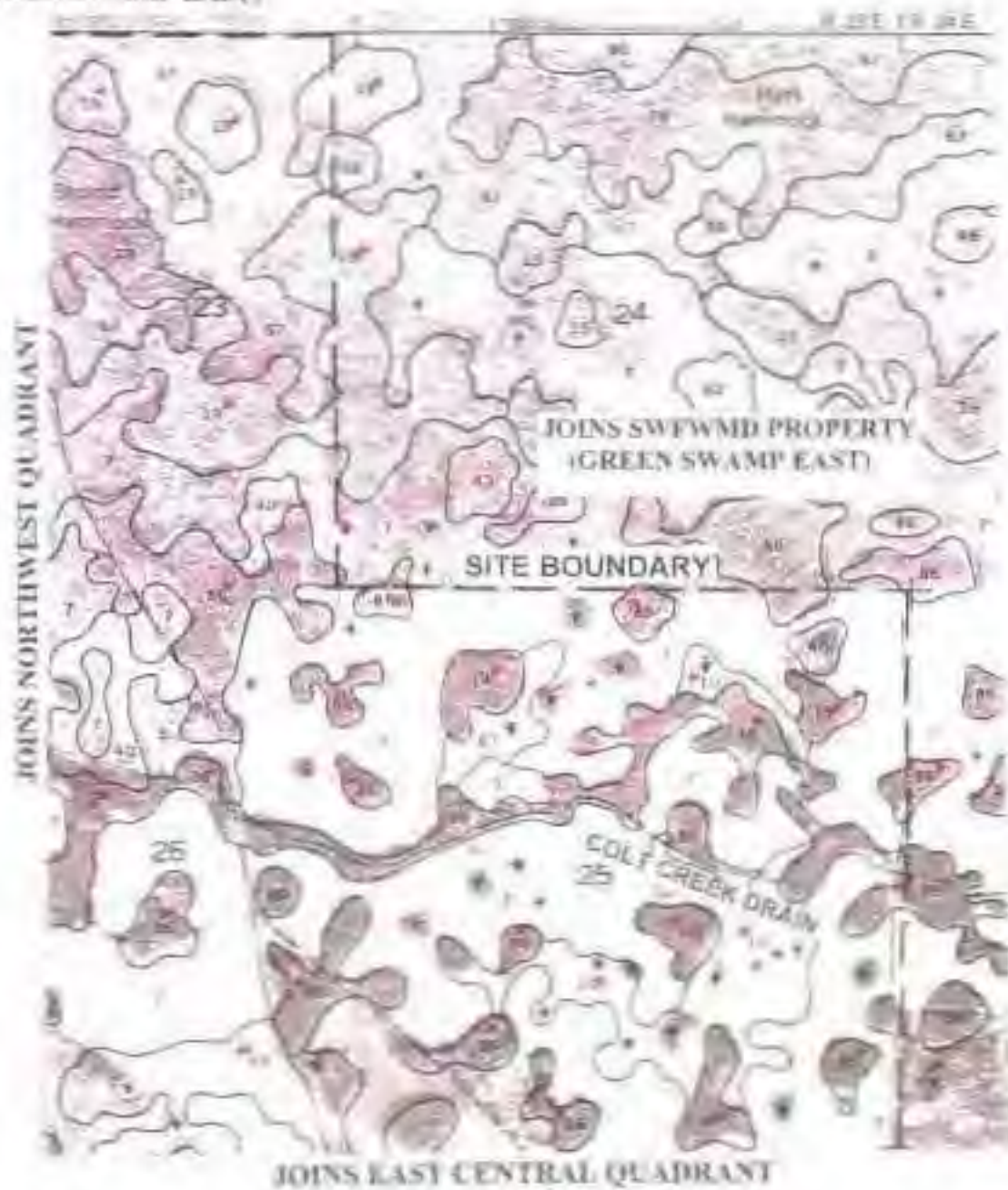
NORTH \uparrow SCALE 3.25 in. = 1 mile

FDOT - District 1
MITIGATION SITE
(WITHLACOOCHEE BASIN)

HAMPTON TRACT (SW 59)

FIGURE C
POLK CO. SOIL SURVEY
(EAST CENTRAL QUADRANT)

JOINS SWFWMD PROPERTY
(GREEN SWAMP EAST)



NORTH  SCALE 3.25 in. = 1 mile

FDOT - District 1
MITIGATION SITE
(WITHLACOOCHEE BASIN)

HAMPTON TRACT (SW 59)

FIGURE C
POLK CO. SOIL SURVEY
(NE QUADRANT)

JOINS EAST CENTRAL QUADRANT



JOINS SWFWMD PROPERTY
(GREEN SWAMP EAST)

JOINS WEST CENTRAL QUADRANT



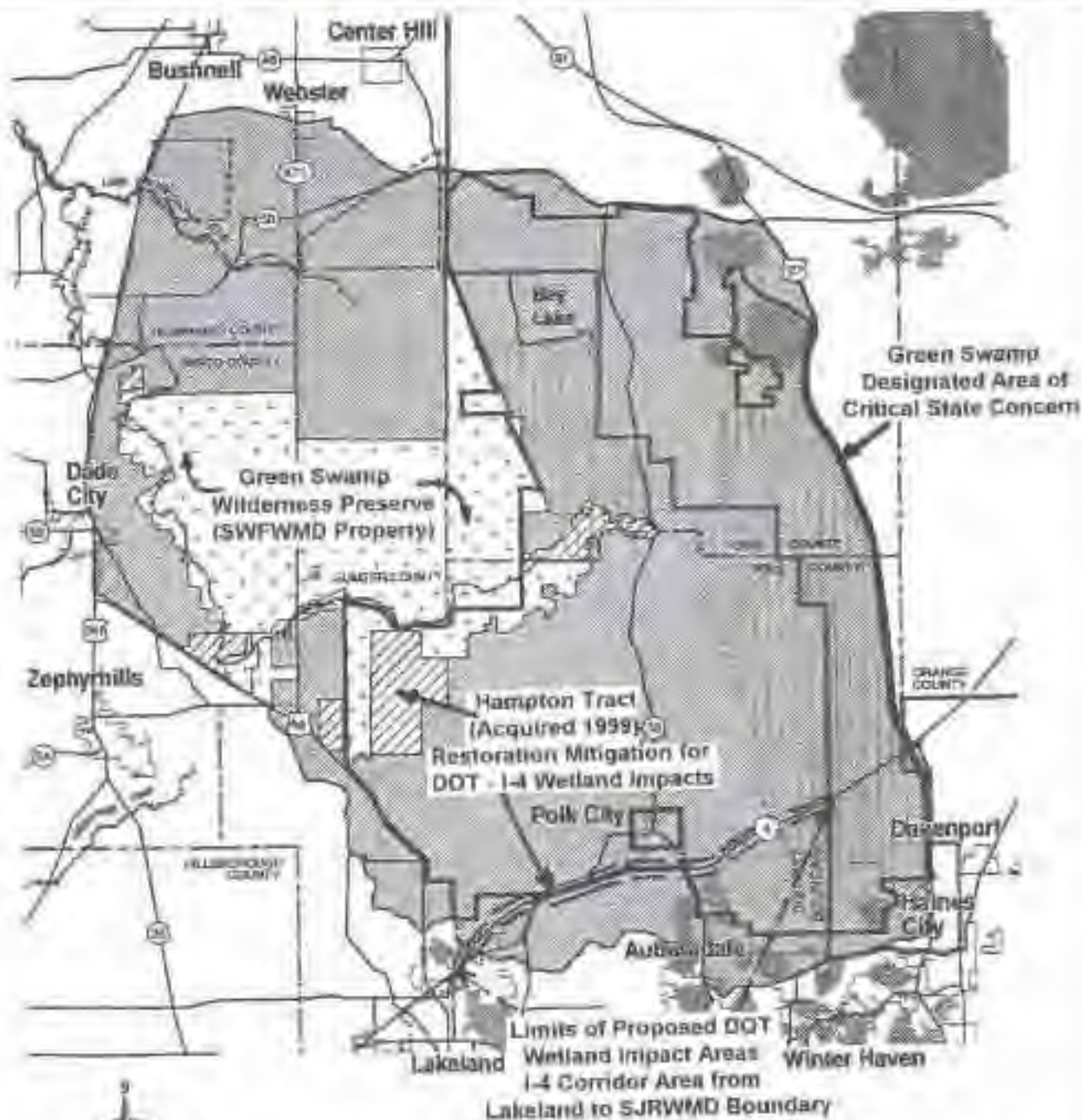
ROCK RIDGE RD.

NORTH - SCALE 3.25 (in. = 1 mile)

FDOT - District 1
MITIGATION SITE
(WITHLACOOCHEE BASIN)

HAMPTON TRACT (SW 59)

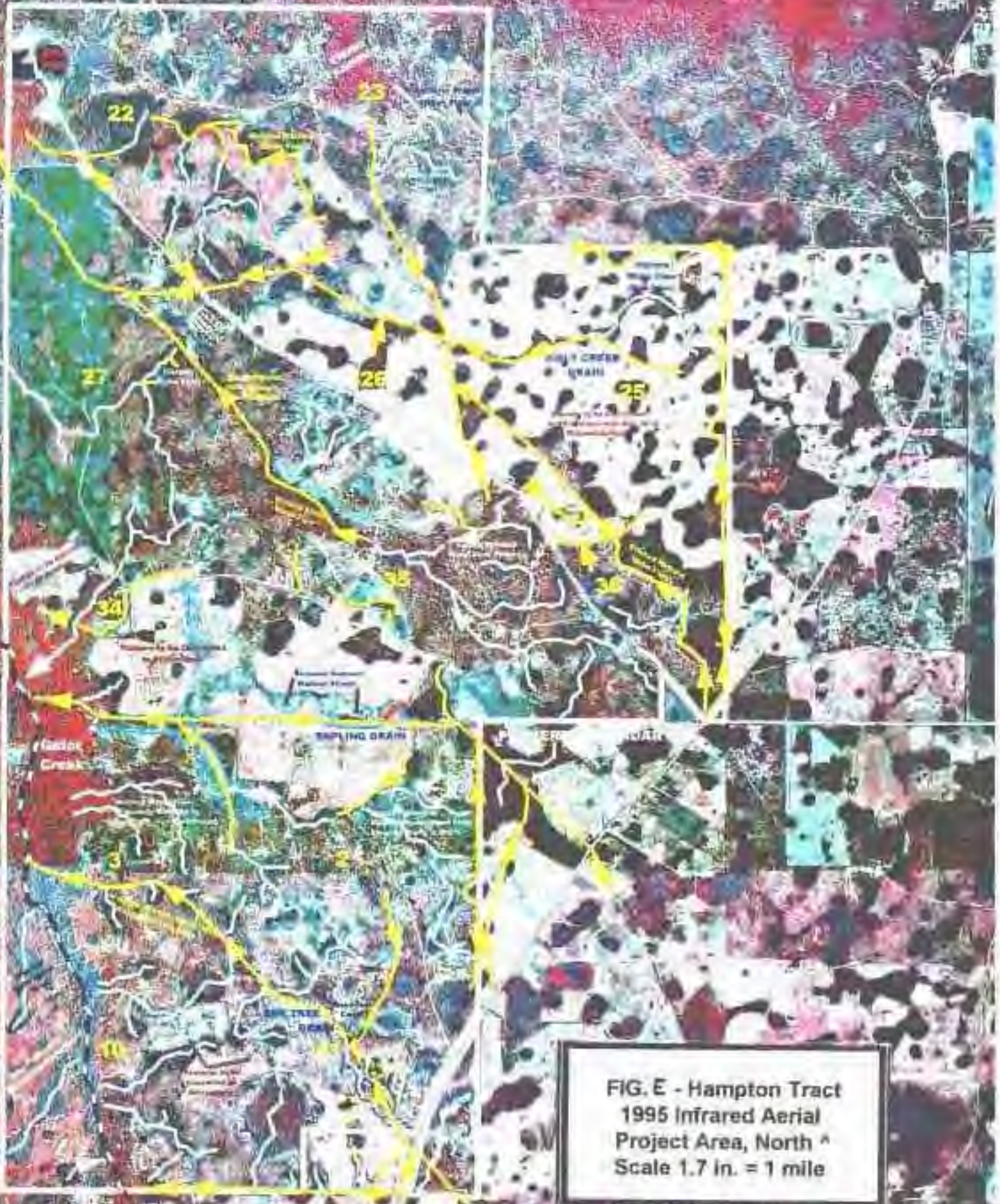
FIGURE C
POLK CO. SOIL SURVEY
(SOUTH QUADRANT)



**FDOT - District 1
MITIGATION SITE
(Withlacoochee Basin)**

**HAMPTON TRACT
(SW 59)**

**FIGURE D
GREEN SWAMP MAP**



**FIG. E - Hampton Tract
1995 Infrared Aerial
Project Area, North ^
Scale 1.7 in. = 1 mile**

**FIG. E - Hampton-Northwest
Drainage Patterns (Blue)
Major Ditches (Yellow)
< North, Scale 4,1in. = 1 mile**

**COLT CR
DRAI**

Factory to S
in the culture
Western

23

26

22

27

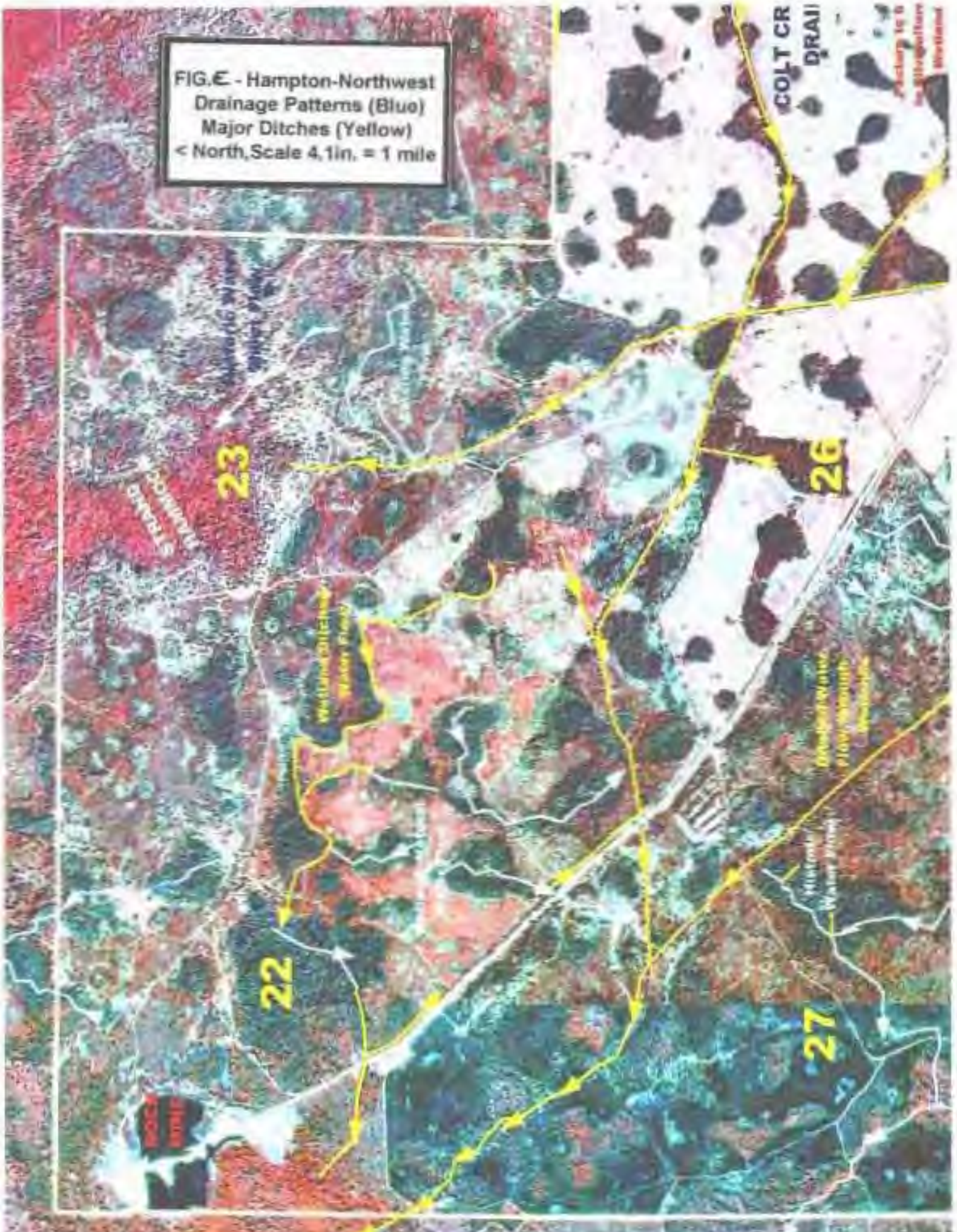
Western
Water Flow

Western
Water Flow

Western
Water Flow

COOK
TRAIL

COOK
TRAIL



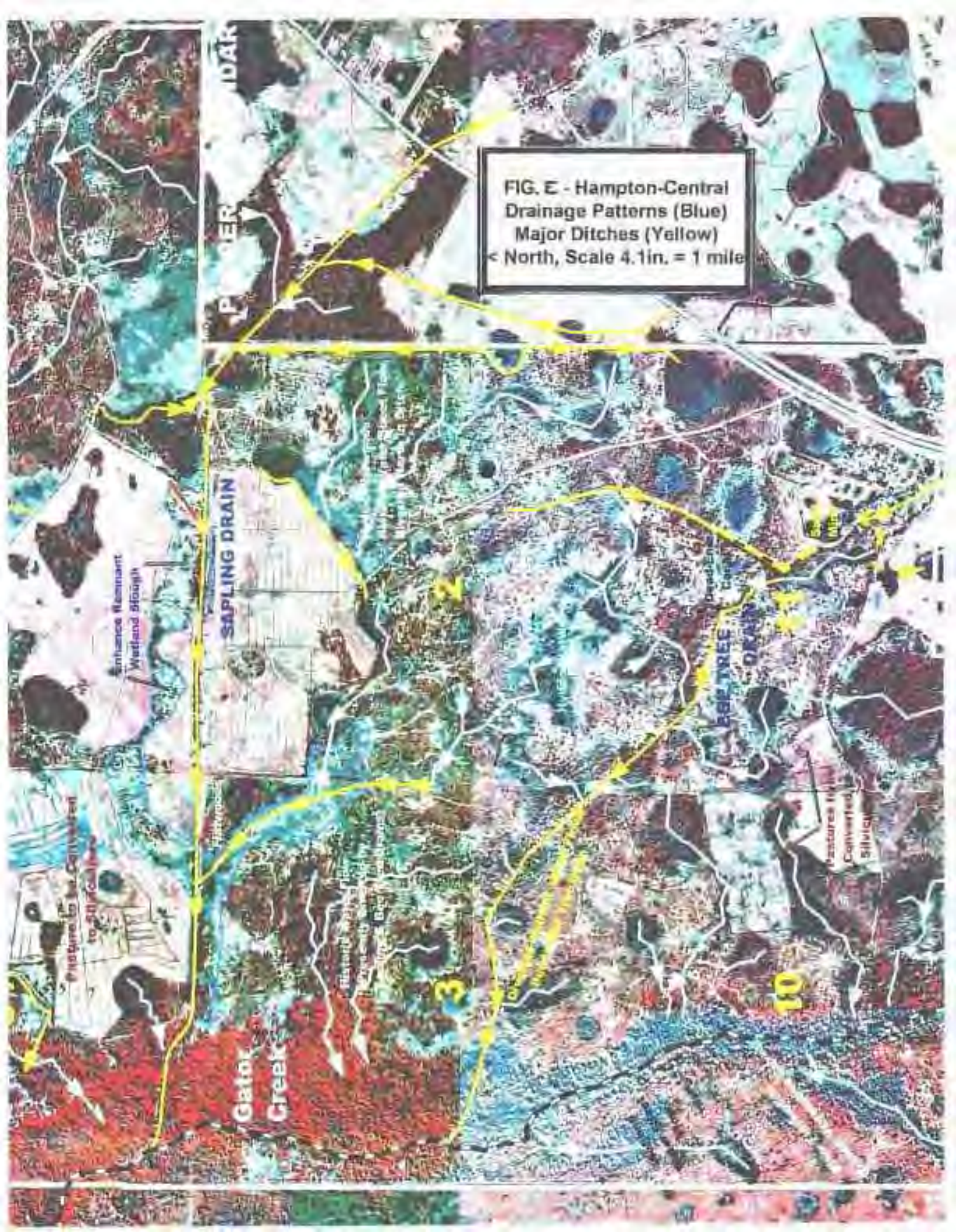


FIG. E - Hampton-Central
Drainage Patterns (Blue)
Major Ditches (Yellow)
 < North, Scale 4.1in. = 1 mile

Enhance Wetland
Wetland Buffer

SAPLING DRAIN

Spartan Creek
Spartan Drain

Pastures to be
Converted
Slightly

Gator
Creek

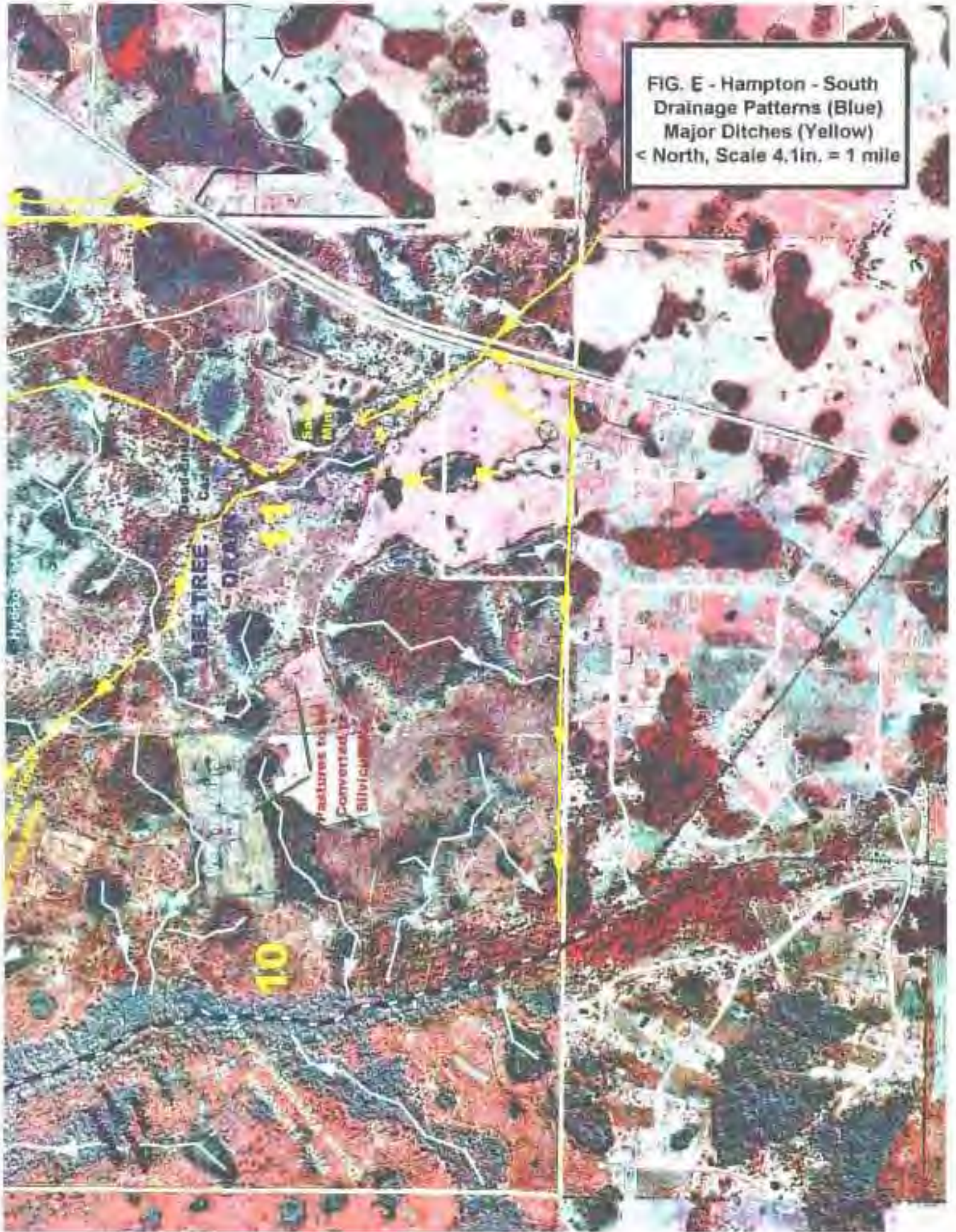
Historic 1800s Field
Point South of Site
Wetland Buffer

Priority to be
Converted
to 200 Acres

3

10

FIG. E - Hampton - South
Drainage Patterns (Blue)
Major Ditches (Yellow)
< North, Scale 4.1in. = 1 mile





Historic
Water Flow
(Blue Line)

**COLT CREEK
DRAIN**

26

25

Planned to be Connected
to Riverfront with 400, 50 ft.
Waterway Ditches

Natural Wetland
Water Flow Patterns

35

36

Large Wetland
Water Flow

Water Removal
from Wetland

SAPLING DRAIN

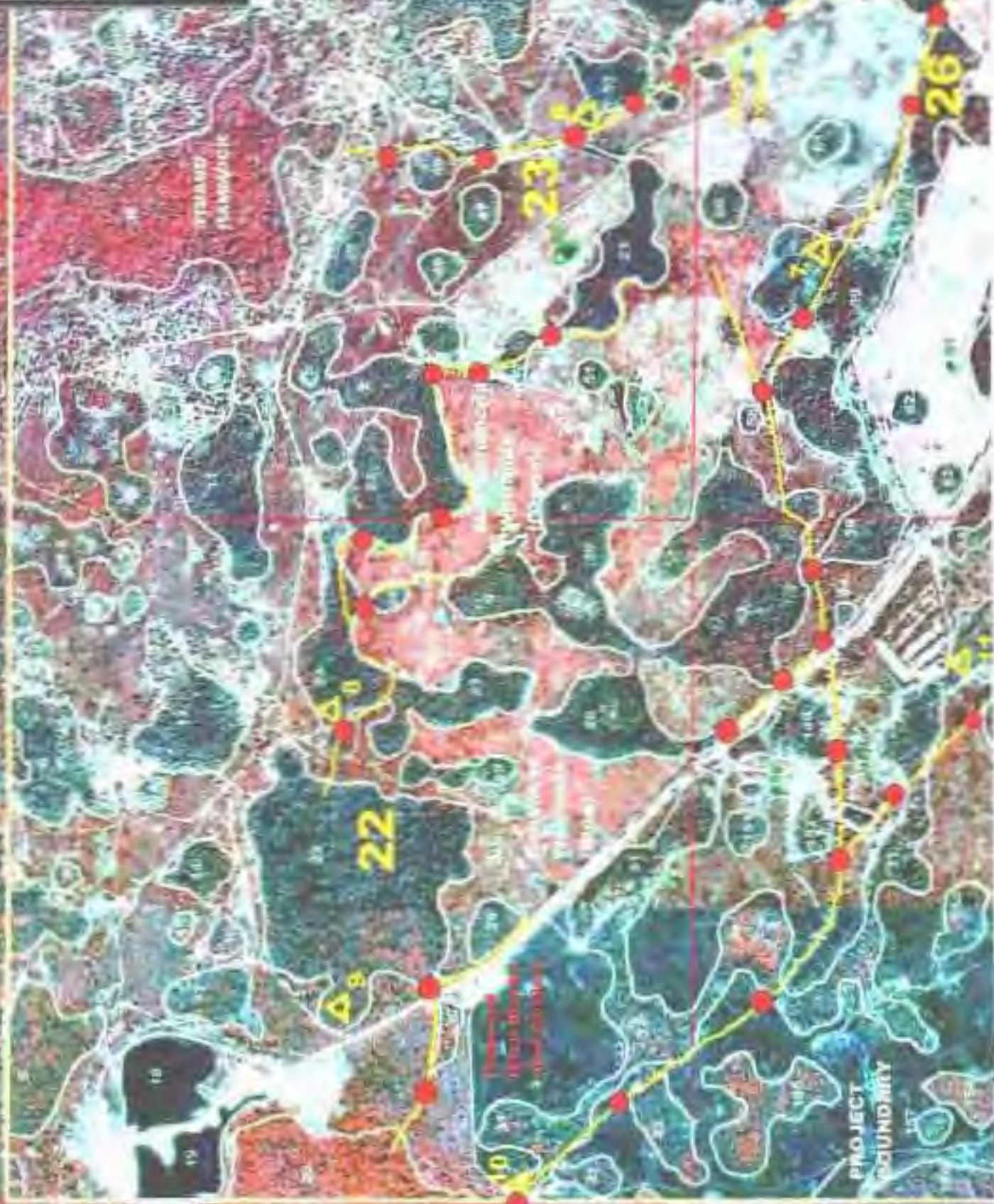
P...ER...IDAR

Water Flow
Historic to the Old Flow
Riverfront with 400 ft.

2

**FIG. E - Hampton- East
Drainage Patterns (Blue)
Major Ditches (Yellow)
Scale 3.3 in. = 1 mile, North ^**

FIG. F - Hampton- Northwest
Wetland Boundaries
Ditch Block Locations
< North, Scale 5.0 in. = 1 mile





**FIG. F - Hampton- East
Wetland Boundaries
Ditch Block Locations
Scale 4.0 in. = 1 mile, North**

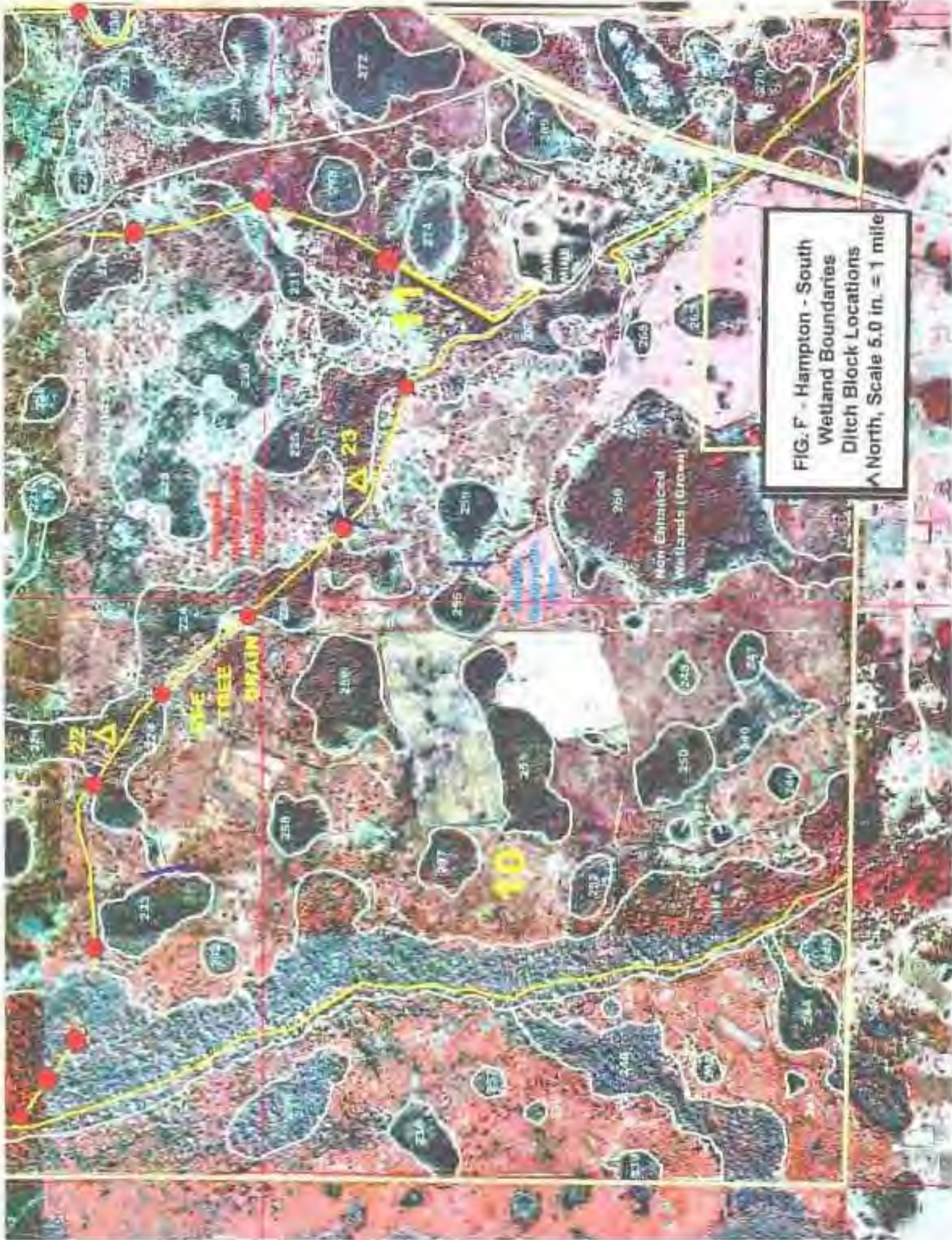


FIG. F - Hampton - South
Wetland Boundaries
Ditch Block Locations
 ▲ North, Scale 5.0 in. = 1 mile



Colt Creek Drain – This ditch is located through and in many cases, around the perimeter of the cypress systems in the northeastern pastures. Total backfilling for the pasture ditches and ditchblocks at the cypress outfalls will enhance wetland hydrology. The wetland buffers will be restored with native seed source material from a WMD donor site.



Colt Creek Drain – Monitor Site 3 is representative of many of the cypress systems with diverted water flow. Pines & laurel oaks have invaded the cypress strands due to minimal durations of surface water, and ground cover vegetation is displaced by pine thatch.

**FDOT – District 1
MITIGATION SITE
(Withlacoochee River Basin)**

**HAMPTON TRACT
(SW 59)**



Colt Creek Drain – Monitor Station 2, another dewatered cypress dome exhibits facultative species such as laurel oak, wax myrtle, and the opportunistic grapevine invading and displacing the cypress within the interior of the system. Biological indicators exhibit little to no surface water hydrology for many years.



Bee Tree Drain – Adjacent to Monitor Site 22, the ditch drain (foreground) dewateres the adjacent forested wetland, allowing pines and laurel oaks to invade the system. The cypress lichen elevations indicate historic seasonal high water elevations but there are no indications that the water has overflowed the banks in many years. A ditch block along the downstream wetland boundary will restore the flow back through this wetland.

**FDOT – District 1
MITIGATION SITE
(Withlacoochee River Basin)**

**HAMPTON TRACT
(SW 59)**



Sapling Drain – View of base flow conditions of the ditch that diverts contributing flow direct to Gator Creek, instead of through the marsh & cypress slough north of the drain (cypress segment in far background).



Sapling Drain – View from the spoil ridge of the Sapling Drain ditch (left) as it ties into the Gator Creek ditch (background). Spoil material will be backfilled into the drain to restore the wetland floodplain hydrology, and trees will be planted to aid in restoring the earthwork areas.

**FDOT – District 1
MITIGATION SITE
(Withlacoochee River Basin)**

**HAMPTON TRACT
(SW 59)**



Sapling Drain – Monitor Station 18, the remnant marsh & cypress slough (cypress area in background) have minimal wetland characteristics. Bahia, fennel, and pines dominate. Sapling Drain will be backfilled, restoring the sheet flow hydrology through this area, along with supplemental planting of hydrophytic herbs.



Sapling Drain – Monitor Station 15, the drain is located adjacent to this cypress strand that extends from the adjacent Gator Creek floodplain. No surface water hydroperiods occur in this system, allowing the cypress to be displaced with laurel oak. Filling of Sapling Drain will restore sheet flow hydrology through this habitat.

**FDOT – District 1
MITIGATION SITE
(Withlacoochee River Basin)**

**HAMPTON TRACT
(SW 59)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Serenova Extension

Project Number: SW 60

Project Manager: Mark Brown, WMD Environmental Scientist

Phone No: (352) 796-7211, ext. 4488

County: Pasco

Location: Sec. 10, 11 T 25S, R17E

IMPACT INFORMATION

DOT FM: 2589581, Suncoast Parkway/Ridge Rd. Interchange ERP #: _____ COE #: _____

Drainage Basin(s): Upper Coastal Basin Water Body(s):None SWIM water body? N

Impact Acres/Types (FLUCFCS): FM 2589581- 0.15 ac. - 530

8.19 ac. - 621

3.48 ac. - 641

TOTAL 11.82 ac.

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration Enhancement Preservation Mitigation Area: **215 ac.**

SWIM project? Aquatic Plant Control project? Exotic Plant Control Project? Mitigation Bank?

Drainage Basin(s): Upper Coastal Basin Water Body(s):None SWIM water body? N

Project Description

A. Overall project goal: Acquire, preserve, and manage a 215-acre tract of predominantly high quality upland and wetland habitat located adjacent to an existing protected habitat area (Serenova & Starkey Wilderness Area – Total 15,000 acres, Fig. A). The property is currently owned by the Florida Turnpike, and is proposed for WMD acquisition to expand existing public land habitat (Serenova Preserve) and provide mitigation for the proposed wetland impacts associated with the Turnpike project to provide an interchange connection between the existing Suncoast Parkway and proposed extension of Ridge Road through the Serenova Preserve.

B. Brief description of current condition: The tract has upland habitat comprised of live oak hammocks (38 acres) and pine flatwoods (98 acres). The wetlands are made up of cypress domes (15 acres) buffered with some perimeter marsh habitat (2 acres), two borrow pits (7 acres), and mixed forested wetland systems (44 acres) (Figures B & C). Descriptions of habitat vegetation are described under Attachment A.

C. Brief description of proposed work: The SWFWMD Land Management Division has implemented best land management practices for preservation and enhancement of property within the adjacent WMD-owned Serenova Preserve. These same management activities will be implemented at this proposed extension of Serenova. The 136 acres of upland habitat does not include an additional 11 acres of predominantly flatwoods that are being graded in 2006 and 2007 to construct five floodplain compensation areas in association with the widening of the adjacent segment of SR 52. These compensation areas will continued to be owned by FDOT. Upon approval by FDOT, these areas will be evaluated for potential future regrading and/or herb planting to provide additional marsh habitat. If that opportunity becomes a desired objective to ecologically benefit the site, all or a portion of the areas may be included to provide additional wetland mitigation credit for FDOT. Additional information is provided under Attachment B.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority of anticipated wetland impacts will be to cypress-dominated wetlands located nearby and adjacent to the Serenova Preserve property. The proposed mitigation includes preservation of 59 acres of high quality forested wetlands. Additional mitigation credit includes preservation of existing borrow pits (7 acres), preservation and enhancement of oak hammocks (38 acres) and pine flatwoods (98 acres) that buffer the wetlands. Upland enhancement will be primarily through implementing a prescribed fire management plan. Additional information is provided in Attachment C.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection in 2000, a mitigation bank was not existing or proposed within the Upper Coastal Basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : At the time of mitigation selection, there were no current or proposed SWIM projects within the Upper Coastal Basin.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: No construction proposed at this time. If a portion of the floodplain compensation areas are regraded and/or planted for additional mitigation credit, such activities will be conducted by the WMD Operations Dept. or private contractor working for the WMD.

Contact Name: Mark Brown, WMD Environmental Scientist

Phone Number: (352) 796-7211 ext. 4488

Entity responsible for monitoring and maintenance: Maintenance & management of the tract will be conducted by the SWFWMD Land Management Dept. as an extension of management within the adjacent Serenova Tract.

Proposed timeframe for implementation: Commence: Land acquisition is anticipated (2008) when Turnpike proposes the permitting of the interchange project. The permitting of the interchange project is contingent on the permitting of the Ridge Road extension. Complete: Perpetual maintenance & management by the SWFWMD Land Management Division as an extension of the existing Serenova Preserve.

Project cost: \$800,000 - \$1,000,000 Total will be determined by the appraised value & final acreage. Any potential addition construction of the floodplain comp areas, planting, short-term maintenance & monitoring to be reimbursed by FDOT funds. Perpetual management operations will be funded by the SWFWMD.

Attachments

- 1. Detailed description of existing site and proposed work. Refer to Attachment A - Existing Site & Proposed Work, Figure C- Infrared aerial, Site Photographs.
- 2. Recent aerial photograph with date and scale. Figure C - Infrared aerial (1995).
- 3. Location map and design drawings of existing and proposed conditions. Figures A & B - Location Maps, Figure C – existing and proposed conditions.
- 4. Detailed schedule for work implementation, including any and all phases. Acquisition pending final design and permitting of the Suncoast – Ridge Road interchange, which in turn is dependent on the permitting of the Ridge Road extension. Once acquired, perpetual maintenance and management of the Serenova Extension parcel will be conducted by the WMD.

<input checked="" type="checkbox"/>	5. Proposed success criteria and associated monitoring plan. <u>Refer to Attachment B. Maintenance & Monitoring Plan, Success Criteria.</u>
<input checked="" type="checkbox"/>	6. Long term maintenance plan. <u>Refer to Attachment B.</u>
<input checked="" type="checkbox"/>	7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). <u>Attachment C - DOT Mitigation.</u>

ATTACHMENT A - Existing Site & Proposed Work

The Serenova Extension parcel includes a variety of high quality native habitats. There are two large live oak hammocks (northwest and southeast) and several pocket hammocks of less than 0.5 acre each (Figure C - Infrared aerial, site photos). Upland canopy cover is generally 50-70%, dominated by sand live oak (*Quercus geminata*), live oak (*Quercus virginiana*), and scattered turkey oak (*Quercus laevis*). Ground cover is dominated by scattered saw palmetto (*Serenoa repens*), wiregrass (*Aristida stricta*), runner oak (*Quercus pumila*), live oak saplings, rusty lyonia (*Lyonia ferruginea*), and various ground mosses (*Cladonia* spp.). Several gopher tortoise burrows are present within the oak hammocks and adjacent pine flatwoods. The pine flatwoods have scattered longleaf pine (*Pinus palustris*) over dense cover of saw palmetto, scattered gallberry (*Ilex glabra*) and rusty lyonia, with a ground cover dominated by wiregrass.

The eastern mixed forested wetland (Figure C) is primarily a bay/maple system with a cypress core. Slight hydroperiod changes and fire management have allowed slash pine (*Pinus elliotii*) to encroach this system. Dominant canopy cover (avg. 70%) includes slash pine, sweet bay (*Magnolia virginiana*), loblolly bay (*Gordonia lasianthus*), red maple (*Acer rubrum*), laurel oak (*Quercus laurifolia*), and a core of bald cypress (*Taxodium distichum*). Dense subcanopy is dominated by wax myrtle (*Myrica cerifera*), gallberry (*Ilex glabra*), saw palmetto along the wetland perimeter, and saplings of the same canopy species. Understory vegetation is dominated by sawgrass (*Cladium jamaicense*) in the core, with less ground cover and dominated by sedges (*Cyperus* spp.) and blue maidencane (*Amphicarpum muhlenbergianum*) within the outer zones. The cypress systems have a dense canopy (>80%) and includes a dominance of bald cypress with additional cover provided by tupelo in the interior; dahoon holly, red maple, and slash pine along the perimeters. These same species along with wax myrtle provide a moderate shrub canopy (30-50% cover). Sawgrass and various fern species, particularly swamp fern (*Blechnum serrulatum*) and chain fern (*Thelypteris* spp.) provide the dominant cover. The water level indicators for the cypress systems depict an appropriate range of hydroperiods and fluctuations.

The mixed forested wetland across the western portion of the site has a very dense canopy (> 90%) and sub-canopy cover (80-90%), dominant cover is provided by red maple, loblolly bay, sweet bay, swamp bay (*Persea palustris*), dahoon holly (*Ilex cassine*); with tupelo (*Nyssa sylvatica*) and cypress within the interior of this system. A sub-canopy is dominated by bay saplings, but also includes wax myrtle along the perimeter and dense fetterbush (*Lyonia lucida*) within the interior. Various ferns (*Thelypteris* spp., *Woodwardia* spp.) and lizard's-tail (*Saururus cernuus*) dominate the understory. The hydrology of this system is primarily through continuous groundwater seepage. The mixed forested and cypress systems have all the appropriate functions and represent high quality wetland systems. The marsh habitats are perimeters of cypress systems, dominated by blue maidencane, spikerush (*Eleocharis* spp.), and St. John's-wort (*Hypericum* spp.). The borrow pits were dredged from isolated marshes. The ponds have upland shrub islands and when the wetlands have water levels below grade during the dry season, these deep-cut ponds are the primary water source for wildlife.

Observed wildlife on the tract include deer, turkey, raccoon, and armadillo. The site's location adjacent to an existing several thousand-acre preserve allows contiguous and extensive wildlife use. The mixture of various wetland and upland habitats within the Serenova Extension site represent the most dominant types of ecological habitats in the vicinity. The tract has been relatively well-managed, which has maintained proper wetland hydrology and periodic prescribed burns have kept palmetto heights and densities at appropriate levels. The WMD-Land Resources Dept. has considered this an important extension to buffer any potential future development activities of the adjacent SR 52 frontage from the primary Serenova parcel.

ATTACHMENT B – Maintenance, Monitoring, & Success Plan

The Serenova Tract and Anclote River Ranch (now part of the Starkey Wilderness Area) was purchased by the Turnpike and deeded to the SWFWMD to mitigate for wetland impacts associated with the Suncoast Parkway, which is a toll road facility located along the eastern boundary of Serenova (Figure A). The Serenova Extension area is presently owned by the Turnpike and will be added to the management plan, which will maintain and enhance the upland habitat with an appropriate prescribed burn plan, and provide security of the property. Maintenance will include prescribed burning (conducted by the SWFWMD Land Management Dept.) of the upland habitat on a 3-5 year cycle, as an extension of the same management & maintenance conducted on the Serenova Tract south of the site. Maintenance of fencing and security patrols will also be conducted to control access and activities.

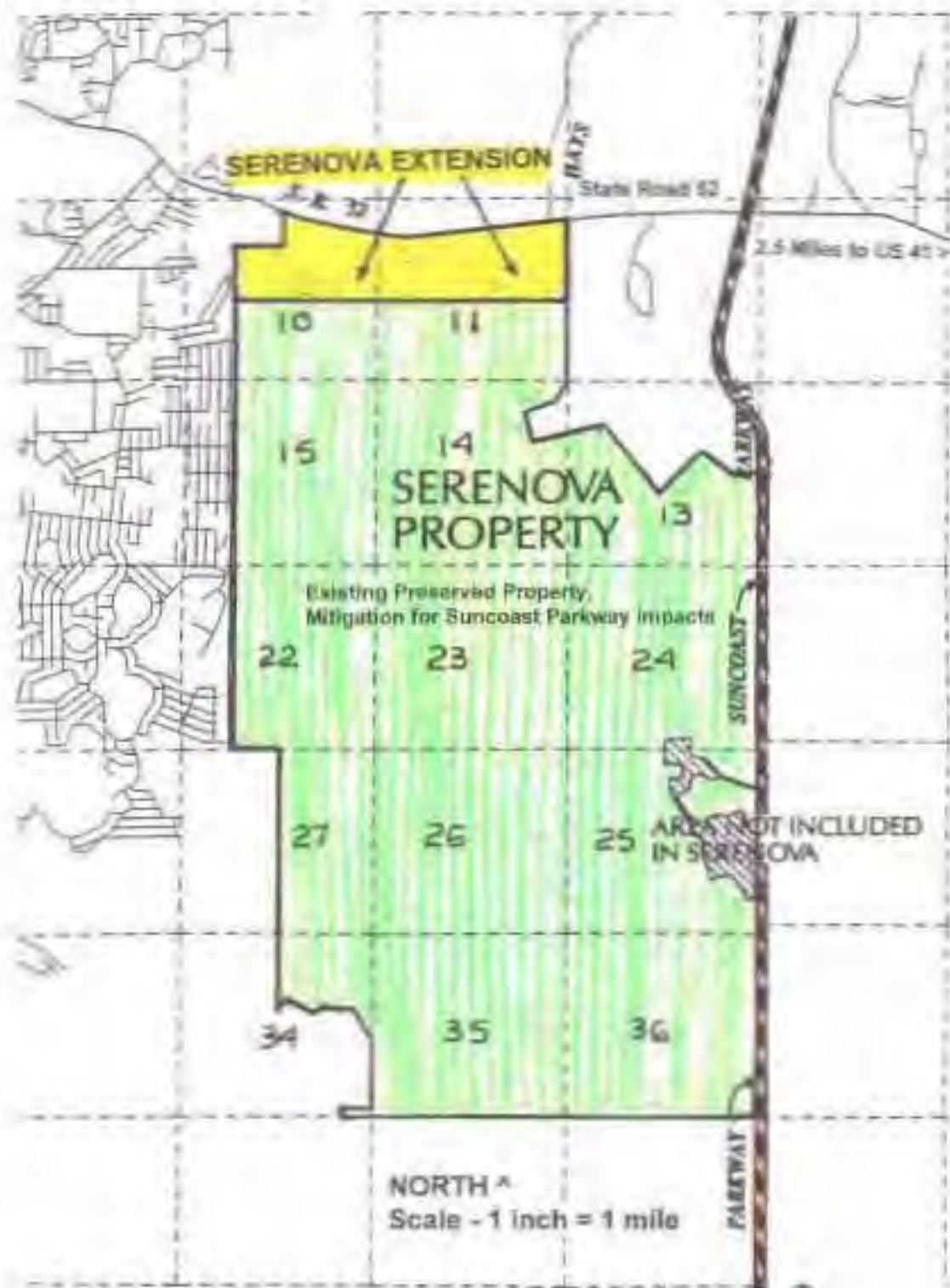
Monitoring will be annually conducted for a minimum three years post acquisition to document habitat conditions. If the floodplain compensation areas are graded and/or planted to provide additional mitigation credit, the monitoring will be qualitative in order to document the various functions and habitat value of the constructed marshes. Documentation of planted and recruited species coverage, water elevations, wildlife utilization, overall conditions and trends toward achieving success criteria, and summary of any conducted or proposed maintenance activities. Photos of the wetland creation areas will be conducted at the same station points during each monitoring event. Semi-annual monitoring events will be conducted for any wetland creation components and documented in an annual monitoring report, for a minimum of three years and until success criteria is met. The first annual report will document the planting schemes for each of the wetland creation areas (e.g. design details, herb species, quantities, sizes, etc.), construction activities and site preparation, and the plant installation.

If utilized for mitigation credit, maintenance of the planted compensation areas will occur on an as-needed basis to control nuisance and/or exotic species that may threaten the establishment of desirable vegetation. Maintenance activities are anticipated to be quarterly the first year and semi-annually or quarterly thereafter, primarily herbicide control of exotic and nuisance vegetation.

The mitigation success will be based on implementation and maintaining a prescribed burn management plan for the upland habitat, and if any of the floodplain compensation areas are utilized for mitigation credit, the establishment and management of appropriate marsh habitat within the constructed wetlands. Success criteria for any constructed wetlands will include a minimum 90% survivorship of planted material for a minimum one year post construction, minimum 85% coverage of desirable planted and naturally recruited vegetation, and less than 10% coverage of exotic and nuisance species.

ATTACHMENT C - DOT Mitigation

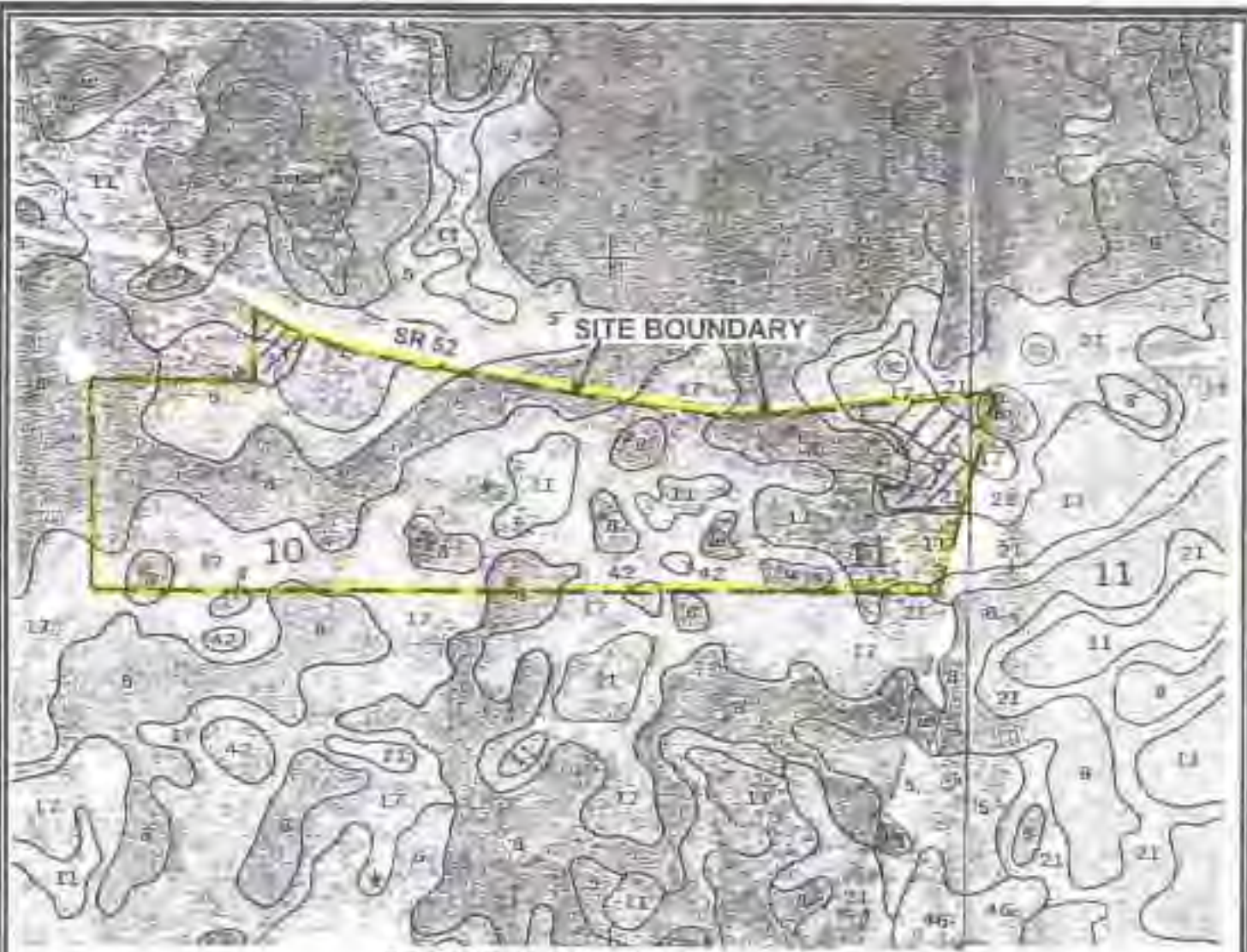
This proposed mitigation project is designated to compensate for wetland impacts associated with the proposed interchange of the existing Suncoast Parkway and the Pasco County proposed Ridge Road extension. The Suncoast Parkway was constructed with a bridge overpass to accommodate the proposed Ridge Road so the proposed wetland impacts are associated with access ramps. If the extension of Ridge Road does not receive all the necessary permits and approvals for construction, there will be no need to construct an interchange. If that situation would occur, Turnpike has agreed to still consider allowing the Serenova Extension tract be purchased by the WMD which will provide a mitigation option for proposed wetland impacts associated with FDOT-District 7 projects. No matter whether this proposed mitigation will be compensating for wetland impacts associated with the Turnpike interchange or District 7 projects, the existing and proposed conditions represent a high quality, diverse, and inter-related mosaic of various habitats, value and functions.



FDOT - TURNPIKE
MITIGATION SITE
(UPPER COASTAL BASIN)

SERENOVA EXTENSION
(SW 60)

FIGURE A
LOCATION MAP



**SERENOVA EXTENSION
SOIL LEGEND**

- 5 - Myakka fine sand
- 8* - Sellers mucky loamy fine sand
- 11 - Adamsville fine sand
- 17 - Immokalee fine sand
- 21 - Smyrna fine sand
- 42 - Pomello fine sand, 0-5% slopes

* Hydric Soils

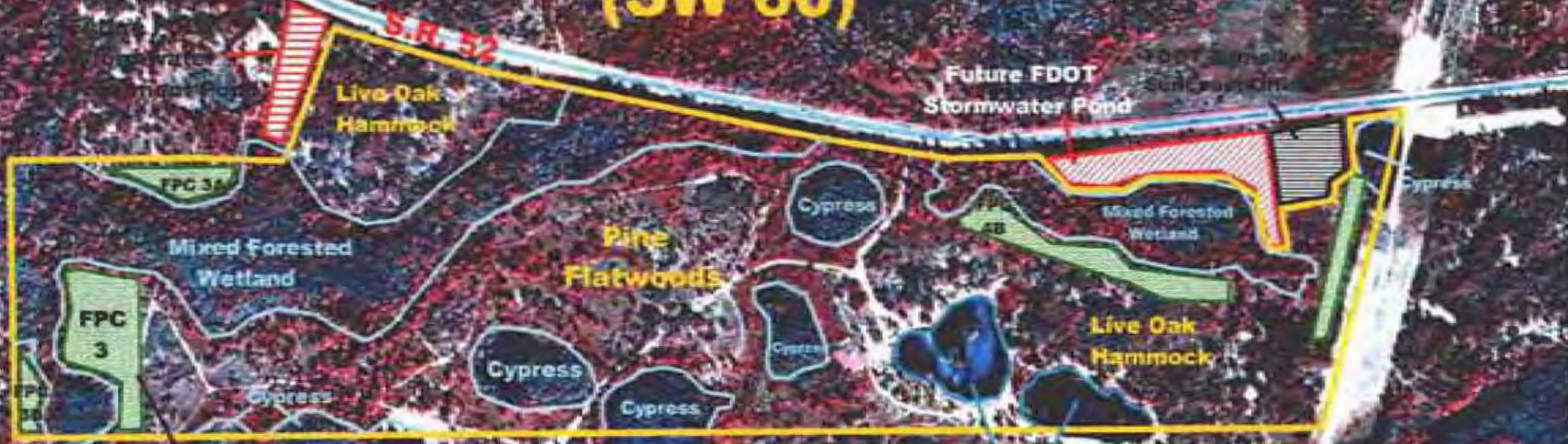
NORTH ^
Scale - 3.75 inches = 1 mile

**FDOT - TURNPIKE
MITIGATION SITE
(UPPER COASTAL BASIN)**

**SERENOVA EXTENSION
(SW 60)**

**FIGURE B
PASCO CO. SOIL SURVEY**

SERENOVA EXTENSION (SW 60)



Floodplain Compensation (FPC)
Marsh Creation Areas

Existing Serenova Preserve
(SWFWMD Property)

Figure C
Habitat Areas
1995 Infrared Aerial
Scale 1 in. = 740 ft.
◀ North

Site 12



Southeast quadrant, one of the two large oak hammocks, typical species coverage of sand live oak, over pockets of saw palmetto, runner oak, and scattered wiregrass, gopher tortoise burrow in foreground.



Pine flatwood area in the center of the tract, scattered longleaf pine over saw palmetto, gullberry, and wiregrass under palmetto. Appropriate pine density, palmetto density and heights controlled by prescribed burns.

FDOT - TURNPIKE Mitigation Site
(Upper Coastal Basin)

SERENOVA EXTENSION (SW 60)
(Upland Habitat)



Interior of cypress dome, photo taken June, 2000 during extreme drought conditions. However, the typical cypress wetlands on the tract have biological (moss collars, lichen lines) and other hydrologic indicators that demonstrate appropriate surface water hydrology.



The few marshes on the tract are located along the perimeter of the cypress systems, drought conditions have stressed the blue maidencane & cypress saplings but marsh fringe will soon recover from summer rains.

**FDOT - TURNPIKE Mitigation Site
(Upper Coastal Basin)**

**SERENOVA EXTENSION (SW 60)
(Wetland Habitat)**



Large mixed forested wetland within the western portion of the tract, outer portions of the wetland indicate a dense & diverse habitat conditions, with cover of bay species, maples, dahoon holly, cypress, myrtles, shiny lyonia, saw palmetto, gallberry, ferns.



Interior of the mixed forested wetland depicted above, very good species density and cover, more cypress with the maple, tupelo, and variable density (due to water levels & shading) of ground cover, typical species include sawgrass, ferns, and lizard's-tail.

**FDOT - TURNPIKE Mitigation Site
(Upper Coastal Basin)**

**SERENOVA EXTENSION (SW 60)
(Wetland Habitat)**



The mixed forested wetland in the northeast quadrant of the site differs from the western mixed forested system. Maples and hays are still present, but slash pine, gallberry, myrtles, & palmetto have encroached due to extended periods of shorter hydroperiods (water depth & duration). Sawgrass is the dominant ground cover species.



One of the two borrow pits on the tract. Minimal coverage of littoral zones but good island feature for resting/nesting birds, and continuous, clean water source for wildlife.

**FDOT - TURNPIKE Mitigation Site
(Upper Coastal Basin)**

**SERENOVA EXTENSION (SW-60)
(Wetland Habitat)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Jennings Tract - Cypress Creek Preserve, West (ELAPP)

Project Number: SW 61

Project Manager: Forest Turbiville, Resource Manager
Hillsborough County Parks & Recreation
10940 McMullen Road
Riverview, FL 33569-6226

Phone: 813-672-7876

County(ies): Hillsborough

Location: Sections 4, 5, T27S, R19E

IMPACT INFORMATION

1- FM: <u>2578071 B.B. Downs Bikepath (Hunter's)</u>	ERP #: <u>4418710.000</u>	COE #: <u>199803683</u>
2- FM: <u>2555361 SR 39, Blackwater Ck. Bridge</u>	ERP #: <u>4320526.000</u>	COE #: <u>200000574 (IP-MS)</u>
3- FM: <u>2587341 SR 56, SR 54 to BB Downs</u>	ERP #: <u>4312944.004</u>	COE #: <u>199500079 (IP-MN)</u>
4- FM: <u>2012171 I-4, Memorial to US 98 (Seg.2)</u> <u>Kathleen Rd. West Portion</u>	ERP #: <u>43011896.028</u>	COE #: <u>199502569 (MOD-MGH)</u>
5- FM: <u>2578072 B.B. Downs Bikepath (Amberly)</u>	ERP #: <u>430009069.006</u>	COE #: <u>SAJ-2003-8981 (IP-MGH)</u>
6- FM: <u>2558591 SR 678 (Bearss Ave.) Florida Ave.</u>	ERP #: <u>4421434.000</u>	COE #: <u>200101187 (NW-MS)</u>
7- FM: <u>258391 Alexander St., US 92 to Inter.-4</u>	ERP #: <u>4419802.002</u>	COE #: <u>200101181 (NW-MS)</u>
8- FM: <u>2584491 Alexander St., On-Ramp to Westbound I-4</u>	ERP #: <u>43011896.025</u>	COE #: <u>200003012 (IP-RGW)</u>
9- FM: <u>2584131 SR 93 (Inter. 275), US 41 to Pasco Co.</u>	ERP #: <u>43011896.025</u>	COE #: <u>200003012 (IP-RGW)</u>
10-FM: <u>4084602 I-75 at CR 581 (Off-Ramp to B.B. Downs)</u>	ERP #: <u>43024745.000</u>	COE #: <u>200302685 (IP-MLS)</u>
	ERP #: <u>4421639.000</u>	COE #: <u>199803683 (NW-KI)</u>

Drainage Basin(s) : Hillsborough River Water Body(s): Blackwater Creek , Cypress Creek SWIM water body? N

Impact Acres/ Wetland Types:

1-FM 2578071 0.4 ac. 618 (Fluccs)
0.1 ac. 641 (Fluccs)

TOTAL 0.5 ac.

2-FM 2555361 1.4 ac. 615 (Fluccs)
0.7 ac. 641 (Fluccs)

TOTAL 2.1 ac.

3-FM 2587341 5.2 ac. 630 (Fluccs)
0.1 ac. 641 (Fluccs)

TOTAL 5.3 ac.

4-FM 2012171 1.75 ac. 511 (Fluccs)
0.68 ac. 615 (Fluccs)
1.74 ac. 617 (Fluccs)

TOTAL 4.26 ac.

5-FM 2578072 0.2 ac. 610 (Fluccs)

6-FM 2558591 0.1 ac. 618 (Fluccs)

7-FM 2578391 2.6 ac. 617 (Fluccs)

8-FM 2584491 1.7 ac. 617 (Fluccs)

9-FM 2584131 4.6 ac. 610 (Fluccs)

0.2 ac. 621 (Fluccs)

0.1 ac. 630 (Fluccs)

2.7 ac. 640/641 (Fluccs)

TOTAL 7.6 ac.

10-FM 4084602 0.50 ac. 621 (Fluccs)

TOTAL 24.86 ACRES

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration Preservation

Mitigation Area: **298 Acres**

SWIM Project? N Aquatic Plant Control Project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin(s): Hillsborough River Water Body(s): Blackwater Creek, Cypress Creek SWIM water? N

Project Description

A. Overall project goal: The acquisition, enhancement, and management of a 298-acre tract that includes a high quality mosaic of native upland & wetland habitat within the Cypress Creek floodplain. The property has been a high priority for acquisition by the Hillsborough County Parks & Recreation Dept., under the Environmental Lands Acquisition and Protection Program (ELAPP). The County presently owns several hundred acres east of the site, referred to as Cypress Creek Preserve East. This additional acquisition is part of an evaluation and acquisition corridor area by Hillsborough County and the SWFWMD, referred to as Lower Cypress Creek, that will connect other property owned by the SWFWMD (Cypress Creek in Pasco Co. and Lower Hillsborough in Hillsborough County, Refer to Figure A).

B. Brief description of current condition: The native habitat components of the site represent high quality functions relative to wildlife habitat, species richness & diversity, and especially habitat connectivity to both on- and off-site habitat conditions. There is mixed forested wetland (146 acres) surrounding hardwood hammock uplands (98 acres), pine flatwoods (19 acres), and palmetto prairies (15 acres). The only non-native habitat is bahia pasture (20 acres) along the western edge of the parcel (Figure E - Vegetative Communities).

C. Brief description of proposed work: The proposed activity includes acquisition of the property and enhancement of the native habitat areas. Land management and maintenance activities such as prescribed burning within the existing and restored upland habitat areas. The bahia pasture will be restored to pine flatwoods with appropriate planting, but construction activities are not necessary. A conceptual management plan has been prepared by the Hillsborough County Parks and Recreation Dept. (available from Mark Brown, SWFWMD). The SWFWMD will carry title on the property and Hills. County Parks will manage the site as part of an inter-agency agreement.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority of the proposed wetland impacts will occur to forested wetlands. The proposed mitigation site has 146 acres of high quality mixed forested wetlands and 98 acres of high quality hardwood hammock that compensate for the impacts to the forested wetland habitat. The remaining proposed wetland impacts include encroachments of marsh, shrub, and predominantly ditch habitats. These impacts will also be compensated by the site's wetlands but in addition, 54 acres of enhanced and restored upland habitat buffers. The inter-relationship of the hardwood hammocks, palmetto prairie, and pine flatwoods with the forested wetlands provide a high quality habitat for wildlife use that compensates for the proposed wetland impacts. This 298-acre acquisition & enhancement will result in an overall mitigation ratio of 10 acres of compensation for every 1 acre of wetland impact. The breakdown of mitigation per each roadway impact is referenced on the project table (Attachment B) and Figure F. Each of ten DOT projects has some form of upland habitat enhancement and/or restoration along with upland and wetland preservation. Preservation alone is not proposed for any one DOT project. As an added bonus of habitat enhancement, an additional 100-acres of native habitat adjacent to the Jennings Tract (referred to as the Greer Tract – SW 72) has also been preserved and provides partial mitigation for wetland impacts associated with one DOT project.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: There are no existing or currently proposed mitigation banks within the Hillsborough River basin.

Mitigation Project – Jennings Tract, pg. 3 of 5

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : The only SWIM project in the Hillsborough Basin is the Lake Thonotasassa Restoration Project. The habitat restoration associated with that project has already been delegated the mitigation option for another DOT project.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: No proposed construction, management by Hillsborough County Parks & Recreation
Contact Name: Sheryl Bowman, Resource Manager, Hills. Parks & Rec. Phone Number: (813)-672-7876

Entity responsible for monitoring and maintenance: Hillsborough County Parks & Recreation
Proposed timeframe for implementation: Commence: Summer, 2000 Complete: Summer, 2001, followed by a minimum 3 years maintenance & monitoring

Project cost: \$1,000,000 (total) - For acquisition; maintenance & management activities funded by Hills. Parks.

Attachments

- X 1. Detailed description of existing site and proposed work. Refer to Attachment A.
- X 2. Recent aerial photograph with date and scale. Figure D- Infrared aerial (1995).
- X 3. Location map and design drawings of existing and proposed conditions. Figures A & B - Location Maps, Figures D & E – existing & proposed habitat conditions.
- X 4. Detailed schedule for work implementation, including any and all phases. Acquisition completed in 2001. Long-term maintenance & management conducted by the Hills. Co. Parks & Recreation Department.
- X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.
- X 6. Long term maintenance plan. Maintenance & management to be conducted by Hillsborough Co. Parks & Rec. as a continuous operation of the adjacent Cypress Creek Preserve East property. A management plan for this property has been prepared by Hills. Co. Parks (available from Mark Brown – SWFWMD).
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion under Project Description - D, Attachment C (text and table), & Figure F designates the various mitigation for each wetland impact.

ATTACHMENT A - Existing & Proposed Site Conditions

In addition to preservation of mixed forested wetland (145 acres) and hardwood hammock uplands (98 acres), there will be enhancement of pine flatwoods (19 acres), palmetto prairie (15 acres), and restoration of bahia pasture (20 acres) into pine flatwoods. Due to the dense canopy cover (80-90%) and the high percentage of hydric soil mapped on the soil survey (Figure C), the presence of several upland hardwood hammocks are not as readily evident as actually present (Figure E), providing an overall diverse combination of upland and wetland communities.

The upland hardwood hammocks include a dominance of live oak, Southern magnolia, sweet gum, and water oak, a sub-canopy of saw palmetto, cabbage palm, beautyberry, salt-bush, and buckthorn, and ground cover dominated by small panicums (*Dicanthelium spp*). Depending on the variable wetland surface grade elevation, the mixed forested wetland has dominant canopy and subcanopy species including laurel oak, sweet gum, red maple, bald cypress, American elm, sweet bay, cabbage palm, tupelo, and ironwood.

Mitigation Project – Cypress Ck. Preserve, Page 4 of 5

During the 1970's, selective upland and wetland tree-cutting allowed many of the normal subcanopy species to spread and reach canopy heights. Ground cover is dense in the transitional wetland areas, minimal in obligate zones where rainy season water levels are generally above surface grade. Dominant ground cover species include cabbage palm saplings, various sedges & rushes, wild coffee, Jack-in-the-Pulpit, and shield fern. The palmetto prairie and pine flatwoods have a dominance of slash pine (in the flatwoods), over saw palmetto, rabbit tobacco, paw-paw, and bahiagrass. The density and height of palmetto is generally moderate to low, but has increased in cover since removal of the cattle. Wildlife diversity is known to be high within the forested areas, and several gopher tortoise inhabit the pasture.

Implementation of a prescribed burn plan will be conducted within the upland habitats, in order to maintain appropriate vegetative coverage and minimize the opportunity for nuisance and exotic species to generate and recruit. Longleaf pine and wiregrass will be planted within the bahia pasture and palmetto prairie in order to enhance and restore upland habitat.

The acquisition of this tract for preservation, enhancement, and management is important for native habitat conditions. As noted, there is extensive upland habitat than what appears from the soil survey. This has made the parcel more valuable for potential development than if the site was predominantly wetlands. Prior to the County's acquisition, the landowner had offers to sell the property for constructing residential development on the upland hammocks. Acquiring this property as a mitigation alternative has provided the habitat protection needed for this area of Hillsborough County and the Hillsborough River basin.

ATTACHMENT B – Maintenance & Monitoring, Success Criteria

Maintenance activities are primarily associated with implementing the prescribed burn plan as necessary to maintain appropriate habitat conditions. Based on the growth rate of vegetative cover, these burns will be attempted on 5-year cycles for the pine flatwoods (restored and enhanced flatwoods) and probably 10-15 year cycles for the upland hardwood hammocks. Herbicide control of existing and generated exotic and nuisance species will be conducted as necessary. The dominant undesirable species of concern for this parcel include Chinaberry and skunkvine.

Qualitative monitoring will be conducted semi-annually for a minimum 3-years post planting. Monitoring stations will be established to adequately evaluate habitat conditions and functions for each of the habitat communities. The results of the two monitoring events each year will be compiled into an annual monitoring report that documents the habitat conditions, any maintenance & management activities, and success trends. Documentation of the County's efforts to implement the management plan will also be included as part of the monitoring reports. Success criteria requirements include adequate pine plantings within the bahia pasture and palmetto prairie to guarantee survivorship of 200 trees per acre. Wiregrass will be planted in these same areas to guarantee survivorship rates of 300 plants per acre.

ATTACHMENT C - Mitigation Opportunities

The delineation of the DOT projects relative to the various habitat types are depicted on Figure F. The following table designates the various wetland impacts for each DOT project and the associated mitigation acreage. The delineation provides a combination of wetland and upland habitat (preserved and enhanced/restored) to compensate for the wetland impacts associated with each of the ten DOT projects. No individual project's impacts are being mitigated with just wetland preservation.

Mitigation Project – Cypress Ck. Preserve, Page 5 of 5

As noted on the attached table, there are two projects (one District 7 and one District 1) that are currently in the final design phases. The design of one of the DOT projects (Project 9, I-275-US 41 to Pasco Co.) has an estimate of 8.1 acres of wetland impacts, however that acreage will probably change pending final design. This proposed segment of I-275 is located along the eastern boundary of the Preserve, which would essentially be an on-site mitigation opportunity to compensate for these impacts.

The District One project (Project 4, Interstate-4, Seg. 2) is within a re-design phase in late, 2002. Within the 2001 DOT mitigation plan for this project, the Jennings Tract was proposed to provide mitigation for 2.08 acres of upland-cut ditches under ACOE jurisdiction that didn't require mitigation per ERP criteria. During 2002, the ACOE made a decision to also not require mitigation for the 2.08 acres. However, the roadway redesign has resulted in different wetland impacts with a range of 4.7 to 8.1 acres, predominantly forested systems and a high percentage of upland-cut ditches. As with the previous design, the optimal 8.1 impact acres include approximately 3-4 acres of upland-cut ditches that may or may not require mitigation. Therefore, the mitigation plan design has accounted for the optimal 8.1 acres and designated appropriately lower ratios in case the ditches do require mitigation per ACOE criteria.

SITE	DOT Project	WPI	FM	USACOE Permit #	SWFWMD Permit #	Impact Acres	Habitat (FLUCFCS)	Mitig. Ratio	Mitig. Ac.	Mitigation Type
1	BB Downs Bikepath (Hunter's)	7123606	2578071 2578641	199803683	4418710.000	0.40 0.10	618- Willow & Elderberry 641 - Marsh	15 to 1	1.0 2.0 4.5 7.5	Mix Forest Wet. Preservation Upl. Hardwood Preservation Flatwoods Restoration
					TOTALS	0.50				
2	SR 39-Blackwater Ck. Bridge	7113773	2555361	200000574 (IP-MS)	4320526.000	1.40 0.70 2.10	615- Stream Swamp 641- Marsh	19 to 1	24.0 10.0 6.0 40.0	Mix Forest Wet. Preservation Upl. Hardwood Preservation Flatwoods Enhancement
					TOTALS					
3	SR 56-SR 54 to BB Downs	7147617	2587341	199500079 (IP-MN)	4312944.004	5.20 0.10	630-Mix Forest 641-Marsh	13 to 1	2.0 3.0 19.0 47.0 71.0	Flatwoods Restoration Flatwoods Enhancement Upl. Hardwood Preservation Mix Forest Wet. Preservation
					TOTALS	5.30				
4	I-4, Memorial- US 98 (Seg. 2)	1147944	2012171	199502569 (MOD-MGH)	43011896.02 8	0.93 1.34 1.84 4.11	615- Stream Swamp 630- Mixed Forest 641x – Hydric Ditch	10 to 1	17.0 13.5 12.0 42.5	Mix Forest Wet. Preservation Flatwoods Restoration Upl. Hardwood Preservation
					TOTALS					
5	BB Downs Bikepath (Amberly)	NA	2578072	200101187 (NW-MS)	4421434.000	0.20	610- Hardwood Forest	18 to 1	0.5 3.0 3.5	Mix Forest Wet. Preservation Flatwoods Restoration
					TOTALS	0.20				
6	SR 678 (Bearss Ave.)	NA	2558591	200101181 (NW-MS)	4419802.002	0.10	618 – Willow & Elderberry	15 to 1	0.2 1.0 0.3 1.5	Upl. Hardwood Preservation Palmetto Prairie Enhancement Mix Forest Wet. Preservation
					TOTALS	0.10				
7	Alexander St., US 92 to Interstate 4	NA	2578391	200003012 (NW-RGW)	43011896.02 5	2.60	617-Mix Hardwood Forest	12 to 1	7.0 12.0 13.0 32.0	Palmetto Prairie Enhancement Upl. Hardwood Preservation Mix Forest Wet. Preservation
					TOTALS	2.60				
8	Alexander St., On-Ramp to Interstate 4	NA	2584491	200003012 (IP-RGW)	43011896.02 5	1.70	617-Mix Hardwood Forest	9 to 1	7.0 1.0 7.5 15.5	Flatwoods Enhancement Upl. Hardwood Preservation Mix Forest Wet. Preservation
					TOTALS	1.70				
9	I-275, US 41 to Pasco County	NA	2584131	Applic. Review (9/03)	Applic., Review (9/03)	4.60 0.20 0.10 2.70 7.60	610 - Hardwood Forest 621 – Cypress 630 – Mixed Forest 640/641 - Marsh	10 to 1	4.0 39.0 33.0 76.0	Palmetto Prairie Enhancement Upl. Hardwood Preservation Mix Forest Wet. Preservation
					TOTALS					
10	I-75 at BB Downs Off – Ramp	NA	4084602	199803683 (NW-KI)	4421639.000	0.50	621-Cypress	17 to 1	2.0 3.0 3.3 8.3	Mix Forest Wet. Preservation Upl. Hardwood Preservation Palmetto Prairie Enhancement
					TOTALS	0.50				



FDOT - District 7
MITIGATION SITE
(HILLSBOROUGH BASIN)

JENNINGS TRACT
CYPRESS CREEK
PRESERVE WEST
Hills. Co. ELAPP (SW 61)

FIGURE B
LOCATION MAP



FDOT - District 7
MITIGATION SITE
(HILLSBOROUGH BASIN)

JENNINGS TRACT
CYPRESS CREEK
PRESERVE WEST
Hills. Co. ELAPP (SW 61)

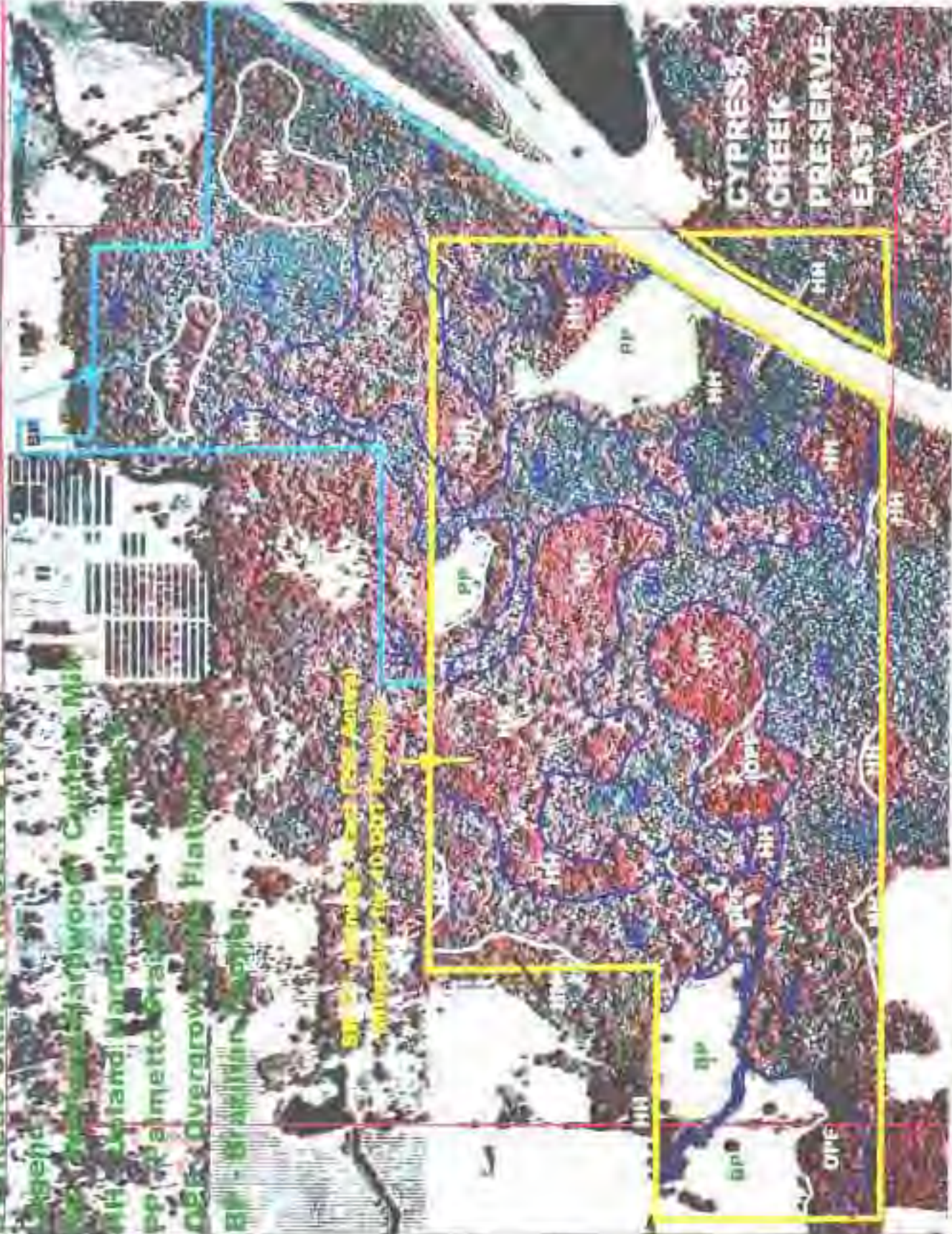
FIGURE C
HILLS. CO. SOIL SURVEY
AERIAL DATE - 1982

SW 72 - Greer Tract (100 Acres)
 Partial Mitigation for 1 DOT Project

CYPRESS CREEK PRESERVE WEST

- Legend**
- W - Water
 - HH - Hardwood Hammock
 - PP - Palmetto Prairie
 - OGS - Overgrown Open Flatwoods
 - BP - Braconid Beetle

SW 51 - 100 Acres (50 Acres)
 Mitigation for 1 DOT Project



FDOT - District 7
 MITIGATION SITE
 (Hillsborough Basin)

JENNINGS TRACT
 CYPRESS CREEK
 PRESERVE WEST
 (SW 51)

FIGURE D - 1995 Infrared Aerial
 HABITAT MAP
 Scale 1 in = 910 feet, <North

FDOT - District 7
MITIGATION SITE
(HILLSBOROUGH BASIN)

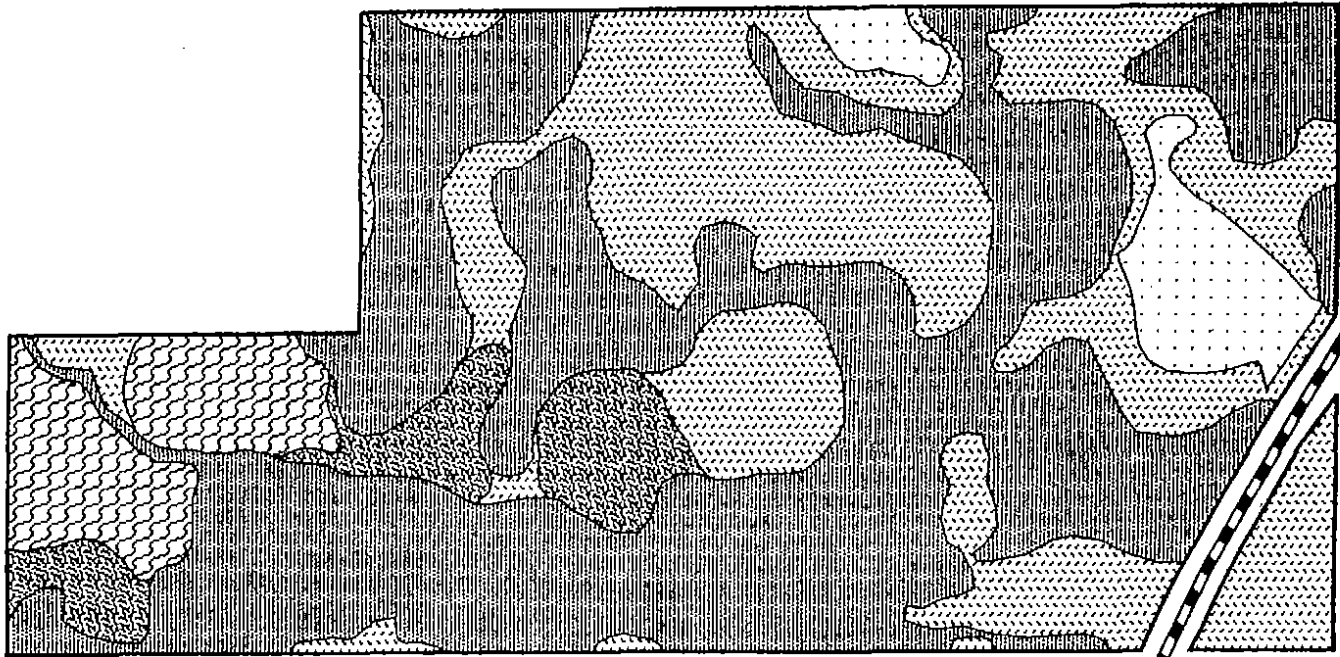
JENNINGS TRACT
CYPRESS CREEK
PRESERVE WEST
Hills. Co. ELAPP (SW 61)

FIGURE E
VEGETATIVE COMMUNITIES

Cypress Creek - Jennings Parcel

- Plant Communities

- | | |
|---|--|
|  Hardwood/Cypress Swamp (145 ac) |  Overgrown Pine Flatwoods (19 ac) |
|  Hardwood Hammock (90 ac) |  Bahla Pasture (20 ac) |
|  Palmetto Prairie (15 ac) | |



0 1000 2000 Feet



- 1 BB Downs Bikepath (Hunter's)

- 2 SR 39-Blackwater Ck. Bridge

- 3 SR 56-SR 54 to BB Downs

- 4 I-4, Memorial to US 98 (Seg. 2)

- 5 BB Downs Bikepath (Amberly)

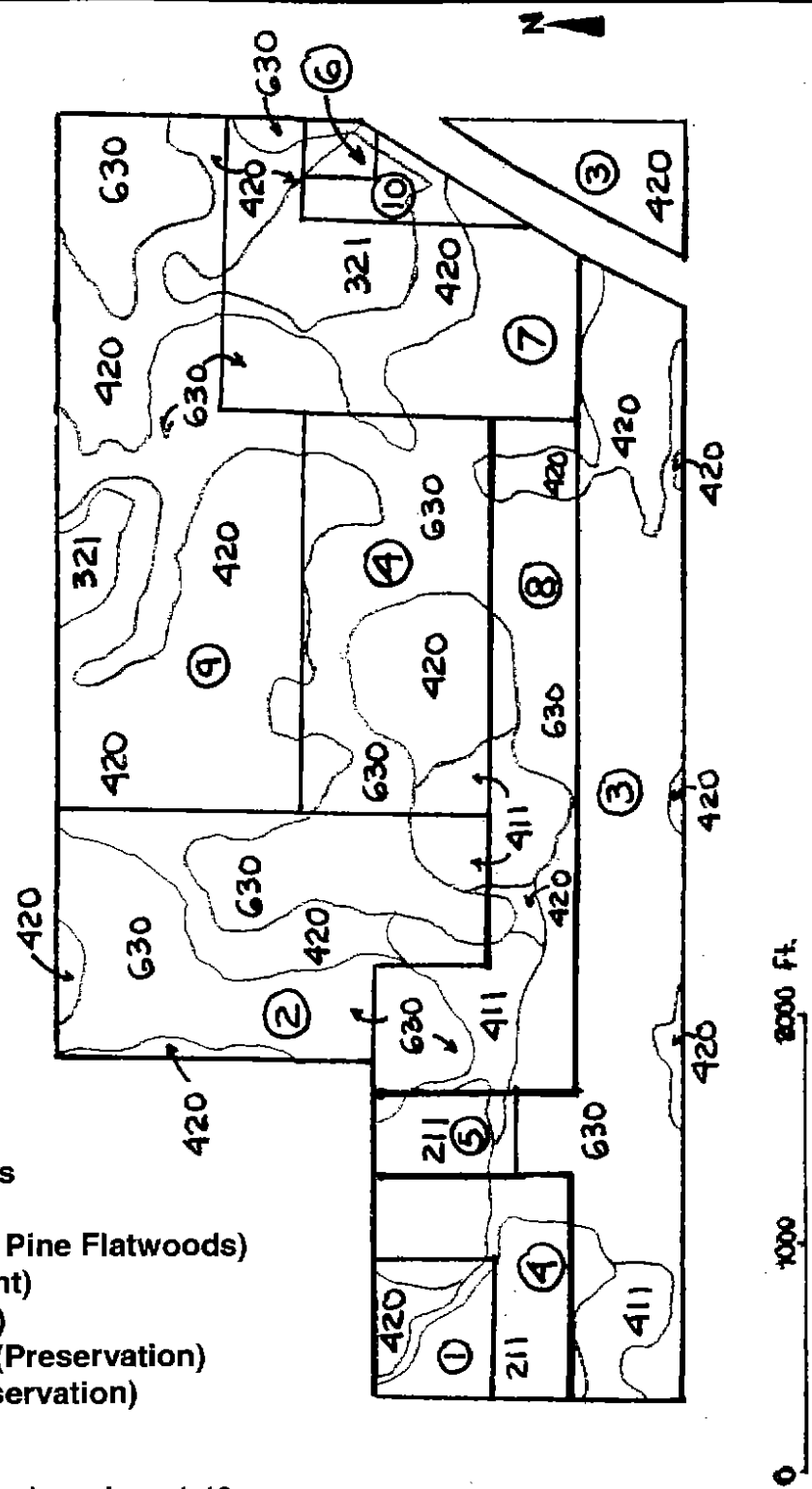
- 6 SR 678 (Bearss Ave.)

- 7 Alexander St., US 92 to I-4

- 8 Alexander St., On-Ramp to I-4

- 9 I-275, US 41 to Pasco Co.

- 10 I-75 at BB Downs Off-Ramp



**Cypress Creek - Jennings Parcel
Plant Communities - FLUCCS codes**

- 211 - Improved Pasture (Restore to Pine Flatwoods)
- 321 - Palmetto Prairie (Enhancement)
- 411 - Pine Flatwood (Enhancement)
- 420 - Upland Hardwood Hammock (Preservation)
- 630 - Mixed Forested Wetland (Preservation)

FDOT Projects are designated by circled numbers 1-10

**FDOT - District 7
MITIGATION SITE
(Hillsborough Basin)**

**JENNINGS TRACT
CYPRESS CREEK
PRESERVE WEST
Hills. Co. ELAPP (SW 61)**

**FIGURE F
DESIGNATED MITIGATION**



Upland Hardwood Hammock - The hardwood hammocks have diverse canopy species, dominated by live oak, water oak, Southern magnolia, sweet gum, over saw palmetto, beautyberry, and buckthorn.



Upland Hardwood Hammock - Transitional area depicting the upland hammock (right) with sweet gum over saw palmetto, dropping in grade elevation to the mixed forested wetland (left) with cabbage palm, laurel oak, maples. Intricate mosaic of upland hammocks and wetland hardwoods results in high quality habitat for wildlife.

FDOT - District 7 Mitigation Site
(Hillsborough River Basin)

CYPRESS CREEK PRESERVE WEST (SW 61)
(Jennings Tract, Hills. Co. FLAPP)



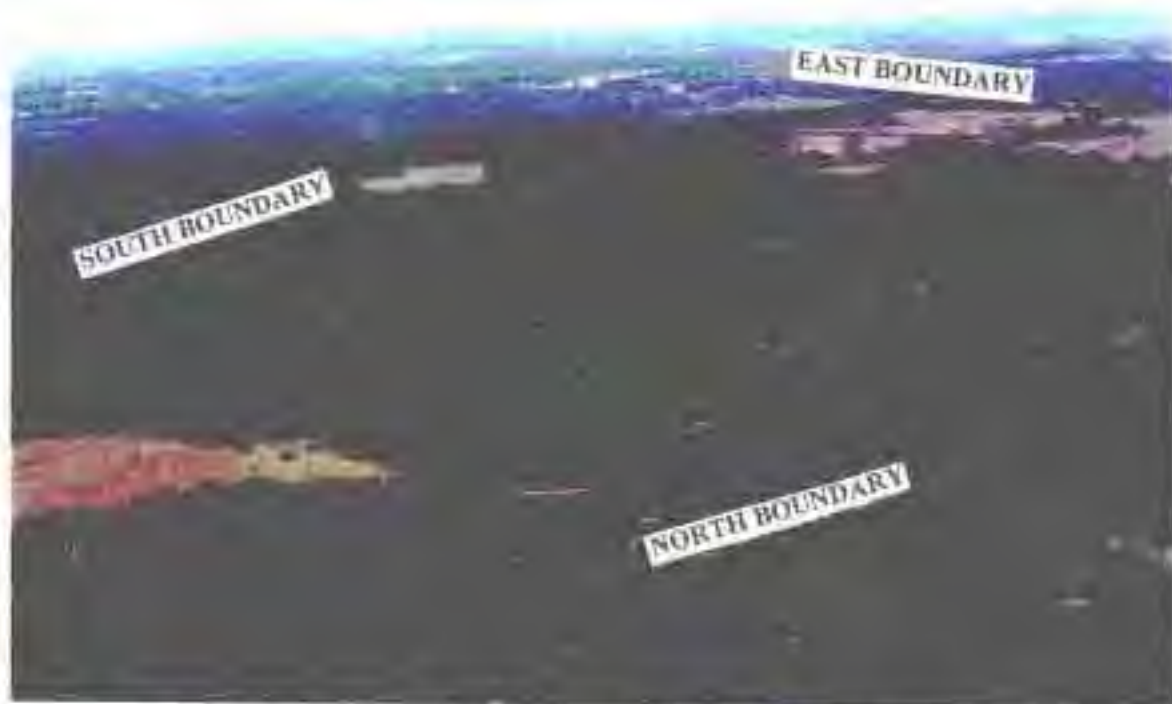
Mixed Forested Wetland - View of one of the lower grade elevations that becomes inundated with surface waters during the rainy season, tupelox and cypress are more common than the higher elevations.



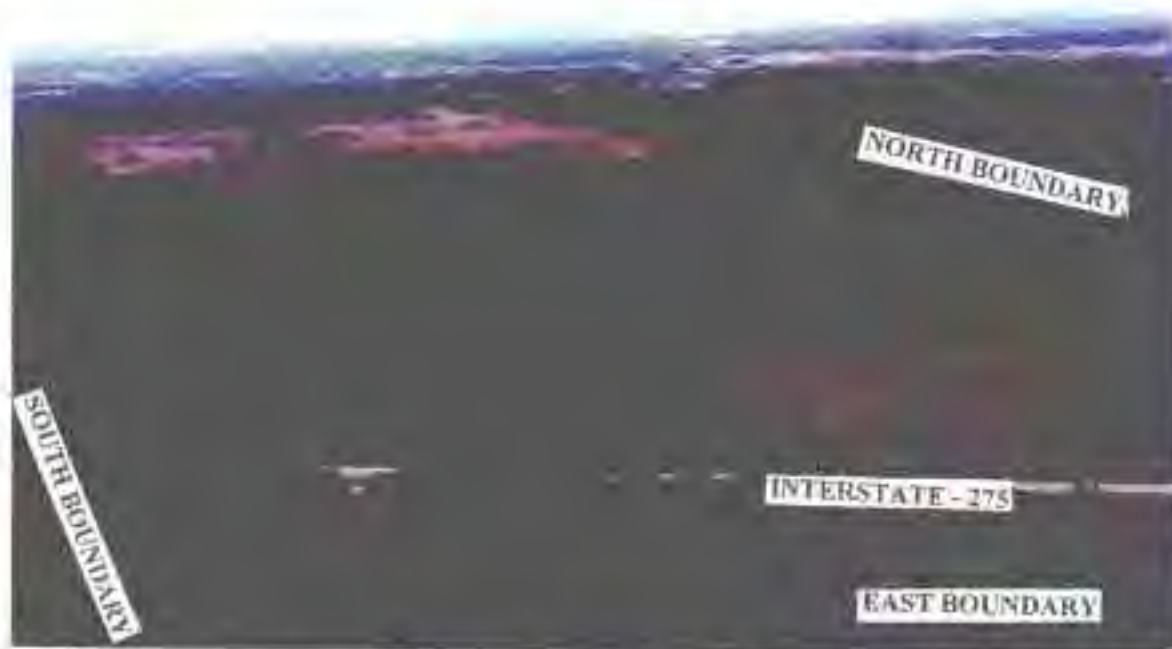
Mixed Forested Wetlands - The higher grade elevations are more prevalent than the lower elevations. Mixed hardwoods (laurel oak, maple, sweet gum, American elm, ironwood) are the most common species.

FDOT - District 7 Mitigation Site
(Hillsborough River Basin)

CYPRESS CREEK PRESERVE WEST (SW 61)
(Jennings Tract, Hills. Co. ELAPP)



Aerial view from north of the property boundary, looking southwest, palmetto prairie along I-275 (left), isolated palmetto prairie to the right.



Aerial view from east of the property, looking west. Triangular parcel separated from the main tract by I-275 in the foreground, large palmetto prairie to the right.

**FDOT - District 7 Mitigation Site
(Hillsborough River Basin)**

**CYPRESS CREEK PRESERVE WEST (SW 61)
(Jennings Tract, Hills. Co. ELAPP)**



Palmetto Prairie - Will be enhanced by removing cattle, planting wiregrass and scattered longleaf pine.



Bahia Pasture - Will be enhance by removal of cattle and debris, planting of wiregrass and longleaf pine. Area was included in the proposed acquisition due in part to the several large gopher tortoise present.

**FDOT - District 7 Mitigation Site
(Hillsborough River Basin)**

**CYPRESS CREEK PRESERVE WEST (SW 61)
(Jennings Tract, Hills. Co. ELAPP)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District
Mitigation Project Name: Tappan Tract
Project Manager: Stephanie Powers, WMD- SWIM Environmental Scientist
County: Hillsborough

Project Number: **SW 62**
Phone No: 813-985-7481 ext. 2213
Location : Sec. 17, T30S, R18E

IMPACT INFORMATION

DOT (FM): 2557031, SR 60 - Cypress St. to Fish Creek* ERP #: 43002958.003 COE #: 200205816 (IP-MN)
Drainage Basin(s): Tampa Bay Coastal Water Body(s): Tampa Bay SWIM water body? Y

Acres/Impact Types (FLUCFCS): FM 2557031 -

<u>0.6 ac.</u>	<u>510- Saltwater canal</u>
<u>0.1 ac.</u>	<u>530</u>
<u>0.3 ac.</u>	<u>612</u>
<u>0.6 ac.</u>	<u>641x</u>
<u>3.5 ac.</u>	<u>642x</u>

TOTAL: 5.1 acres

* Note: The total wetland impacts proposed for this project is 16.6 acres. Only the minor mangrove and substantial ditch and open water impacts associated with this project are being mitigated at Tappan Tract. The saltwater marsh impacts for this FDOT project (10.7 acres) are being mitigated at the Apollo Beach (SW 67) and Cockroach Bay – Saltwater (SW 77) projects. The freshwater marsh impacts for this DOT project (0.8 acres) are being mitigated at the Cockroach Bay – Freshwater project (SW 56).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Wetland Creation X Upland Enhancement X Wetland Enhancement Mitig. Area: **8.38 ac.**
SWIM project? Y Aquatic Plant Control project? N Exotic Plant Control Project? N
Mitigation Bank? N Drainage Basin(s): Tampa Bay Drainage Water Body(s): Tampa Bay SWIM water body? Y

Project Description

A. Overall project goal: Create tidal pool (0.41 ac.), salt marsh (1.19 ac.), and freshwater ephemeral marsh (0.55 ac.) habitat (total 2.15 acres of wetland creation). Enhance saltern habitat (0.53 ac.), tidal pool/creek (1.18 ac.), mangrove habitat (0.77 ac.) and salt marsh (2.55 ac.) (total 5.03 acres of wetland enhancement). Existing and upland spoil covered with exotic species are being enhanced into hardwood hammock habitat (1.20 ac.). The Tappan Tract is a SWIM project on property owned by the City of Tampa along the eastern shoreline of Old Tampa Bay.

B. Brief description of current condition: The Tappan Tract property covers approximately 33-acres, which includes 9 upland acres and 24 wetland acres (Figures D&E). Only the eastern portion of the property was designated for habitat restoration construction activities, and that was the area designated to provide the mitigation for the FDOT wetland impacts. Prior to the construction, the upland area within the east central portion of the site was primarily a mowed maintained open field with dominant cover of grasses, sedges, scattered cabbage palm, exotic species (Brazilian pepper, Melaleuca), and a few live oaks along the eastern boundary (site photos). A ridge of spoil material was located along the north and northwestern perimeter of the construction area (Figure E), approx. 10 ft. above natural grade, covered with pokeweed, caesar's-weed, and elderberry. A dense stand of Brazilian pepper and Melaleuca was located along the northern boundary, scattered B. pepper along the western project boundary. Saltmarsh and mangroves are present north and west of the project boundaries. South Sherrill Street and W. Prescott Street border the east and west sides respectively.

C. Brief description of proposed work: Construction was conducted in 2003, commencing with exotic species eradication from the wetland creation and enhancement areas, followed by grading to create tidal pool, saltmarsh, and an ephemeral freshwater marsh (Figure F). The wetland enhancement was conducted primarily through removal of exotic species. The spoil ridges were removed and converted to upland hardwood hammocks. The project included planting species typical of estuarine habitat (Attachment A).

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): Almost all the proposed wetland designated for mitigation at the Tappan Tract are associated with low quality ditches, with the remaining wetland impacts associated with the same FDOT project being mitigated at the Cockroach Bay (Freshwater and Saltwater sites), and the Apollo Beach project. All four habitat improvement projects are SWIM sponsored projects constructed on Hills. County Parks property. For the 0.3 acres of mangrove impact, there was mangrove enhancement (0.77 ac.), resulting in a mitigation ratio of 2:1. Additional mangrove germination will naturally occur within the enhanced and constructed salt marsh. For the 3.5 acres of saltwater ditch impacts, the mitigation includes salt marsh creation (1.19 ac.), salt marsh enhancement (3.06 ac.), tidal pool creation (0.41 ac.), saltern enhancement (0.53 ac.), and tidal pool enhancement (0.72 ac.), for a total mitigation ratio of 1.7:1. For the 0.6 acres of freshwater ditch impacts, the mitigation includes freshwater marsh creation (0.55 ac.) and hardwood hammock enhancement (1.20 acres), which is a mitigation ratio of 3:1. Considering 94% of the proposed wetland impacts are associated with ditches, and there are over 20 acres of publicly protected quality habitat surrounding the restoration area, the mitigation is considered appropriate and adequate to mitigate these low quality wetland impacts.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The only mitigation bank in the Tampa Bay Drainage Basin is the Tampa Bay Mitigation Bank (TBMB), which was not permitted at the time mitigation selection had to be designated for this FDOT project.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : This is a SWIM project.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD Operations Department
Contact Name: Stephanie Powers, WMD-SWIM Environmental Scientist Phone Number: 813-985-7481 ext. 2213

Entity responsible for monitoring and maintenance: Private consultant on contract to the SWFWMD
Proposed timeframe for implementation: Commence: Design, 2000, Construction, 2003 Complete: Followed by minimum 3 years maintenance & monitoring

Project cost: \$ 460,000 (total)
Design: \$80,000
Construction and planting: \$340,000
Monitoring & Maintenance: \$40,000

Attachments

- X 1. Detailed description of existing site and proposed work. Attachment A - Existing Site & Proposed Work
- X 2. Recent aerial photograph with date and scale. Figure D & E - Infrared Aerial (1995).
- X 3. Location map and design drawings of existing and proposed conditions. Figure A (Location Map), Figure D (Existing Conditions), Figure F (Habitat Plan).
- X 4. Detailed schedule for work implementation, including any and all phases. Refer to Attachment B - Schedule

<input checked="" type="checkbox"/> 5. Proposed success criteria and associated monitoring plan. Attachment C - Success Criteria & Monitoring
<input checked="" type="checkbox"/> 6. Long term maintenance plan. Refer to Attachment C
<input checked="" type="checkbox"/> 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous text.

ATTACHMENT A - Existing Site & Proposed Work

Based on the information (aerials, soils), the historical 1948 aerial (Figure B) and pre-construction conditions (Figures C & D, site photos), the site was historically a coastal pine flatwood adjacent to a mangrove fringe along Tampa Bay. The pine flatwoods were cleared and fill material was placed along the wetland boundary. Possible fill source was from the scraped upland along the southeast side of the project site, resulting in the generation of a transitional salt marsh (refer to Figure E). The clearing and fill material allowed the site to become invaded by Brazilian pepper and Melaleuca. As part of the initiative of the SWFWMD-Surface Water Improvement & Management Program (SWIM) and the Tampa Bay National Estuary Program (TBNEP), this site was selected to not only restore upland habitat, but to create estuarine wetlands that will be tidally connected to Tampa Bay. This project was one of the proposed habitat creation and restoration projects under consideration along Tampa Bay, referred to as the South Tampa Greenway, and owned by the City of Tampa. As part of the 2003 construction, the exotic species were removed and appropriate grading conducted to create and enhance estuarine habitat such as salt marsh, saltern, tidal pool, and mangrove habitat (Figure F). In areas where grading was conducted for estuarine wetland creation, species such as smooth cordgrass, marshhay cordgrass, sand cordgrass, seaside paspalum, and needle rush were planted throughout the creation area. The mangrove forest adjacent to the project site provides a seed source to allow mangroves to recruit and germinate within portions of the created marsh habitat. The freshwater marsh is separated from tidal influence by the spoil ridges that were decreased in elevation. The marsh was planted with soft rush and beak rush species, but also included salt tolerant species such as fimbries, lemon bacopa, muhly grass, and American bulrush. The upland berms were graded to slope and provide surface water runoff into the ephemeral marsh, mulched and planted with coastal hammock species such as Florida privet, live oak, firebush, redbay, sabal palm, wild coffee, and rouge plant.

ATTACHMENT B – Schedule

The design was completed and permitted by 2002. Construction commenced by the SWFWMD-Operations Department in December, 2002 and completed in June, 2003; followed by plant installation. A minimum of 3 years maintenance & monitoring will be conducted after construction. After the tract achieves success criteria, perpetual management will be conducted by the City of Tampa.

ATTACHMENT C - Maintenance & Monitoring Plan, Success Criteria

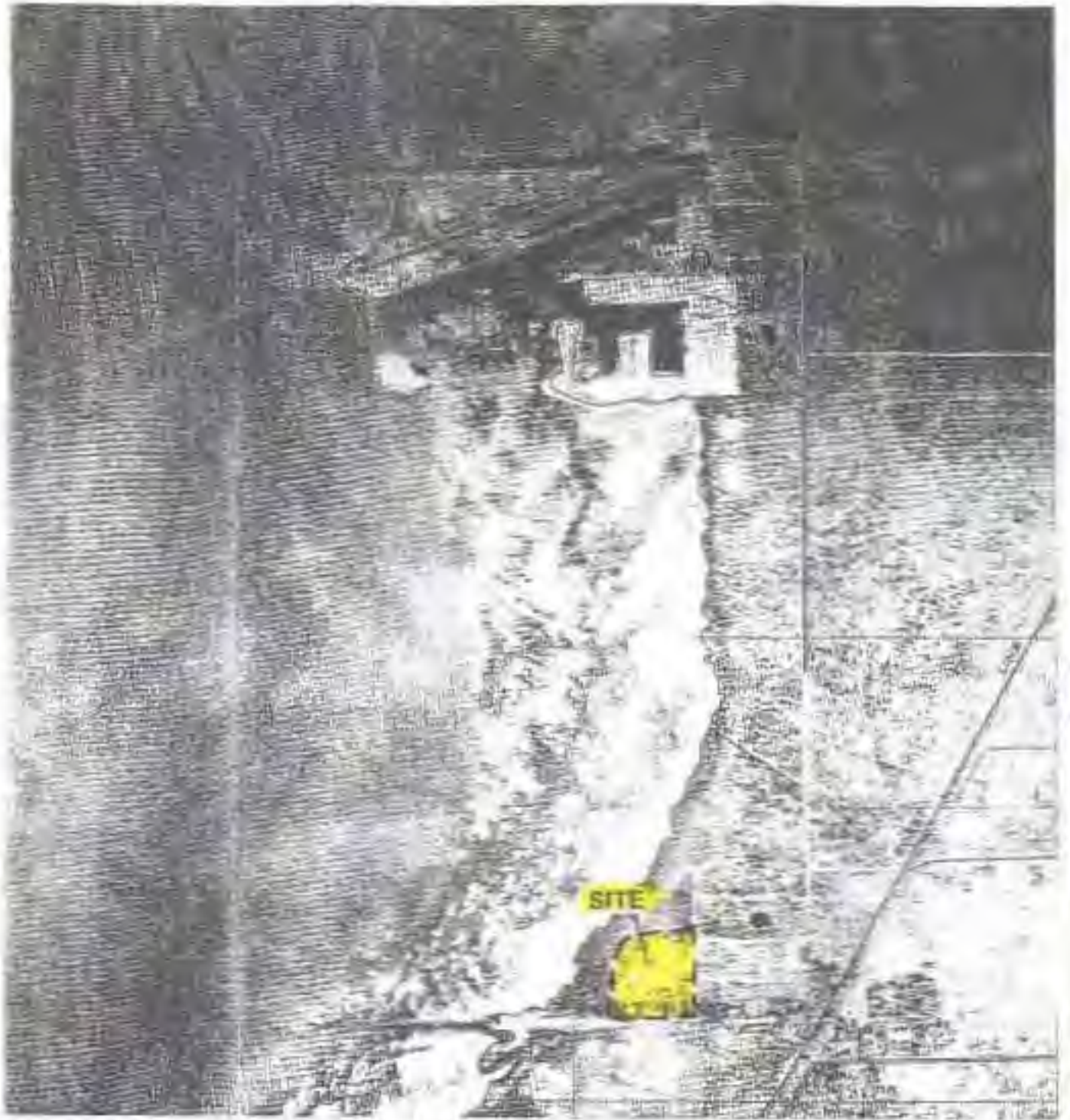
Maintenance is primarily related to control of debris from the site, replacement of plants that may not have survived the initial planting, and to ensure exotics (particularly Brazilian pepper and Melaleuca) do not regenerate within the upland area. Saplings of these species are controlled with herbicide. Short-term maintenance will be conducted by private consultants contracted through the SWFWMD. Long-term maintenance will be the responsibility of the City of Tampa Parks Dept. since they own the property. The qualitative monitoring is proposed to be semi-annual for 3 years, with an annual monitoring report each year to document the habitat conditions and maintenance activities for the previous year. The success criteria includes 90% survivorship for planted material, a total 85% cover of desirable species, and less than 10% cover of exotic and nuisance species.



FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)

TAPPAN SITE
(SW 62)

FIGURE A
LOCATION MAP



NORTH ↑
SCALE: 3.12 in. = 1 mile

FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)

TAPPAN SITE
(SW 62)

FIGURE B
HILLS, CO. SOIL SURVEY
(AERIAL DATE - 1948)



NORTH ^
SCALE: 3.12 in. = 1 mile

FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)

TAPPAN SITE
(SW 62)

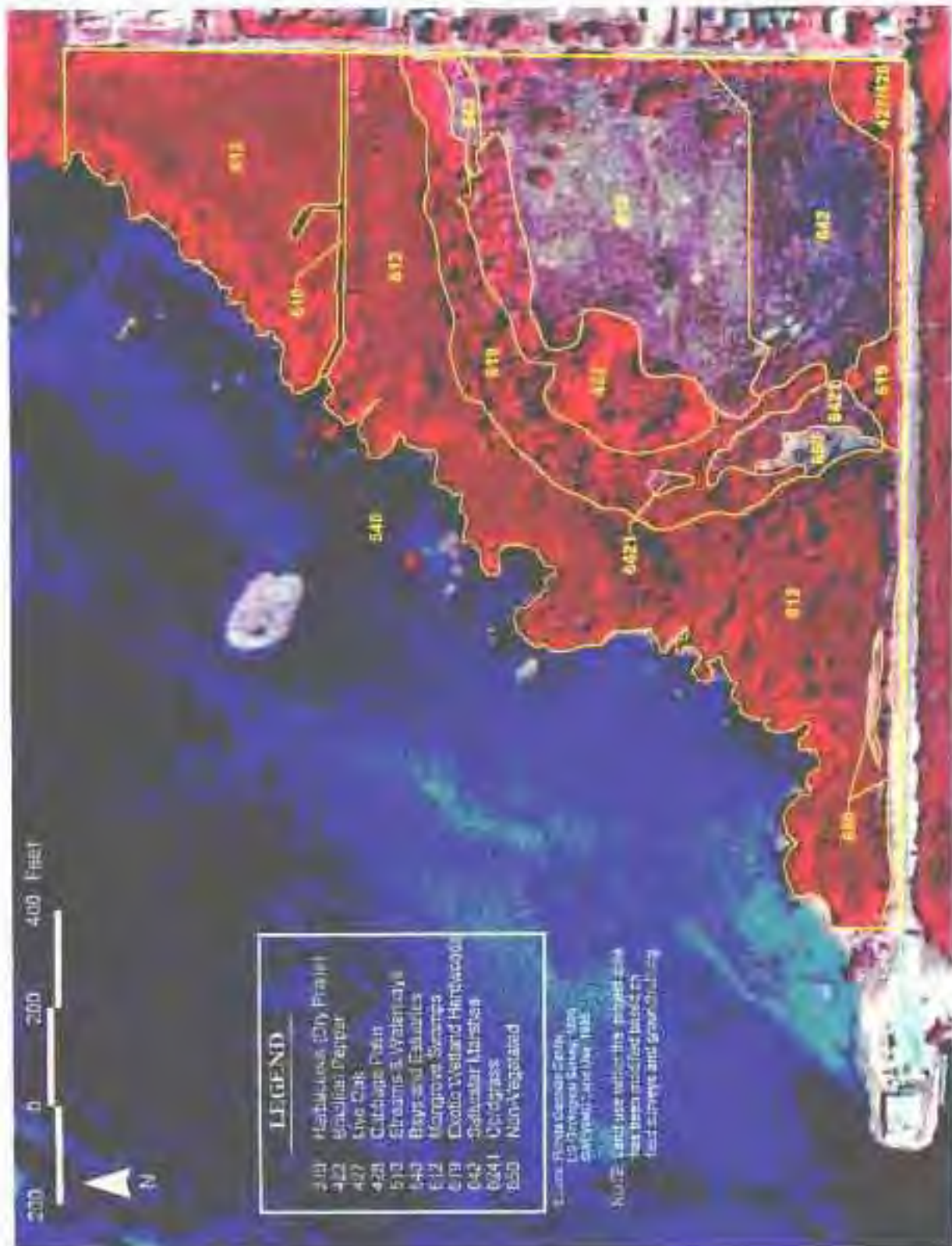
FIGURE C
HILLS, CO. SOIL SURVEY
(AERIAL DATE - 1982)



FDOT - District 7
MITIGATION SITE
(Tampa Bay Coastal Basin)

TAPPAN SITE
(SW 62)

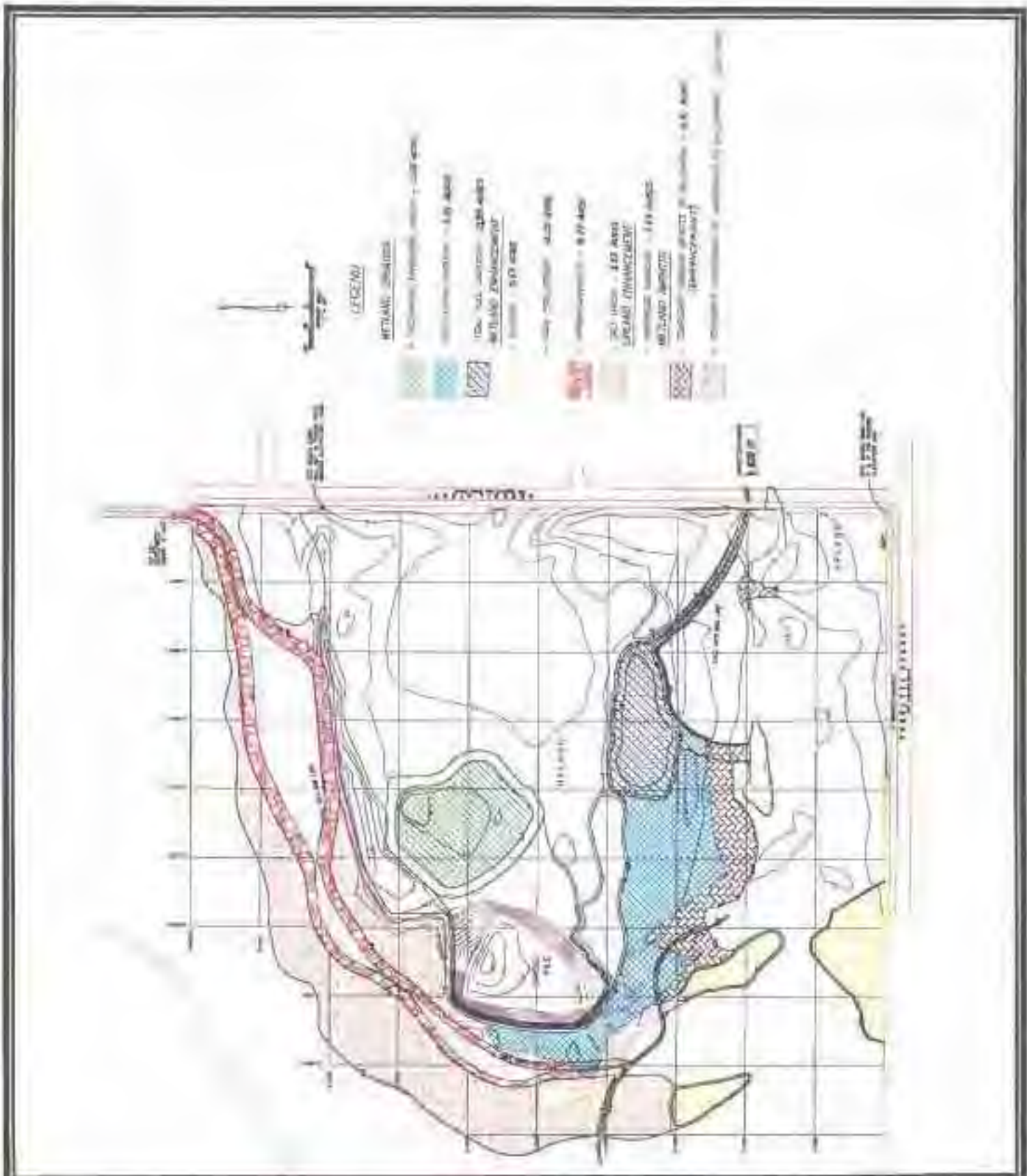
FIGURE D
INFRARED AERIAL
(AERIAL DATE - 1995)



**FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**TAPPAN TRACT
(SW 62)**

**FIGURE E
EXISTING HABITAT**



FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)

TAPPAN TRACT
(SW 62)

FIGURE F
CONCEPTUAL MITIGATION
DESIGN



View from the southeast corner (intersection of South Sherrill and West Prescott Streets). Some scattered palms and live oaks along the eastern boundary will be preserved by incorporating them into an upland habitat restoration area of the project.



Opposite view of previous photo, from close to the northwest corner of the site. Standing on a fill ridge of 15-20 ft., this view shows the majority of the tract is dominated by bermuda grass with a few scattered myrtle, cabbage palm, Brazilian pepper, and melaleuca.

FDOT - District 7 Mitigation Site
(Tampa Bay Drainage Basin)

Tappan Tract
(SW 62)



View toward northern project boundary from top of the fill ridge. The fill is heavily covered with nuisance/exotic species such as pokeweed, caesarweed, elderberry, and Brazilian pepper. As seen in the background, the northern boundary has extensive coverage of melaleuca and Brazilian pepper that will be eradicated.



View of the saltmarsh just west of the project boundary. Needle rush, salt bush, Borrchliu, saltmarsh cordgrass, salt grass, glasswort, and sea blite are commonly found in the vicinity of the site boundary. B. pepper within the transitional wetland will be eliminated.

**FDOT - District 7 Mitigation Site
(Tampa Bay Drainage Basin)**

**Tappan Tract
(SW 62)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Hillsborough River Corridor (Crews Tract)

Project Number: SW 63

Project Manager: Mark Brown, WMD Environmental Scientist

Phone No: (352) 796-7211 ext. 4488

County(ies): Pasco

Location : Sections 30, T26S, R22E

IMPACT INFORMATION

FM: 2563151, US 41, Bell Lake to Tower Road

ERP #: 4418030.002

COE #: 199241273 (IP-ES)

Drainage Basin(s): Hillsborough River

Water Body(s): Trout Creek, Cabbage Swamp

SWIM water body? N

Impact Acres/Types (FLUCFCS):

FM: 2563151 - 1.1 ac. 621

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration Enhancement Preservation Mitigation Area: **10 ac.**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin(s) : Hillsborough Water Body(s): Hillsborough River SWIM water body? N

Project Description

- A. Overall project goal:** Acquisition and preservation of a parcel within the Hillsborough River floodplain, a mixed forested wetland (10 acres) that is part of a high quality riverine habitat corridor (Figure D). This tract is an outparcel of adjacent river floodplain property already owned by the SWFWMD (Figures A, C, D).
- B. Brief description of current condition:** The entire tract is a mixed forested wetland floodplain with high quality habitat. A narrow portion (40-60 ft. wide) of the Hillsborough River meanders through the southern portion of the tract (refer to Attachment A for additional site information).
- C. Brief description of proposed work:** After acquisition, the site will be periodically reviewed for security and to ensure high quality habitat conditions are maintained. Efforts will continue to be made to hopefully acquire the adjacent 20 acre outparcel of floodplain forest to finalize the corridor connection of public lands along this section of the Hillsborough River (Fig. D).
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The Hillsborough River corridor is an important area for wildlife use and access, water quality treatment, flood attenuation, and providing a water source for Hillsborough County and the City of Tampa. The proposed wetland impact area includes forested wetlands of lesser habitat quality. With the acquisition and preservation mitigation credit of 10 acres, the ratio of preservation to mitigation acreage is 10:1.
- E. A brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** At the time of selection, a mitigation bank was not present or proposed within the Hillsborough River basin.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** At the time of selection, the only SWIM project within this basin was the Lake Thonotassassa Restoration Project. All available wetland components for that restoration project have been delegated to mitigate for wetland impacts associated with another FDOT project.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: No construction activities are necessary

Contact Name: Mark Brown, WMD Environmental Scientist

Phone Number: (352) 796-7211 ext. 4488

Entity responsible for monitoring and maintenance: Management, security, and any maintenance activities will be conducted by the SWFWMD Land Management and Land Use Depts.

Proposed timeframe for implementation: Commence: Summer, 2000 Complete: April, 2001 (acquisition)

Project cost: \$15,000 (acquisition costs)

Attachments

- X 1. Detailed description of existing site and proposed work. Refer to Attachment A - Existing Site
- X 2. Recent aerial photograph with date and scale. Figure D - infrared aerial (1995).
- X 3. Location map and design drawings of existing and proposed conditions. Figure A - Watershed Map, Figure B- Location Map, and Figure D- Site Conditions.
- X 4. Detailed schedule for work implementation, including any and all phases. Acquisition in the spring, 2001.
- X 5. Proposed success criteria and associated monitoring plan. No monitoring or success criteria are required or proposed due to the high quality habitat conditions.
- X 6. Long term maintenance plan. Maintenance activities are not necessary for the high quality wetland floodplain habitat.
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

ATTACHMENT A - Existing Site & Proposed Work

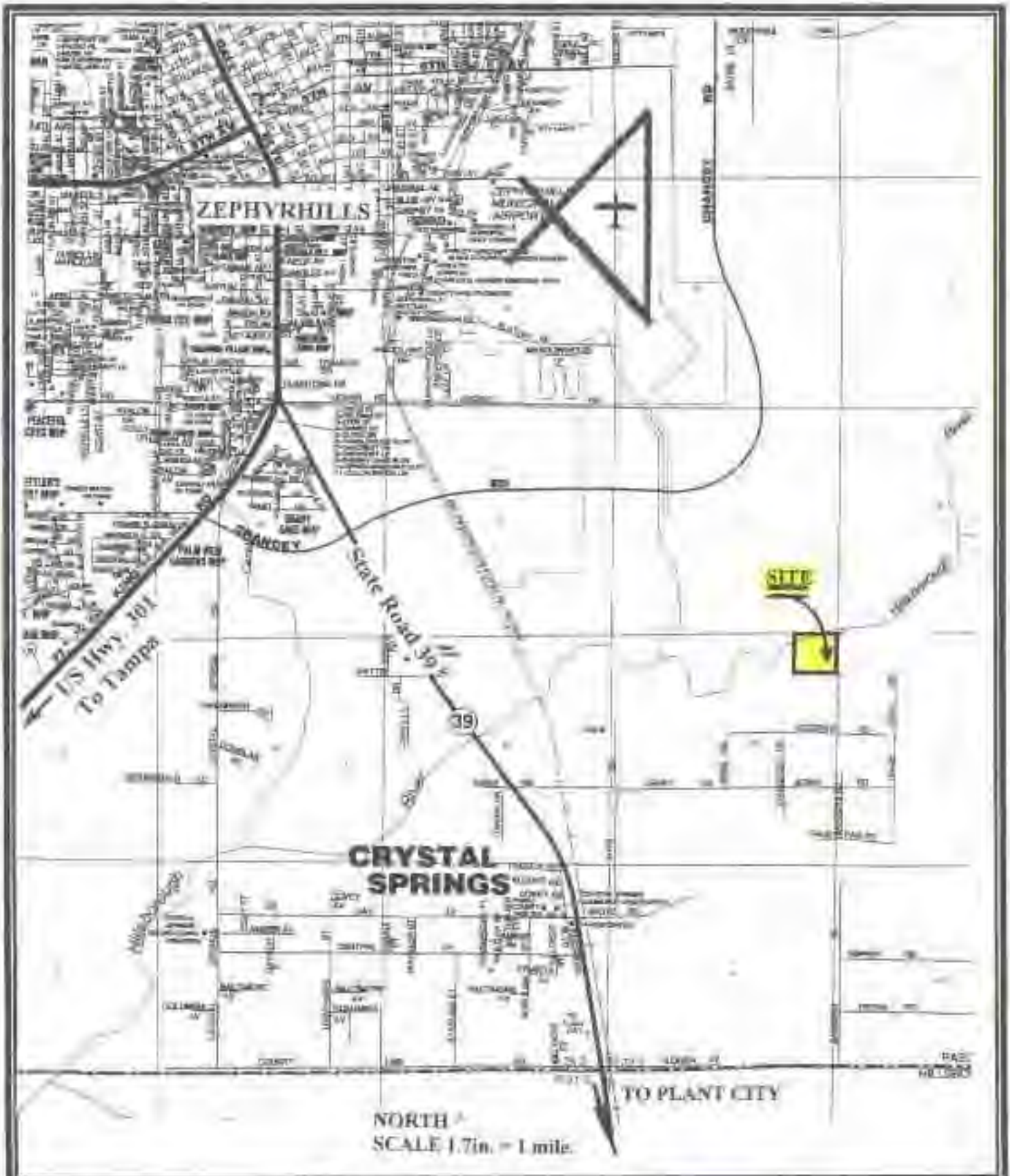
The entire 10 acres is mixed forested wetland floodplain with the Hillsborough River meandering through the southern portion of the site (refer to photos). The overstory (canopy >70%) is dominated by red maple, American elm, and laurel oak. Sub-dominants include sweet gum, hackberry, ironwood, bald cypress, and pop ash. Several small natural channels exist where river overflows during flood events. The cypress are dominant within these channels. A shrub canopy (50-70% cover) in combination with the overstory provides a dense cumulative canopy but still relatively open understory to provide easy wildlife movement. Shrub layer species include the same canopy species with a dominance of elm and additional cover of cabbage palm, Virginia willow, and wax myrtle. Understory vegetation includes smilax, poison ivy, Virginia creeper, wild coffee, and various, small *Panicum spp.* Observed wildlife species include deer, racoon, squirrels, and substantial bird activity. Periodic review of the site is conducted by the SWFWMD to ensure these high quality habitat conditions are maintained and that no adjacent land use activity encroach or impact the habitat.



**FDOT - District 7
 MITIGATION SITE
 (HILLSBOROUGH BASIN)**

**HILLSBOROUGH RIVER
 CORRIDOR (SW 63)
 (WAHL & KREW TRACTS)**

**FIGURE A - WATERSHED
 BASIN MAP**



**FDOT - District 7
MITIGATION SITE
(HILLSBOROUGH BASIN)**

**HILLSBOROUGH RIVER
CORRIDOR (SW 63)**

**FIGURE B
LOCATION MAP**

FDOT - District 7
MITIGATION SITE
(HILLSBOROUGH BASIN)

HILLSBOROUGH RIVER
CORRIDOR (SW 83)

FIGURE C
PASCO CO. SOIL SURVEY

PROPOSED WETLAND ACQUISITION &
PRESERVATION AREA (10 ACRES)

EXISTING
SWFWMD
PROPERTY

EXISTING
SWFWMD
PROPERTY

HILLSBOROUGH RIVER CORRIDOR
SOIL LEGEND

39⁺ - Chobee soils, frequently flooded

* Hydric Soils

NORTH [#]

Scale - 3.75 inches = 1 mile

PASCO SOIL SURVEY AERIAL DATE - 1975





**FDOT - District 7
MITIGATION SITE
(Hillsborough River Basin)**

**HILLSBOROUGH RIVER
CORRIDOR (SW 63)
(Crews Tract)**

**FIGURE D
LOCATION MAP
Scale 1 in. = 366 ft.**



View depicting the dense canopy & subcanopy coverage, yet still open ground area for wildlife movement. The white lichens on the cypress (left) delineates a flood elevation a few feet above surface grade.



Background depicts an area of very dense subcanopy however small pockets of less canopy (foreground) allow substantial cover of various herbaceous species.

**FDOT - District 7 Mitigation Site
(Hillsborough River Basin)**

HILLSBOROUGH RIVER CORRIDOR (SW 63)



View of the Hillsborough River that substantially meanders through the property, averaging 40-60 ft. wide, very clear & clean water.



One of the many overflow channels within the floodplain, the cypress tend to be concentrated along the channels, various wetland hardwood species dominate the remaining floodplain area.

FDOT - District 7 Mitigation Site
(Hillsborough River Basin)

HILLSBOROUGH RIVER CORRIDOR (SW 63)

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Baird Tract (Withlacoochee State Forest, Richloam) Project Number: SW 64

Project Manager: Judy Ashton, Environmental Specialist (FDEP-Tampa) Phone No: (813) 632-7600, ext. 342

County: Sumter

Location (central lat/long): 28 33' 0", 82 00', 00"

IMPACT INFORMATION (Anticipated Construction Schedule)

<u>1 - FM 2571641, SR 44-CR 470 to County Line</u>	ERP #: <u>4310152.004</u>	COE #: <u>199606491 (IP-KF)</u>
<u>2 - FM 2571631, SR 44-US 41 to CR 470</u>	ERP #: <u>4310152.003</u>	COE #: <u>199606491 (IP-LM)</u>
<u>3 - FM 2571841, SR 45 (US 41) – Watson St. to SR 44 East</u>	ERP #: <u>44024198.000</u>	COE #: <u>200206293 (NW-KCF)</u>
<u>4 - FM 4092071, CR 470 (Gospel Isle)</u>	ERP #: <u>44027068.000</u>	COE #: <u>2004-6915 (NW)</u>
<u>5 - FM 2426262, I-75 - Hernando Co. Line to SR 470 (Undeter.)</u>	ERP #: _____	COE #: _____
<u>6 – FM 2426263, I-75 - SR 470 to Turnpike (Undetermined)</u>	ERP #: _____	COE #: _____
<u>7 – FM 2404182, SR 48 – I-75 to CR 475</u>	ERP #: _____	COE #: _____
<u>8 – FM 4116653, SR 44 – CSX R/R Overpass</u>	ERP #: _____	COE #: _____

Drainage Basin(s): Withlacoochee River Water Body(s): Lake Henderson, Lake Tsala Apopka SWIM water body? N

Impact Acres / Types (FLUCFCS):

<u>1- FM 2571641</u> <u>4.9 ac. 617</u> <u>4.1 ac. 630</u> <u>4.9 ac. 641</u> 13.9 acres	<u>3 - FM 2571841</u> <u>0.1 ac. 641x</u> 0.1 acre	<u>5 – FM 2426262</u> <u>0.4 ac. 641</u> 0.4 acre	<u>7 – FM 2404182</u> <u>0.15 ac. 643</u> 0.15 acre
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<u>2- FM 2571631</u> <u>3.1 ac. 615</u> <u>3.2 ac. 618</u> <u>1.6 ac. 641</u> 7.9 acres	<u>4- FM 4092071</u> <u>0.1 ac. 617</u> <u>0.2 ac. 641</u> 0.3 acre	<u>6 – FM 2426263</u> <u>13.8 ac. 617</u> 13.8 acres	<u>8 – FM 4116653</u> <u>1.0 ac. 641</u> 1.0 acre
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TOTAL – 37.55 Acres

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation ___ Restoration X Enhancement ___ Preservation Mitigation Area: **1518 acres**
(Non-forested Wetlands - 970 acres, Forested Wetlands – 548 Acres)

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N
Drainage Basin(s): Withlacoochee River Water Body(s): Giddon Lake, Merritt Pond, Goose Pond, Little Withlacoochee River SWIM water body? N

Project Description

A. Overall project goal: Enhancement of various wetland systems (1518 acres) within portions of the Withlacoochee State Forest; including the Baird Tract (11,000 acres) and Richloam Management Area (49,000 acres). Benefits will include hydrologic enhancement of existing wetlands through culvert installation, geotextile crossings, constructing sills, plugging & backfilling ditches, and removal of various segments of fill road. Enhancement and attenuation of water sheet flow throughout these wetland systems and groundwater recharge will be achieved through reduction and removal of upland-cut ditches. Installation of appropriately placed cross-drains within access roads to remove blocked-flow patterns will also enhance various aspects for wildlife life cycles.

B. Brief description of current condition: Refer to Attachment A and 1995 infrared aerials.

C. Brief description of proposed work: Refer to Attachment B.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The proposed hydrologic enhancement will result in biological (flora & fauna) improvements to various wetland and upland habitats. Enhancement will result in various deep-water marshes associated with wetland systems at Baird Tract (i.e. Gidden Lake, Merritt Pond, Revel Pond, Goose Pond), similar to the deep-water marsh habitat conditions of the SR 44 roadway wetlands along Lake Henderson and Lake Tsala Apopka. As for the proposed forested wetland impacts associated with SR 44 and I-75 expansion, hydrologic enhancement of Fender Swamp and other hydrologically impacted forested wetlands will compensate for those impacts. The majority of the proposed forested wetland impacts are associated with future expansion of I-75 segments in Sumter County, within close proximity of the Baird Tract. Due to the large-scale habitat improvements at Baird Tract, the loss of the roadway wetland habitats will be compensated by the significant ecosystem benefits from the proposed activities. The various ditch filling and control structures required to enhance and restore hydrologic regimes provide more opportunity to increase the wetland habitat functions and value. In addition, retaining water within the wetlands and surface waters to restore a natural hydrology will result in significant secondary benefits such as attenuation and groundwater recharge within the entire area of Baird Tract. The final estimate of forested versus non-forested wetland enhancement will be conducted as part of the design. At a minimum, the activities are expected to enhance wetland acreages that include **970 acres (non-forested)** and **548 acres (forested) for a total 1518 acres.**

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection, there were no existing or proposed mitigation banks within the Withlacoochee River Basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : At the time of mitigation selection, the only SWIM project within this watershed was the Lake Panasoffkee Restoration project (SW57), which has been designated to provide mitigation to compensate for unavoidable wetland impacts associated with expanding the I-75 bridge crossing of Lake Panasoffkee's wetland floodplain.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Private contractor selected by the Div. of Forestry in cooperation with FDEP

Contact Name: Judy Ashton, Environmental Specialist (FDEP-Tampa) Phone Number: 813-632-7600, ext. 342

Entity responsible for monitoring and maintenance: FDEP and FDOF

Proposed timeframe for implementation: Commence: January, 2001-2003 – Site Evaluations, 2003 - initial enhancement with culvert replacements , 2006-2008 – Surface water modeling by private engineering consultant firm, installation of continuous water level recorders

Complete: 2009 -construction, followed by minimum 3 years of monitoring.

Project cost: \$1,430,000 (total)

Design & Permitting - \$250,000

Construction - \$1,100,000

Maintenance & Monitoring - \$80,000

Attachments

1. Detailed description of existing site and proposed work. Refer to Attachment A.
2. Recent aerial photograph with date and scale. Refer to attached 1995 infrared aerials.
3. Location map and design drawings of existing and proposed conditions. Refer to Attachments 1 and 4 for site location, infrared aerials have potential structure locations, design drawings will be completed in 2008.
4. Detailed schedule for work implementation, including any and all phases. Refer to previous scheduled description.
5. Proposed success criteria and associated monitoring plan. Hydrologic monitoring will be conducted with pre- and post-construction continuous water level recorders. This information will be incorporated into an annual monitoring report for a minimum of three years to evaluate wetland hydroperiods and habitat trends as a result of the enhancement efforts. The initial monitoring report will document pre-existing conditions and the construction activities. Qualitative vegetative evaluation of the proposed wetland enhancement areas will be conducted as part of the hydrologic monitoring. Success criteria will include the demonstration of hydrologic and vegetative enhancement to the wetlands specified for proposed enhancement.
6. Long term maintenance plan. Long-term maintenance will be associated with checking the proposed construction areas (i.e. ditch blocks, sills, culverts, geotextile crossings, etc.) to ensure proper function and no erosion or stabilization problems.
7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to Response to Comment E.

ATTACHMENT A

Natural conditions within the subject areas have been significantly altered due to structures such as roads and railway grades which function as levees. Water is impounded or is diverted during periods of high water, altering the natural hydroperiods and flow patterns. Canals, drainage ditches, undersized culverts and culverts set with low inverts have also dewatered systems. Flows are channelized and bypassing occurs due to these alterations as opposed to the natural sheet flow which historically existed through these wetlands. In areas where very minor water elevation differences would be expected between pools which are proximal to each other, differences in excess of a foot have been observed due to blockages and diversions. Lake levels have shown in excess of 9 foot differences between the historic level as observed from indicators on site. Vegetation changes have occurred such as upland species moving into historically wetland areas. Some examples are described below:

- **The Van Fleet Trail** (a former railroad grade) is apparently restricting and diverting some of the high water flows which would otherwise move westward. The elevation of the Van Fleet Trail has been observed to be in excess of 4' above the seasonal high water elevation of adjacent wetlands. For example, in Section 24, water moving westward during periods of high flow must pass through a single concrete culvert approximately 31" wide, and 33" in height, and 48 feet in length. Flow is also restricted 1,000 feet to the west by a 30" corrugated metal pipe embedded in an elevated forest road which surrounds Fender Swamp. Flow is diverted and channelized resulting in bypassing of major areas.
- High water elevations from the **Davis Swamp** pool westward are described as follows: From the east side of the **Van Fleet Trail** (east) to the west side of the Trail, there was a 0.19 feet drop in water level based on lichen lines. From the west side of the Van Fleet Trail westward through a culverted forest road there was an additional drop of 0.87 feet. drop as measured within the **Fender Swamp** pool. The total elevation drop within a distance of 1,000 ft. was 1.06 ft.
- Historic flows westward from the Van Fleet Trail in Section 14 have been blocked by a road on private property which is presently without culverts.
- During the high water event in 94, several hundred acres of marsh and cypress wetlands bordering 1.5 miles of the Van Fleet Trail were somewhat shielded from flood flows due to the elevated grade of the Van Fleet Trail and adjacent forest roads to the west and a lack of culverts in strategic locations. The semi-impounded system west of the Van Fleet Trail had a high **water level 1.25 ft. below that of Davis Swamp**, and within one isolated pool located 600 ft. northwest of Davis Swamp the **water level was 1.44 ft. below that of Davis Swamp**. This is significant in this flat terrain where normal water levels may vary only fractions of a foot from one wetland to another.
- Within less than a mile north of Davis Swamp, along the forest road flanking the east side of the Van Fleet Trail, the high water level was 1/10 ft. lower on the east (**Big Prairie**) side of the East Railroad Grade.
- During the stronger flow events, some of the water discharged from **Davis Swamp** will bypass the **Van Fleet Trail** and move northward and northeastward, generally east of East Railroad Grade, through swales (6' x 1.75') and as sheet flow through some wooded wetlands and prairies over a span of two miles before connecting with the box culverts on **S.R. 50 (Big Prairie)**. Culverts and ditches are directing waters, east of East Railroad Grade, northward across S.R. 50.
- The wooded floodplain (live oak, swamp laurel oak) of **Davis Swamp** was covered with 1 ft. of water during the last high water event. This implies that a water level close to 95.50' would be expected during a normal wet period.

- In summary, from **Davis Swamp** to **S.R. 50** there was a drop between the high water marks of 2.26 feet.
- **Fender Swamp** is one of the larger flatwoods, pond cypress basin swamps (262 acres). High water lines were found to be identical both north and south of the south perimeter road of Fender Swamp (NE 1/4 of Section 26). Ditches have both (1) diverted flows and/or (2) caused excessive drainage of Fender Swamp.
- Base flows to **Gidden Lake** have been substantially interrupted. These base flows have been diverted by the Fender Swamp/Gidden Lake drainage canal which extends in a southwest direction from Fender Swamp. Instead of the water being allowed to sheet to the west, it is shunted to the southwest through this large canal toward the Little Withlacoochee. Extended lakebed areas in Gidden are dry and dominated by dog fennel. Limestone features within pooled areas are exposed. On site indicators showed an elevational difference of 9.33 feet between the existing lake level and high water line. While dry seasonal conditions may contribute to lower levels, these dramatic differences emphasize the artificial alterations which have occurred at the site.
- **Goose Pond** has been dewatered.
- **Merit Pond** which is a karst feature is overdrained. A ditch connects Merit pond to Gidden Lake.
- Approximately 150 acres of wetlands including **Goose Pond** have been adversely impacted by the canal which has breached the ridge line in Section 30.
- Revel pond (old borrow pit) recreation site has reduced water flow to it due to channelization of flows.

ATTACHMENT B

Significant hydrological impacts have occurred due to the construction of roads and ditches. By pursuing efforts to plug ditches, install additional culverts, bridges and remove selected secondary roadbeds, restoration of historic drainage patterns and extended wetland hydroperiods would result. Outparcel acquisition would also be pursued as targeted areas would be critical to the rehydration plan. These efforts would significantly benefit fish and wildlife, surface water storage and groundwater recharge. This can all be achieved without any adverse consequences to Forest Management. Restoration efforts would be prioritized to achieve the greatest benefits. Regional changes in groundwater levels and natural cycles are factors which must be taken into account while proceeding with the project activities. It should also be noted that while some specific actions are identified, a more detailed study of the areas hydrology would be pursued which may modify some of these proposals (such as size, type and location of structures to be installed). A drainage study has been included in the budget. Some examples of activity areas are identified below:

- **Van Fleet Trail**-This would be one of the primary project areas as the Van Fleet trail functions as one of the limiting factors in allowing water through this vast causeway. Additional culverts are recommended for the Van Fleet Trail in Sections 24 and 14. A more detailed study of the areas hydrology would be implemented to determine the size, location and type of cross drains to be constructed. It would be anticipated that larger box culverts (3' x 6') may be required in major conveyance areas. If additional culverts were constructed at the Van Fleet Trail and within the forest roads, some of the **Davis Swamp** flow could flow northward and westward into the wetlands bordering the west side of the Van fleet Trail.
- The course of action recommended for **Fender Swamp** is to add inflow and outflow culverts from the southeast to the southwest of the swamp, to place several ditch blocks in the Fender Swamp outfall canal, and to install additional culverts in Canal Grade Road to restore flows to the west. In Section 24, two 30 inch culverts are needed west of the Van Fleet Trail. The first culvert would be installed in the East Railroad Grade and the second culvert would be installed through the south end of Front Pasture Grade. This would allow improved flows into Fender Swamp and allow the wetlands in Sections 14, 23 and 24 west of the Van Fleet Trail to exchange waters.
- Several 24 inch culverts are recommended along the south and southwest sides of **Fender Swamp**. Two 24 inch culverts should be placed immediately at the southwest corner of **Fender Swamp**. Four 24 inch culverts are proposed for wetland crossing located east of Canal Grade. For the present time and for the foreseeable future the culvert beneath Buzzard Roost Road connecting Fender Swamp to the Fender Swamp Canal along Canal Grade Road can remain in place, even though the canal is scheduled to be plugged approximately 60 feet to the south. The existing culvert could still function to convey waters in ditches cut parallel to the road which tie into established wetlands.
- Approximately 8 ditch blocks may be required on the **Fender Swamp** canal in Sections 26, 27 and 34 (Canal Grade). Several 24 inch culverts need to be replaced and (4) 30 inch culverts need to be installed on Canal Grade in the southeast corner of Section 27.
- **Gidden Lake and wetland complex**: Selectively plug the drainage canal along the east side of Canal Grade Road to improve flows to Gidden Lake and install additional culverts at the appropriate locations to restore more natural drainage to Gidden Lake. There is a natural outlet to Gidden Lake which will be left intact. Flows redirected to Gidden Lake will be monitored.
- **Section 14 and Merritt Pond**: A closer examination of Section 14 is needed to resolve the impact of a private road which is functioning as a levee. Negotiations with private land owners can result in restoration of flows to forest lands in the Merritt Pond area. Some localized flooding should also be

reduced if drainage is restored to the west. An overflow in an old road bed, local topography and excessive drainage to the west clearly indicates westerly flows need to be restored.

- **Merit Pond:** Potential of installing a control structure between the canal connecting Merit Pond and Gidden Lake.
- **Goose Pond:** Ditch blocks would be constructed to restore hydroperiod.
- Section 26 and Southwest of Fender Swamp: Removal of fill roadway to restore natural grade.
- Northwest corner of Fender Swamp-Creation of a ponded area within an existing spoil site.
- Several Geoweb crossings will be installed along main crossings such as canal grade where there are currently insufficient culvert crossings. This would allow for sheet flow across currently restricted areas.
- Swale checks/blocks would be installed at locations to maintain natural flow patterns and preclude or reduce the current diversion and channelization of water. These ditches may then be used as feeder/dispersion ditches with correct elevations applied to these ditch blocks.
- Construction of sills around altered wetlands to restore hydroperiods.
- **Revel Pond:** An existing culvert is set approximately ½ foot below the existing wetland grade. Alteration of the culvert invert elevation would reduce dewatering effects. Construction of a sill on west side of the pond to reduce overdrainage would enhance this system.
- Additional studies would be required prior to implementing culvert installations along the East Railroad Grade east of the Van Fleet Trail since the culverts could simply increase drainage of the wetlands eastward into wetlands already ditched and drained northward into Big Prairie and from the Little Withlacoochee River.

Land Acquisition and Preservation: less than Fee simple title transfer of outparcel areas would be pursued. Properties may also be encumbered with conservation easements.

Some of the major components of the Baird Tract wetland restoration project will include the following areas. The restoration efforts will primarily consist of ditch blocks, culverts and geoweb crossings within these systems to promote sheet flow and eliminate channelization and diversion. It is expected that significantly greater acreages of wetlands will actually receive benefits from these activities. The following are estimates of direct wetland enhancement which would be expected to occur through restoration efforts.

Sally Slough

Approximately 303 acres of wetland enhancement via the installation of ditch blocks and culverts. Wetlands consist of cypress, mixed wetland forest, hardwood forested wetlands. Land use codes included in enhancement area: 6300, 6150, 6210

Fender Swamp

Approximately 240 acres of wetland enhancement via culvert installations. Wetlands consist of cypress and herbaceous wetlands. Land use codes included in enhancement area: 6210, 6400

Gidden Lake

Approximately 422 acres of wetlands to be enhanced. Dewatered marsh adjacent cypress wetlands and hardwood forested wetlands will be enhanced. Land use codes included in enhancement areas: 6410, 6150, 6210

Merrit Pond

Approximately 185 acres of marsh will be enhanced, including openwater areas. Enhancement will include the blocking of the ditch draining from Merrit Pond into Gidden lake. Land use codes included in enhancement areas: 6430, 6440, 6410, 6150

Van Fleet Trail

Approximately 316 acres of wetlands will be directly enhanced via the construction of culverts. Land use codes included in enhancement areas: 6410, 6200

*Canal Grade

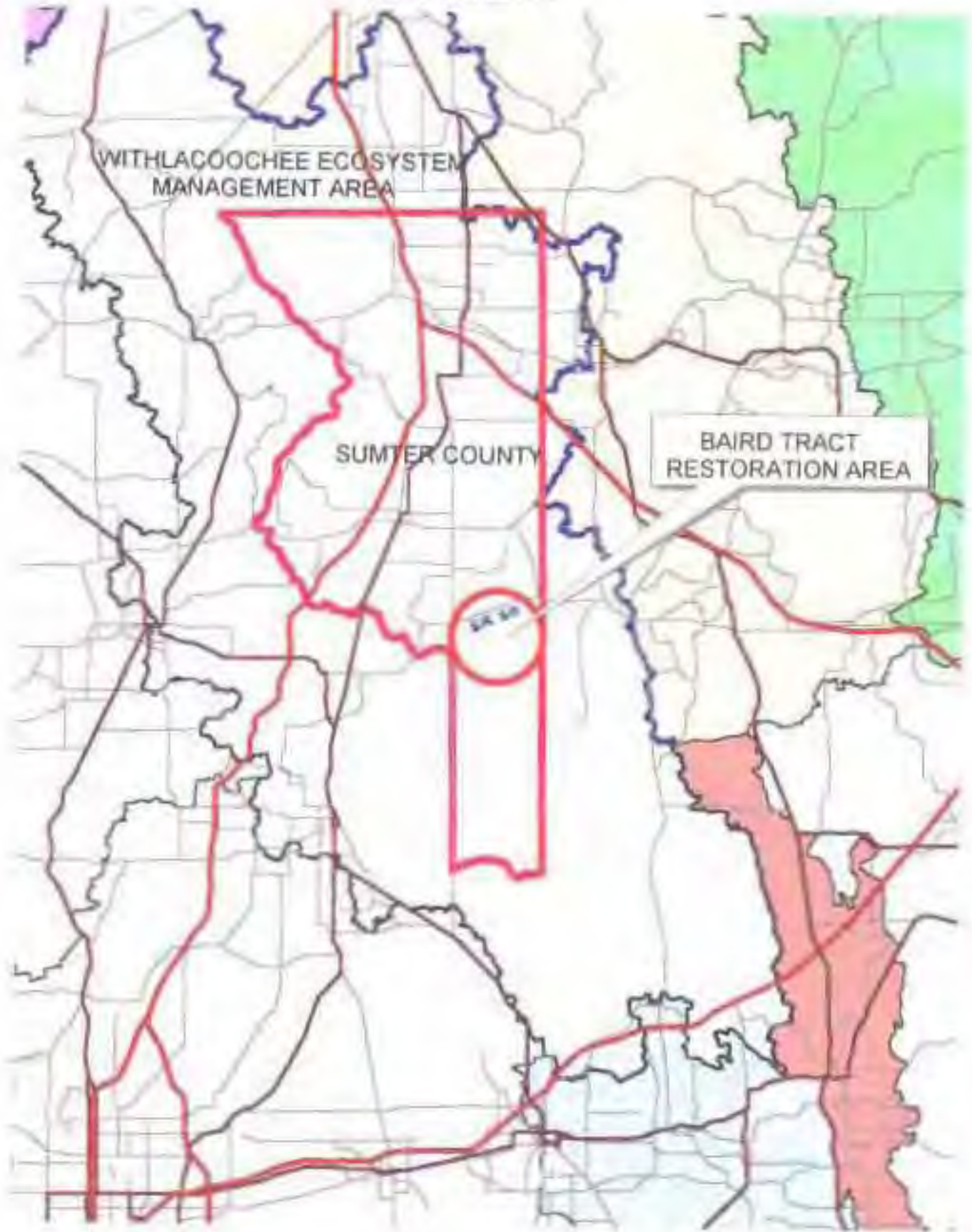
Approximately 422 acres of wetlands will be directly enhanced via the installation of ditch blocks, geoweb and culverts. Land use codes included in enhancement areas: 6210, 6430, 6300, 6410

*(A Federal Grant has been applied for and received by the Department for this area. This area will not be included within this plan)

Goose Pond

Approximately 52 acres of wetlands will be directly enhanced. Land use codes in enhancement areas: 6430, 6210

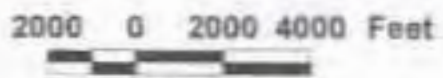
ATTACHMENT 1



5 0 5 10 Miles



ATTACHMENT 4



BAIRD TRACT
Natural Resource Conservation Survey November 1988



BAIRD TRACT
1995 INFRARED AERIAL
Entire Project Area

SR 471

POULTRY PARCEL

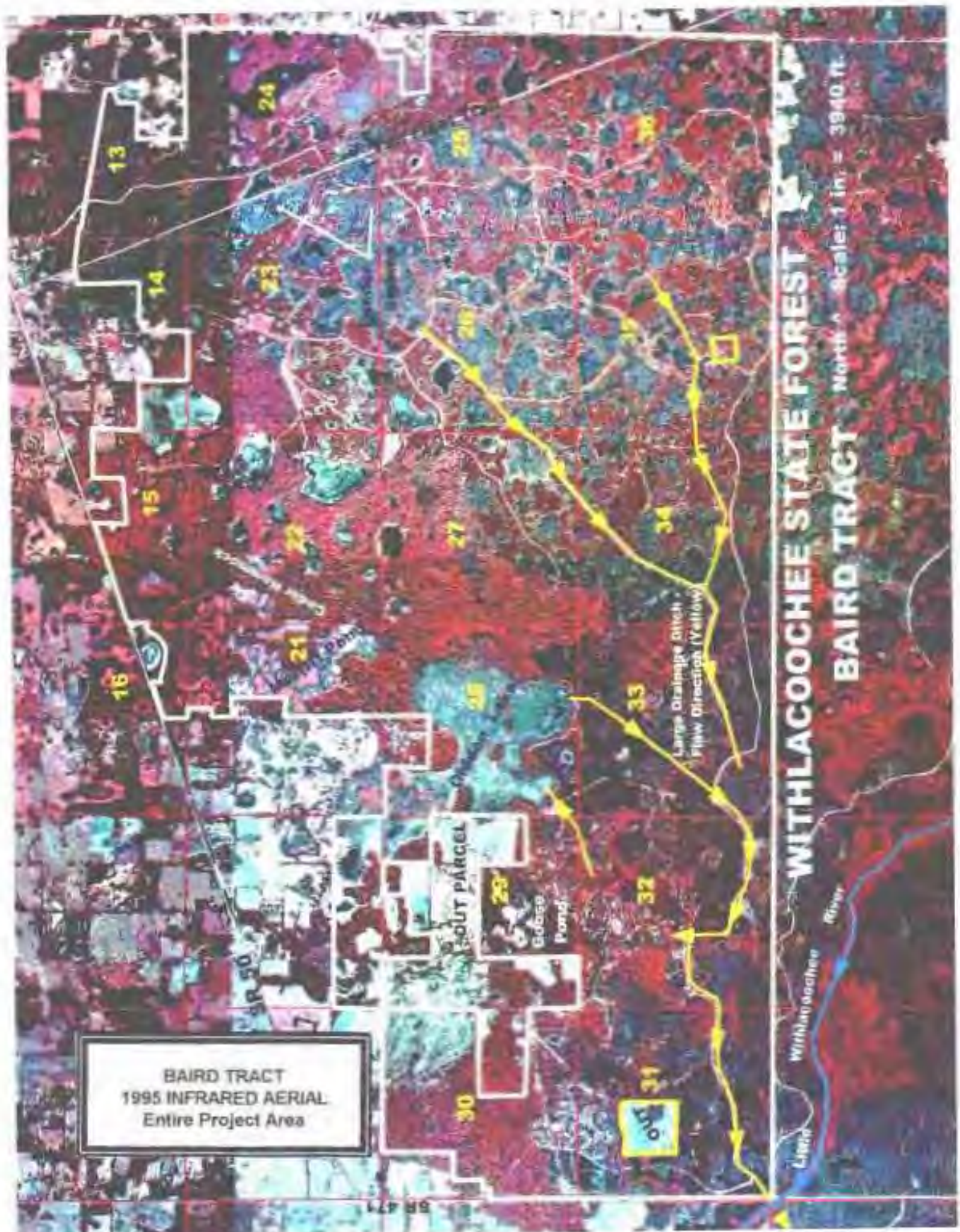
Goose Pond

Large Drainage Ditch
Flow Direction (Yellow)

Chick
Withlacoochee
River

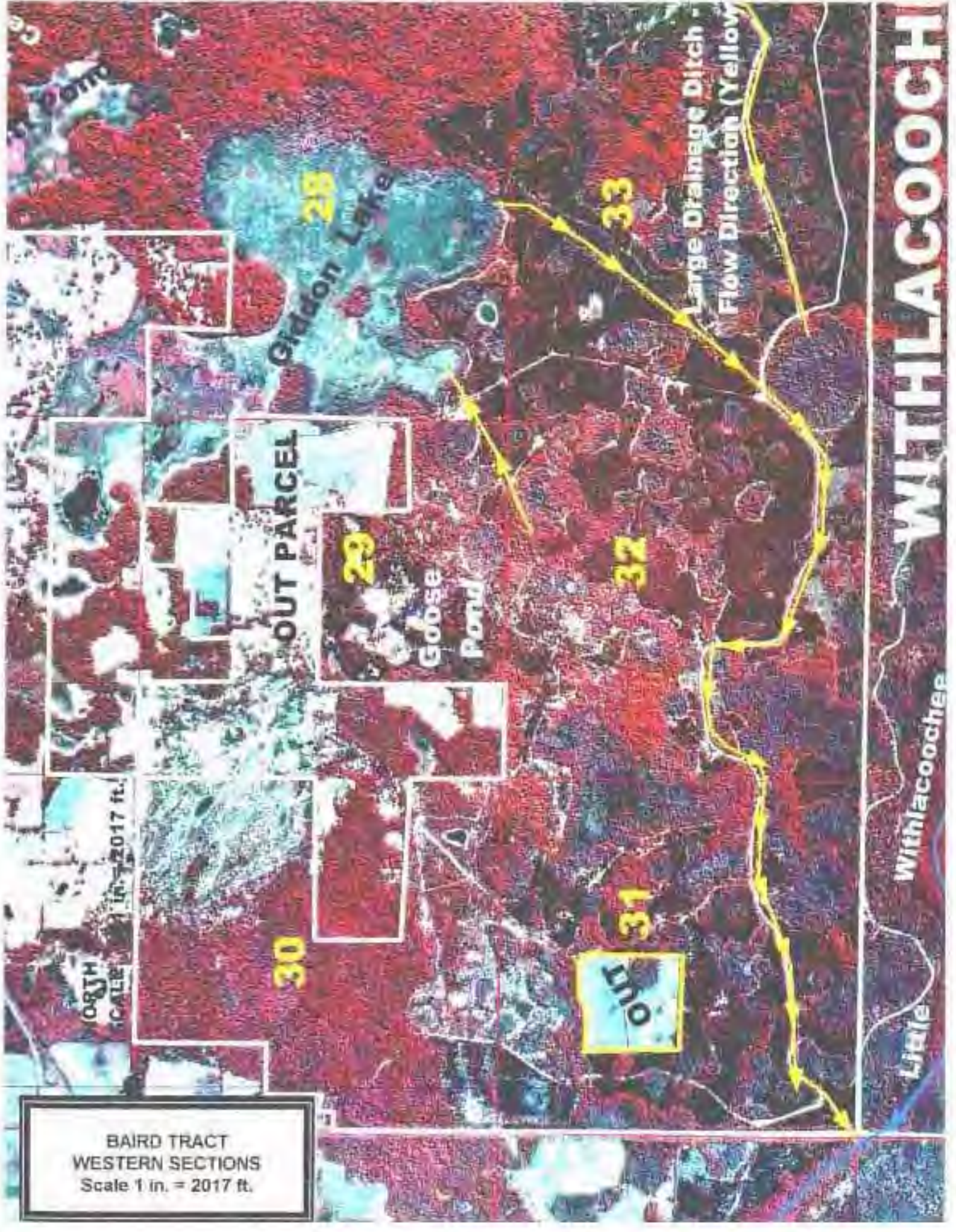
WITHLACOOCHEE STATE FOREST
BAIRD TRACT

North
Scale: 1 in. = 3940 ft.





BAIRD TRACT
NORTHEAST SECTIONS
Scale 1 in. = 2017 ft.



WITHLACOOCH

Withlacoochee

Little

28
Giddon Lake

29
Goose Pond

OUT PARCEL

30

32

31

OUT

33

Large Drainage Ditch -
Flow Direction (Yellow)

ORIGN
SCALE
1 in. = 2017 ft.

BAIRD TRACT
WESTERN SECTIONS
Scale 1 in. = 2017 ft.



BAIRD TRACT
SOUTHEAST SECTIONS
Scale 1 in. = 2017 ft.

Baird Ditch -
(Yellow)

DOCHEE STATE FOREST

1 in. = 2017 ft. NORTH



Overall Project Area W/Structures



Gidden Lake, Goose Pond, Merritt Pond
Restoration Area



700 0 700 1400 Feet



Gidden Lake-422 acres
Merritt Pond-185 acres
Goose Pond-10 acres



Van Fleet Trail/Fender Swamp Enhancement Area

1000 0 1000 2000 Feet

Proposed/Upgraded Structures
Enhancement Area 672 Acres

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Rutland Ranch – South Tract

Project Number: SW 65

Project Manager: Mark Brown, SWFWMD Environmental Scientist

Phone No: (352) 796 – 7211 (ext. 4488)

County: Manatee

IMPACT INFORMATION

1 - FM: 1960222, SR 64, I-75 to Lena Rd. (Seg. 1)

ERP #: 4302058.009

COE #: 199901379 (IP-KI)

2 - FM: 1960223, SR 64, Lena to Lakewood (Seg. 2)

ERP #: 44016872.018

COE #: No Permit Required

3 - FM: 1961211, SR 70, I-75 to Lakewood Ranch (Seg. 1)

ERP #: 44025920.001

COE #: SAJ-2003-11659 (IP-MLS)

4 - FM: 4043232, SR 70, Lakewood to Lorraine Rd. (Seg. 2)

ERP #: 43025920.002

COE #: SAJ-2004-32(IP-JPF)

Drainage Basin: Manatee River

Water Body: Gates Creek, Manatee River

SWIM water body? N

Impact Acres / Habitat Types (FLUCFCS):

1 – FM 1960222 0.68 ac. 617

1.29 ac. 640

0.45 ac. 641

TOTAL 2.42 acres

3 – FM 1961211 0.9 ac. 641

2 – FM 1960223 0.3 ac. 630

0.5 ac. 641

TOTAL 0.8 acre

4 – FM 4043232 2.1 ac. 615

1.7 ac. 640

TOTAL 3.8 acres

TOTAL 7.92 Acres

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Enhancement Restoration

Mitigation : **115 ac.**

SWIM project? Aquatic Plant Control project? Exotic Plant Control Project?

Mitigation Bank? Drainage Basin(s): Manatee River Water Body: None SWIM water body?

Project Description

A. **Overall project goal:** The Rutland Ranch tract is owned and managed by the SWFWMD. Over half of the Rutland Ranch – South Tract (total 900 acres) was historically used for row crop farming (Figure C). The site has 15 wetland areas, all but one were historically isolated marshes. The majority of these marshes were interconnected with large ditches that substantially altered the wetland hydrology and vegetative composition. The restoration plans included completely filling some of those ditches and using ditch blocks in other areas to restore ground and surface water hydrology and subsequently enhance the wetland habitat. Upland buffers and filled ditches were also planted to enhance upland & wetland habitat and corridors between the marshes within the pasture.

B. **Brief description of current condition:** The upland interior of the South Tract was historically flatwoods and palmetto prairie that was converted to row crop farming. The row crops were replaced with improved pasture (bermuda & bahia grass) that was subsequently allowed to go fallow, resulting in substantial generation of salt-bush, broomsedge, and dog fennel. Prior to restoration construction, the hydrology of the marshes had been substantially altered by the deep drainage ditches, allowing broomsedge to heavily invade the marshes (photos). The western one-third portion of the tract is still covered with a palmetto prairie with scattered shallow ephemeral marshes that were also been impacted by ditches. A mixed forested wetland tributary to Gilley Creek is located along the northern boundary. (Refer to Attachment A for details of existing and proposed conditions).

C. Brief description of proposed work: Initial effort included herbicide treatment of exotics and nuisance species within the ditches, followed by construction activity to backfill the majority of the ditches (some ditchblocks) in order to restore groundwater and surficial hydrology of the majority of on-site wetlands. Herb planting was conducted in the exposed earthwork areas of those wetlands where the spoil was cut to backfill the ditches and throughout the largest wetland (Wetland 12, refer to site photos). The existing upland buffers around Wetlands 1-4 and 12 had longleaf pine planted to increase buffer habitat, and cypress and maple were planted within the outer zone of Wetland 12 in 2004. Refer to Attachment A for additional information and Figure C for the mitigation plan design. Construction and planting activities were conducted in the spring and summer, 2002. A minimum of 3 years of maintenance & monitoring is proposed, followed by perpetual maintenance to minimize exotics.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The FDOT wetland impacts (total 7.92 acres) includes 4.84 acres of non-forested and 3.08 acres of forested wetlands. The mitigation has resulted in 75 acres of wetland enhancement from the hydrologic restoration and supplemental planting 21 acres within Wetland 12, 5 acres of wetland restoration from grading the spoil material to historic wetland grade elevations and planting, 10 acres of upland habitat restoration from grading ditches in the palmetto prairie, and 25 acres of upland habitat enhancement and restoration around Wetlands 1-4 and 12 which will establish and maintain upland habitat corridors. This results in a total mitigation acreage of 115 acres to mitigate for the 7.92 acres (14.5-to-1 ratio). Detailed description of the mitigation ratios for each DOT impact is described under Attachment C, WRAP assessment and associated ledger debit available from Mark Brown (SWFWMD).

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection, there were no existing or proposed mitigation banks within the Manatee River Basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : At the time of selection, the only SWIM sponsored project in this basin was Terra Ceia (SW50). The Terra Ceia project includes restoration and enhancement of salt-water and estuarine habitat, and is being used to provide FDOT mitigation for salt-water wetland impacts.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD – Operations Dept.

Contact Name: Mark Brown, SWFWMD Environmental Scientist Phone Number: 352-796-7211, ext. 4488

Entity responsible for monitoring and maintenance: Private contractor working for the SWFWMD

Proposed timeframe for implementation: Commence: Hydrologic Monitoring, Spring – 2001 Complete: Const., Spring, 2002, minimum 3 years of maintenance & monitoring, perpetual management

Project cost:	\$ 181,000 (total);	
	\$1,000	Herbicide Ditches
	\$120,000	Construction (Backfill Ditches)
	\$40,000	Planting (Wetland Herbs, Pine Tree Planting)
	\$20,000	Maintenance (Herbicide) & Monitoring (3 Years – Annual Reports)

Attachments

- X_1. Detailed description of existing site and proposed work. Refer to Attachment A – Existing Site & Proposed Work
- X_2. Recent aerial photograph with date and scale. Refer to Figure B (Vicinity Aerial) and Figure C (Site Aerial)
- X_3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (Location Map) & Figure C has the ditch backfill, ditchblock, & pond locations.
- X_4. Detailed schedule for work implementation, including any and all phases. Attachment B – Work Schedule
- X_5. Proposed success criteria and associated monitoring plan. Attachment C – Maintenance & Monitoring Plan
- X_6. Long term maintenance plan. Figure E -Monitoring Plan & Attachment C – Maintenance & Monitoring Plan
- X_7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion to Comment D and Attachment D.

Attachment A – Existing & Proposed Site Conditions

The SWFWMD purchased the Rutland Ranch property in 1998 for a few major reasons. The tract is located within the Southern Water Use Caution Area (SWUCA), a designated area where groundwater resources are at critical levels that require limitations of water well withdrawals. The property provides contributing surface and ground water to the Manatee River and Lake Manatee. Located less than a mile south of the tract, the river and reservoir provide potable water to Manatee County. Land use changes from row crops to less intensive agricultural operations such as cattle (South Tract) and silviculture (North Tract) not only place less strain on consumptive use (water quantity) but results in less nutrients (water quality) that contribute to the watershed and the Manatee River. The SWFWMD and Manatee County are striving toward additional land acquisition and habitat restoration opportunities in the Lake Manatee watershed.

The SWFWMD is currently committed to minimal long-term cattle grazing on the existing pasture within the Rutland Ranch-South Tract. However, the activities associated with this mitigation plan will substantially lessen associated impacts from cattle, enhance wetland habitat, improve water quality, retain surface water for groundwater recharge, and increase the habitat opportunities for wildlife. The following information pertains to major pre-construction site characteristics and improvements to the site. Refer to Figure C for aerial depiction and the site photographs to relate with the text.

Native Range - The native range designation pertains to the palmetto prairie within the eastern one-third of the site, pine flatwoods within the northeast quadrant near the forested floodplain wetland (Wetland 15), and within the southeast corner (surrounding Wetlands 13, 14). The vegetation of these prairies include a dominance by saw palmetto, broomsedge, and wiregrass. Ditches excessively drain surface and ground water conditions from the uplands and the majority of wetland marshes (particularly Wetlands 5 & 6 but also 7-11, and 13) located within the prairies. These marshes are shallow systems, with dominant cover of maidencane and relatively high percentage of St. John's-wort. Drainage ditch patterns lead northwest, west, south, and southeast to tributaries of Gilley Creek and the Manatee River.

The original construction plan proposed utilizing a dominance of ditch blocks within the western ditches and, where necessary, total ditch backfilling to enhance the hydrology of these shallow marshes. Upon evaluation it was determined that ditch blocks alone could not detain the substantial volume of groundwater drawdown caused by the deep ditches located adjacent to Wetlands 7-9, so total backfill of those ditch segments were conducted during July, 2002. In addition, total filling was conducted for the ditch segment crossing through Wetland 5 and a portion of Wetland 6. However, in order to protect existing trees and shrubs generated on the spoil while restoring hydrology in Wetland 6, the construction of ditch blocks were employed. The ditch block method also allows an open water source for wildlife during the dry season.

Herb generation and seed recruitment from adjacent native habitat has occurred and provides over 70% ground cover of desirable vegetation, resulting in **10 acres of upland habitat (palmetto prairie) restoration** to replace the ditches and adjacent spoil material.

Improved Pasture – A new cattle lease commenced late 2002 and the fallow fields were re-established with bahiagrass. In order to minimize cattle use of the marshes for a water source, three large cattle ponds were dredged in the pastures (Fig. C). The excavated material was used to backfill ditches.

The existing upland habitat buffer around Wetlands 1-4 and 12 will be maintained under existing conditions as part of the cattle lease. Supplemental plantings (1 gallon – 1000 longleaf pines) were planted within these palmetto buffers around Wetlands 1-4 and 12. An average 50 ft. wide upland corridor of native habitat has been enhanced between Wetlands 3, 4, and 12. Existing palmetto, pines, and myrtles located on spoil material within this corridor were preserved from the construction activity necessary to fill the adjacent ditches. Supplemental trees and native seed dispersal has replaced the deep ditches with desirable upland vegetation, resulting in **3 acres of upland habitat (pine flatwood) restoration** to replace the ditches. In addition, tree planting and re-introduction of periodic prescribed burn management will provide enhancement of the upland buffers around Wetlands 1-3, resulting in **12 acres of upland habitat (pine flatwood) enhancement**. The upland buffers of Wetlands 4 and 12 are also being enhanced with planting and fire management, providing an additional **10 acres of upland habitat (pine flatwood) enhancement**. All the palmetto prairies, pine flatwoods, and wetland buffers will be incorporated into a prescribed burn management plan that will further enhance and maintain these upland habitats for wildlife use. The burn plan will be incorporated on a +/- 5 year cycle, pending growth rate of vegetation.

There is evidence that the removal of the large upland ditches have allowed substantial wildlife movement, including large deer, to travel through the buffer cover from the Gilley Creek tributary north of the site (Wetland 15) all the way to the forested ditch south of the property (Fig. C). The proposed corridors and low cattle stocking rates will allow wildlife to roam and forage throughout the tract.

Marshes – The majority of the marshes were previously bisected by drainage ditches. The smaller wetland cross ditches in Wetlands 2,14, and perimeter of Wetland 12 averaged 10-15 ft. wide, 2-3 ft. deep, and connected to moderate size drainage ditches that were 20-25 ft. wide, 5-8 ft. deep from natural grade elevations. The large drainage ditches such as through the center of Wetland 12 and east-west connecting ditch to Wetland 4 were 25-30 ft. wide, 6-8 ft. deep from top-of-bank. With the gradual size increase as the ditches proceed downstream and positive hydraulic gradient, the ditches conveyed a large volume of water off-site. These ditches not only drained surface water after rain events, but substantially dewatered the shallow groundwater table. Prior to construction, the marshes had very minimal duration and depth of surface water (hydroperiods) due to the ditches. This resulted in substantial alterations in the vegetative components of these wetlands. The marshes transitioned from maidencane-dominated systems to upland and facultative vegetative species such as broomsedge (*Andropogon virginicus* dominant, some *Andropogon glomeratus*). The most extensively ditched marsh was Wetland 12, which had few relic indicators of wetland functions and characteristics. Remnant pockets of maidencane within the cross-ditches were present due to intermittent periods of surface water drainage to the large interior collector ditch. Along with the broomsedge, other upland species that recruited into the marsh include gallberry, wax myrtle, and scattered pine. A substantial amount of wildlife activity has returned to Wetland 12. Wading birds and raptors roost and nest within oaks purposely left within the wetland core to die and become snags. Amphibians, fish, and reptiles have become established and provide excellent food resources. Supplemental herb and tree planting within Wetland 12 was conducted for the spring, 2004; including bulrush, pickerelweed, arrowhead, spikerush, sawgrass, spatterdock, cypress, and red maple.

The following wetland types and acreage are located on the South Tract. The wetlands proposed for enhancement include hydrologic restoration (HR) for the most impacted systems, hydrologic enhancement (HE) for the less disturbed systems, and minimally improved wetlands (MI) are not accounted for with mitigation credits.

Wet. 1 - marsh – 1.0 acres (HR)	Wet. 9 – marsh – 2.2 acres (HR)
Wet. 2 - marsh – 9.2 acres (HR)	Wet. 10 – marsh – 1.9 acres (MI)
Wet. 3 - marsh – 0.9 acres (HR)	Wet. 11 – marsh – 4.1 acres (HR)
Wet. 4 – marsh – 11.4 acres (HR)	Wet. 12 – marsh – 21.3 acres (HR)
Wet. 5 – marsh – 2.1 acres (HR)	Wet. 13 – marsh – 11.4 acres (MI)
Wet. 6 – marsh – 21.6 acres (HR)	Wet. 14 – marsh – 0.5 acres (MI)
Wet. 7 – marsh – 0.9 acres (HE)	Wet. 15 – mix forest – 19.5 acres (MI)
Wet. 8 – marsh – 2.1 acres (MI)	
TOTALS – Wetland Enhancement - 75 acres (total 110 wetland acres)	

There are five wetlands that had upland spoil ridges as a result of constructed ditches. These spoil areas were covered with bahiagrass and saltbush. Once these spoil areas were graded to fill the adjacent ditches, herb plantings were conducted within these earthwork areas. An older spoil ridge through the middle of Wetland 12 was covered with oak trees that were purposely not removed to result in mortality from the restored hydrology and create snags for wildlife use; particularly bird roosting and nesting. The graded spoil ridges accounted as wetland restoration are as follows:

Wet. 2 – 0.6 acre, Wet. 4 – 0.1 acre, Wetland 5 – 0.4 acre, Wetland 6 – 0.4 acre, Wetland 12 – 3.6 acres
TOTALS – Wetland Restoration - 5 acres

Hydrologic restoration and enhancement of the marshes have resulted in the enhancement of other wetland functions and attributes. Vegetative shifts transitioned to more desirable and appropriate wetland species and provide foraging opportunities for wildlife. Prior to construction, the marshes within the proximity of the pastures had such limited hydroperiods that they transitioned to vegetative characteristics more indicative of abandoned fallow fields (particularly Wetland 12), with minimal wildlife food resources. Opportunities for foraging wading birds were primarily limited to the few, small isolated marshes within the western palmetto prairie. Water and aquatic food resources within the pasture area were primarily limited to high nutrient ditch water. Restoring the wetlands into isolated systems has increased the water quality treatment opportunities compared to the pre-existing drainage ditches that directly discharged into a nearby potable water source (Lake Manatee Reservoir). Retaining surface water on-site has also resulted in soil infiltration that will also improve water quality and groundwater recharge.

By restoring marsh hydrology, the gradual regeneration and recruitment of maidencane and other desirable hydrophytic vegetation will continue to improve the ecological balance of upland habitat with appropriate wetland habitat value. With the segregated habitat between Wetlands 3, 4, and 12, there wasn't a contiguous corridor of native habitat through the improved pasture. The re-established corridor for wildlife use won't conflict or restrict mobility of the limited cattle and grazing. Reintroduction of the cattle into the pastures will keep the ruderal species (i.e. salt-bush, fennel) that substantially encroached into the pastures after the WMD acquired the property and temporarily removed the cattle. The combination of the marsh restoration, existing native habitat, and the upland corridor will attract and increase the wildlife opportunities across the property.

Attachment B – Work Schedule

Evaluation of habitat conditions and proposed improvements were conducted in 2001. Five monitor stations (Fig. C) were designated based on anticipated habitat improvement areas and monitor wells (70 inches deep) were installed to mark the locations. Prior to construction, herbicide treatment of exotic and nuisance species was conducted within the ditches during early, 2002.

Construction commenced during the dry spring conditions in 2002 and since there was no standing water in the deep ditches dredged through the central wetlands (Wetlands 2,4,12), there was no need to utilize pumps for temporary dewatering. A portion of the spoil within the core of Wetland 4 was not removed since it now provides an excellent upland island for wildlife use, particularly wading birds utilizing the island for secure resting and nesting. The remnant water hole adjacent to the spoil has a substantial frog population.

Construction sequence commenced north to south through the headwater ditches of the pasture wetlands, followed by the ditches within the palmetto prairie. As depicted in the photos, in less than a month, the combination of filling the ditches and receiving normal rainy season rainfall resulted in the groundwater tables rising from 70 inches below grade to the desired hydrologic range of 6-24 inches of surface water in the various marshes; more shallow in Wetlands 1-3,5,6,9, moderate levels in Wetlands 11 and 12, and deeper surface water in Wetland 4. As the surface water levels increased, there has been a natural regeneration of maidencane along with supplemental plantings (37,000 units) of soft rush (shallow marshes), pickerelweed, arrowhead, and bulrush. In addition, 1000 longleaf pine saplings were planted within the upland buffers of Wetlands 1-4 & 12. Supplemental arrowhead planting of open water areas within Wetland 12 will be conducted in the spring, 2004. Additional pines will also be planted in the buffer; maples and cypress will be planted along the outer zone of Wetland 12 to provide more diversity and buffer from the adjacent pastures.

Three upland-cut ponds (average size, 0.25 acre) were dredged within the center of the three main pastures to provide a water source for cattle. A wildlife seed mix and millet seed was placed in the graded upland areas to provide temporary vegetative cover. Subsequently, native herb seed recruitment and generation from the adjacent upland habitat occurred and there was over 90% cover of desirable vegetative cover within the graded areas by 2004.

Attachment C – Maintenance & Monitoring Plan, Success Criteria

Pre-construction monitoring was conducted to document pre-existing marsh conditions (hydrology, vegetative coverage & diversity, wildlife use) exhibited in the summer, 2001 and winter, 2002 periods. This information is used as baseline data to evaluate the anticipated hydrologic and vegetative restoration as a result of the earthwork activities. Qualitative monitoring and photographic documentation of vegetative, hydrologic, and wildlife conditions for the various proposed marsh enhancement areas will be conducted for the minimum three years post-construction. Figure C depicts monitoring stations for qualitative evaluation, and hydrologic monitoring stations. Qualitative evaluation will include vegetative, hydrologic, and wildlife use of the enhanced wetlands and uplands. Documentation of the two semi-annual monitoring events will be combined each year to produce an annual monitoring report to be submitted to the USACOE and SWFWMD. The anticipated maintenance activity will include herbicide control of all exotic and nuisance vegetation in the wetlands and periodic implementation of prescribed burn management. By 2004, the only enhanced wetland with problems with exotic and nuisance coverage is Wetland 12. This was by far the most disturbed system pre-construction and has generated some primrose willow along the upland/wetland boundary and clumps of torpedo grass. Starting in 2003, this system was included in a herbicide maintenance program every two months to eradicate these undesirable species. In late spring, 2004, supplemental planting was conducted within this system to increase the vegetative cover from 50% to at least 85%; leaving scattered open water areas near the core for wading birds foraging from the adjacent oak snags.

Success criteria will be based on several conditions. The primary criteria include the demonstration of appropriate hydroperiods for the enhanced wetlands, with particular documentation for the more extensive dewatered wetlands (Wetlands 2, 4, 5, 6, 11, and the most damaged, Wetland 12). Success criteria requires 90% survivorship of planted stock, less than 10% coverage of exotic and nuisance species, and a minimum 85% coverage of desirable species (including existing, regenerated, recruited, and any planted material) within the enhanced and restored marshes as well as designated uplands. Shifts in vegetative cover and diversity will be noted in the monitoring reports.

Attachment D – FDOT Mitigation

A comparison of the type of wetland impacts was conducted and compared to the proposed restoration activities. Rather than scatter the various activities to mitigate for a variety of wetland impacts, they were combined based on the general site location and proposed activities relative to the anticipated impacts. These include the uplands and wetland enhancement in the vicinity of Wetlands 1-3 (mitigation for SR 64-Seg. 1), Wetlands 7, 9, 11 enhancement and adjacent palmetto prairie restoration (SR 64 – Seg. 2), Wetland 4 enhancement adjacent upland buffer enhancement (SR 70 – Seg. 1), Wetlands 5, 6, 12 enhancement and adjacent upland buffer enhancement (SR 70 – Seg. 2). Along with falling within the normal ERP mitigation ratio guidelines, the proposed mitigation for the wetland impacts associated with each roadway segment are well within the ranges based on the Wetland Rapid Assessment Procedure (WRAP) that was conducted for the impacts and the mitigation. The following details the correlation of mitigation with the impacts:

SR 64 – Seg. 1 - The proposed impacts include 0.68 acre of mixed forested wetland (#617) and 1.74 acres of marsh (#640, #641). The proposed mitigation includes enhancement of Wetlands 1-3 (11.1 acres), restoration portion of Wetland 2 (0.6 acres), and enhancement of the adjacent pine flatwoods around Wetlands 1-3 (12 acres). This results in a total **impact of 2.42 acres and compensation of 23.7 acres** (ratio 9.9-to-1). SWFWMD & ACOE permits issued in 2002.

SR 64 – Seg. 2 – The proposed impacts include 0.3 acres of mixed forested wetland (#630) and 0.5 acre of marsh (#641). The mitigation includes enhancement of Wetland 7 (0.9 acres), Wetlands 9 & 11 (6.3 acres) and restoration of the adjacent palmetto prairie from the filled ditches (10 acres). This results in a total **impact of 0.8 acre and compensation of 17.2 acres** (ratio 21.5-to-1). Permit applications under review, summer 2004.

SR 70 – Seg. 1 – These impacts include 0.9 acre to marsh habitat (#641). The proposed mitigation includes enhancement (11.4 acres), restoration (0.1 acre), and associated upland buffer enhancement of Wetland 4 (4.5 acres). This results in a total **impact of 0.9 acre and compensation of 16.0 acres** (ratio 17.8-to-1). SWFWMD permit issued in 2004 and no permit required by the ACOE.

SR 70 – Seg. 2 – The wetland impacts include 2.1 acres of stream swamp (#615), 1.7 acres of marsh (#640). Due to the higher quantity of impacts and forested wetland impacts associated with this roadway segment compared to the other three segments, the habitat improvements conducted for the most disturbed Rutland wetlands (Wetlands 5, 6, 12) are designated to provide the mitigation. The proposed mitigation includes enhancement (2.1 acres) and restoration (0.4 acre) of Wetland 5, enhancement (21.6 acres) and restoration (0.4 acre) of Wetland 6, and enhancement (21.3 acres), restoration (3.6 acres), and associated upland buffer enhancement (5.5 acres) of Wetland 12. This results in a total **impact of 3.8 acres and compensation of 54.9 acres** (ratio 14.4-to-1). SWFWMD and ACOE permits were issued in 2004.



▲ NORTH, SCALE 1.4 in. = 5 miles

FDOT - District 1
MITIGATION SITE
(Manatee River Basin)

RUTLAND RANCH -
SOUTH TRACT
(SW 65)

FIGURE A
LOCATION MAP





SOILS LEGEND

- 11-Cassia f.s
- *16-DeRay Complex
- *24-Felda-Wabasso Assoc.
Frequently Flooded
- *26-Floridana-Immokalee-
Okeelanta Assoc.
- 30-Myakka f.s. (0-2% slope)
- 31-Myakka f.s. (2-5% slope)
- 54-Zolfo f.s

- *- Hydric Soils

Rutland Ranch
(South Tract)
Project Boundaries



^ NORTH Scale 1.6 in. = 1 mile

FDOT - District 1
MITIGATION SITE
(Manatee River Basin)

RUTLAND RANCH -
SOUTH TRACT
(SW 65)

FIGURE D
MANATEE COUNTY
SOIL SURVEY
1979 Aerial Date



June, 2002 - Wetland 12 – View from the south, looking north at former ditch area (20 feet against tree line) & previous spoil material (center 30 –40 ft.) graded to backfill the ditch.



July, 2002 – Same view as above, wetland hydrology has been restored with maximum surface water depth of 18 inches in the marsh core. Natural regeneration of maidencane occurring with supplemental plantings of pickerelweed, arrowhead, and bulrush. Some of the oaks and pines that generated on the low elevation spoil will not survive the restored hydrology and becoming snags for wading bird resting (e.g. left oak tree).

**FDOT – District 1
MITIGATION SITE
(Manatee River Basin)**

**RUTLAND RANCH – SOUTH TRACT
(SW 65)**



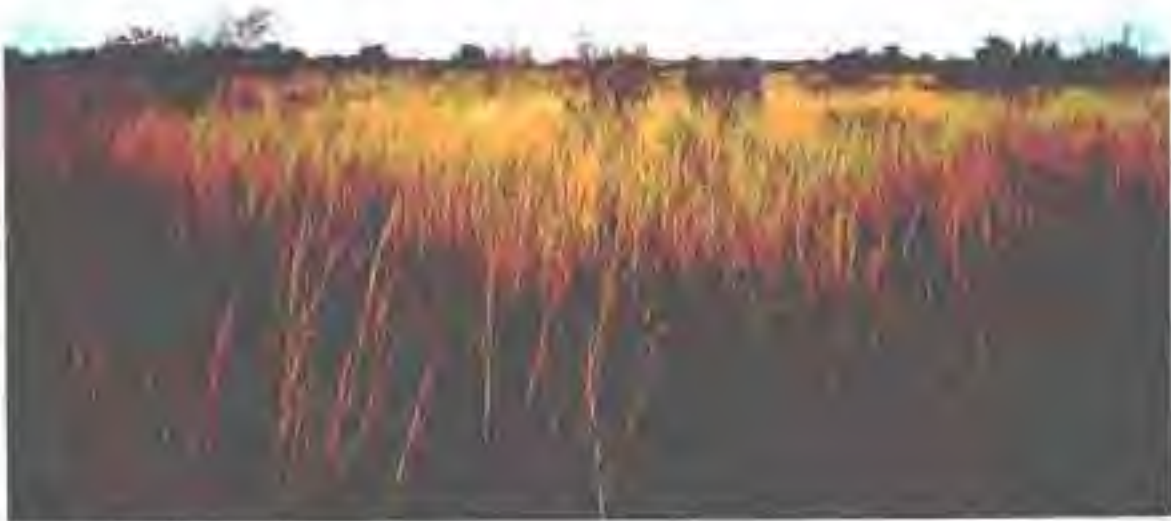
Wetland 12 Monitoring Station – Typical pre-construction condition of the drained marsh included broomsedge, bahia, dog fennel, gallberry, wax myrtle, and some exposed areas due to hog activity which have been removed from the site.



August, 2002 – Same view as above, just after backfilling the center ditch and the marsh's perimeter ditch (right), hydrology has been restored and mortality of upland vegetation has commenced.

**FDOT – District 1
MITIGATION SITE
(Manatee River Basin)**

**RUTLAND RANCH – SOUTH TRACT
(SW 65)**



Pre-construction conditions near the core of Wetland 4 included substantial coverage of broomsedge mixed with the maidencane, as well as scattered wax myrtle.



August, 2002 – Same view as above, restored hydrology has resulted in surface water core depths of 18-24 inches, resulting in mortality of the broomsedge and wax myrtles.

**FDOT – District 1
MITIGATION SITE
(Manatee River Basin)**

**RUTLAND RANCH – SOUTH TRACT
(SW 65)**



June, 2002 – Wetlands 5 & 6 – View from the east side of the marshes, looking west at the filled ditch (center) and graded spoil material (right) to restore hydrology.



July, 2002 – Same view as above, wetland hydrology has been restored with maximum surface water depth of 8 inches in both marshes. Natural regeneration of maidencane occurring with supplemental plantings of soft rush.

**FDOT – District 1
MITIGATION SITE
(Manatee River Basin)**

**RUTLAND RANCH – SOUTH TRACT
(SW 65)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Circle B Bar Reserve**

Project Number: **SW 66**

Project Manager: Mark Brown, SWFWMD Env. Scientist

Phone No: (352) 796-7211 ext. 4488

County: Polk

Location: Sect. 1, 2, T29S, R24E, Sec. 6, T29S, R25E

IMPACT INFORMATION (Proposed Construction Date)

1 – <u>FM 1975331, US 27 – Towerview Rd. to SR 540</u>	ERP #: <u>43023834.002</u>	COE #: <u>200205668 (IP-JF)</u>
2 - <u>FM 1976791, US 27 – SR 544 to Blue Heron Bay*</u>	ERP #: <u>43023431.000</u>	COE #: <u>200202574 (IP-JF)</u>
3 - <u>FM 1940931, US 17 (SR 35) – Peace River to Tropicana</u>	ERP #: <u>43016955.001</u>	COE #: <u>200102990 (IP-JF)</u>
4 - <u>FM 1938991, US 17 – Livingston to Hardee County</u>	ERP #: <u>43022736.000</u>	COE #: <u>200105669 (IP-MN)</u>
5 - <u>FM 1971681, SR 60A (Van Fleet Dr.)-CR 555 to Broadway</u>	ERP #: <u>44023032.000</u>	COE #: <u>2002000069 (NW-MS)</u>
6- <u>FM 4110391, US 27- CR 546 to SR 544 (2009)</u>	ERP #: _____	COE #: _____
7- <u>FM 1977061, US 27 – SR 540 to SR 542 (2010)</u>	ERP #: _____	COE #: _____
8- <u>FM 1977071, US 27 – SR 542 to CR 546 (2007)</u>	ERP #: <u>44031373.000</u>	COE #: _____
9 - <u>FM 1976381, US 98 – Carpenter's Way to Daugherty Rd.</u>	ERP #: <u>44013552.003</u>	COE #: <u>200206904 (NW-14)</u>
10 - <u>FM 1977051, US 27 – SR 60 to Towerview Rd.</u>	ERP #: <u>44023431.003</u>	COE #: <u>200402920 (NW-CAS)</u>
11- <u>FM 4082682, US 98 – Manor Drive to CR 540A (2009)</u>	ERP #: _____	COE #: _____
12- <u>FM 4082683, US 98 – CR 540A to SR 540 (2011)</u>	ERP #: _____	COE #: _____

Drainage Basin: Peace Water Body(s): Tower Lake, Thompson Branch, McBride Br., Mare Branch, Sand Gully Br., Peace Creek Canal, SWIM water body? N

Impact Acres / Habitat Types (FLUCFCS):

1- FM 1975331 3.90 ac. 640	7- FM 1977061 0.02 ac. 510
	0.08 ac. 610
	0.01 ac. 617
	0.44 ac. 631
2- FM 1976791* 0.60 ac. 631	1.22 ac. 641
0.90 ac. 641	<u>TOTAL 1.77 acres</u>
<u>TOTAL 1.50 acres</u>	
	8- FM 1977071 0.7 ac. 641
3- FM 1940931 3.00 ac. 630	
0.49 ac. 640	
0.93 ac. 641	
<u>TOTAL 4.42 acres</u>	
	9- FM 1976381 0.1 ac. 615
4- FM 1938991 0.48 ac. 618	
6.18 ac. 630	
0.74 ac. 631	10- FM 1977051 0.01 ac. 510
0.59 ac. 640	0.18 ac. 641x
0.20 ac. 641	<u>TOTAL 0.19 acre</u>
3.40 ac. 641x	
<u>TOTAL 11.59 acres</u>	11-FM 4082682 3.0 ac. 630
	1.0 ac. 644
	<u>TOTAL 4.0 acres</u>
5- FM 1971681 0.46 ac. 630	
6- FM 4110391* 0.8 ac. 630	12-FM 4082683 1.9 ac. 644
3.1 ac. 641	
2.8 ac. 641x	
<u>TOTAL 6.7 acres</u>	

TOTAL – 37.23 Acres

* Additional impacts for this project are within the Ocklawaha Basin and will be mitigated at Lake Lowery (SW 76).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration Enhancement Preservation Mitigation Area: **610 acres**
SWIM project? Aquatic Plant Control project? Exotic Plant Control Project? Mitigation Bank?
Drainage Basin(s): Peace Water Body(s): Banana Creek Canal, Lake Hancock SWIM water body?

Project Description

- A. Overall project goal:** In late 2000, Polk County & SWFWMD co-purchased approximately 1,256 acres (formerly Circle B Bar Ranch) to convert into a wildlife and passive recreational park with a long-term objective to restore and enhance upland and wetland habitat throughout the property. It was decided to nominate the desired wetland restoration and enhancement activities to the FDOT mitigation program in 2001. Following design and permitting, the foundation of wetland habitat improvements was primarily achieved by construction in 2005 and 2006. The construction removed levees along the western property boundary that blocked and diverted contributing flow, and filled the majority of the Banana Creek Canal and contributing ditches to restore the wetland floodplain to a sheet flow hydrology. Additional activities included extensive planting and perpetual herbicide maintenance activities.
- B. Brief description of current condition:** Historically, surface water from Banana Lake maintained a sheet flow hydrology connectivity east through forested and marsh wetland habitat into Lake Hancock (Figure C, 1927 Soil Survey). During the 1940's, the construction of the Banana Creek Canal between the two lakes, along with connecting tributary ditches, excessively drained the floodplain area to convert wetlands into pasture. In addition, a large levee was constructed along the western property boundary (Figure D). This impounded water in the wetland west of the project area, and diverted the ground and surface water away from the wetlands in the Reserve and flowed directly into the canal. Spoil material rimmed the canal, so any potential surface water that periodically accumulated in the pastures were pumped over into the canal as well as directly into Lake Hancock. The several decades of extensive drainage and dewatering substantially altered the wetland functions and conditions of the entire site, converting the majority of the historic wetland acreage to a dominance of upland pasture grasses for intensive cattle grazing (refer to site photos). This resulted in minimal species diversity and hydrology to adequately support appropriate hydrophytic species and habitat conditions for wildlife. Prior to restoration construction in 2005-2006, the majority of the remnant wetlands were associated with a few forested wetlands and scattered marsh pockets within the improved pastures (Figure C). However, approximately half of the pasture still had sufficient cover of hydrophytic species and sufficient groundwater saturation to be designated as wetlands per state and federal criteria. Bahiagrass provided the dominant cover, particularly exclusive within the majority of the northeast pasture. Scattered soft rush and carpet grass was also common, particularly in the southeast pasture. Historically there were additional forested wetlands that were lost from the dewatering and muck oxidation that occurred from the altered drainage.
- C. Brief description of proposed work:** After the cattle lease was discontinued at the end of 2001, the dewatering pump system was removed and with the rains from El Nino in 2003 and hurricanes in 2004, the majority of the pastures were inundated to commence partial hydrologic restoration necessary to achieve the desired bahiagrass mortality and regeneration of hydrophytic vegetation. Construction commenced in the fall,

2005. Two pre-existing access road berms (Figures D, E – east and central roads) were reconstructed to provide necessary structural support, and culverts installed at appropriate locations and elevations to restore the natural sheet-flow wetland hydrology & appropriate hydroperiods. The central road is approximately 3000 ft. long, the eastern road is 2000 ft. long. Fill material for the roadway construction was obtained from widening the existing borrow pit in the north and creating an oval pond in the south near the western access road. The western access road maintained the same grade elevation, but was reconstructed using crushed concrete to provide a wet crossing primarily used during the dry season. After the access roads and culverts were constructed, the levee, ditches and Banana Creek Canal segment within the western portion of the project were backfilled to restore hydrologic sheet flow patterns throughout the wetland floodplain. The historic limits of the western forested wetland was planted with tree species, and the graded areas had herbs planted on 3-ft. spacings (species listed in Attachment A). Along with the wetland enhancement, uplands adjacent to the enhanced and restored marsh habitat were planted in areas where there were no existing forested buffers for the marsh. Monitoring will be conducted for a minimum five years post-construction and herbicide maintenance will be perpetually conducted by a private contractor working for the SWFWMD. Perpetual management of the property will be maintained by the Polk County Natural Resources Department, with cost-share management fees paid by the SWFWMD. Overall, the constructed activities have resulted in substantial wetland habitat improvements at the Reserve. The tract is now considered by Audubon as one of the premier birding areas in the region, and there is substantial use by a diverse assemblage of the wildlife species. The enhancement & restoration plan for the designated mitigation area include the following activities and associated acreage per habitat type:

Marsh Enhancement*	220 acres
Marsh Restoration	214 acres
Forested Wetland Enhancement	84 acres
Forested Wetland Restoration*	65 acres
Upland Habitat Restoration	24 acres
Marsh Creation	3 acres
TOTAL	610 acres

*Note – there is an additional 40-50 acres of enhanced marsh habitat that was historically forested wetland habitat. There may be a future decision that additional forested wetland restoration may be conducted that could provide additional forested wetland mitigation credit.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority of the anticipated wetland impacts are associated with disturbed marsh and mixed forested wetland fringes along FDOT R/W within the headwater areas of the Peace River watershed in Polk County. Considering the low quality habitat conditions and functions of the wetland habitat at the Reserve prior to construction, the substantial wetland habitat improvements more closely resemble major wetland restoration activities.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of selecting mitigation for the associated wetland impacts, the only permitted mitigation bank selling credits in the Peace River basin was Boran Ranch (BRMB), located within the southern portion of the basin (DeSoto County). The BRMB has been selected to appropriately provide mitigation for wetland impacts associated with many FDOT mitigation projects in the southern portion of basin (refer to SW 53 in the FDOT mitigation plan). At the time of mitigation selection, all the forested wetland mitigation credits for Boran Ranch were sold so the

mitigation bank could no longer provide compensation for the majority of the anticipated wetland impacts designated for mitigation at the Reserve. The budget and the available mitigation credits at the Reserve are less than 25% of the cost associated with purchasing credits from the mitigation bank.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : Even though enhancement and restoration of the wetland floodplain is not considered a specific SWIM sponsored project, the site is located between two SWIM projects, Banana Lake Restoration (conducted in the late 1980's) and the proposed improvements for Lake Hancock. By restoring and enhancing the wetland functions and values at the Reserve, additional water quality treatment and attenuation can lessen the nutrients previously allowed to flow directly into Lake Hancock via the Banana Creek Canal. The enhancement of the entire Peace River watershed has required substantial emphasis on the hydrologic improvements to water quality and quantity within the northern headwater areas in the basin.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD Operations Department constructed in 2005 and 2006.

Contact Name: Mark Brown, SWFWMD Environmental Scientist Phone Number: (352) 796-7211, ext. 4488

Entity responsible for monitoring and maintenance: SWFWMD contract for minimum five years of monitoring & maintenance, perpetual maintenance to be conducted by SWFWMD, perpetual management by the Polk County Natural Resources Dept.

Proposed timeframe for implementation: Commence: January, 2001 Complete: Spring, 2006 (Construction & Planting, followed by minimum 5 years of monitoring and perpetual herbicide maintenance).

Project cost: \$1,800,000 (total);

Planning, Design & Permitting - \$100,000

Construction & Planting - \$1,300,000

Maintenance & Monitoring - \$400,000

Attachments

1. Detailed description of existing site and proposed work. Refer to previous discussion and Attachment A. Construction plan design can be obtained from Mark Brown (SWFWMD).

2. Recent aerial photograph with date and scale. 1995 infrared aerials depicting pre-construction conditions area depicted on Figure D. Figure E depicts site conditions during construction in 2005.

3. Location map and design drawings of existing and proposed conditions. Location maps are depicted on Figures A and B. Pre- and post-construction conditions are depicted on Figures D and E. Construction plans are available from Mark Brown.

4. Detailed schedule for work implementation, including any and all phases.

Spring, 2001 – Summer, 2004 – Field work (habitat assessment, vegetative evaluation, soil borings, land surveying) and surface water modeling, evaluate and determine appropriate hydrologic restoration for the project area, evaluate regeneration of native habitat and prepare appropriate planting plan, conduct herbicide maintenance activities.

Summer, 2004 – Fall, 2005 – Finalize reports, WMD internal review, FDEP & ACOE permitting, pre-construction site evaluation, aerial herbicide maintenance activities.

Fall, 2005 – Spring, 2006 – Earthwork construction by WMD-Operations Dept. during the dry season, followed by planting during the rainy season, herbicide maintenance activities.

Summer, 2006 – Summer, 2011 – Monitoring for a minimum 5 years; maintenance activities are perpetual.

X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B, Maintenance & Monitoring Plan, Success Criteria

X 6. Long term maintenance plan. Refer to Attachment B, Maintenance & Monitoring, Success Criteria.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion and Attachment C – FDOT Mitigation.

Attachment A – Mitigation Plan, Additional Information

Hydrologic Restoration – the foundation of restoring the historic western-to-eastern surface water sheet flow was conducted by backfilling the western levee (2,300 ft. long, avg. 30 ft. wide, 5-6 ft. above grade) into the adjacent ditches dredged to provide material for the levee. The reconstruction of the western road included placement of crushed concrete to match adjacent wetland grade in order to not restrict the restored sheet flow. Water depth over the northern half of this road is typically 12-18 inches deep in the rainy season and 6-12 inches deep in the dry season. The reconstruction of the center and eastern roads resulted in elevations averaging 1-2 feet above the water elevation, and 20-30 ft. long overflow swales in the road are typically an average of 6 inches above the surface water elevation during the rainy season. Culvert sets include four individual 24-inch culverts installed at various elevations to provide a typical 12-inch fluctuation range of water elevations. These 8 culvert sets are generally spaced on 500 ft. intervals. The culvert invert elevations decrease an average of 6 inches between the culverts in the center, eastern and lakeshore berms. This provides an appropriate sheet flow patterns and attenuation through the enhanced and restored wetland habitats, with average annual surface water elevations typically ranging from 4-12 inches deep across the majority of the wetland grades. With the muck oxidation altering grade elevations, there are areas of deeper water pockets; particularly adjacent to the southern section of the center road (refer to Figure E). These pockets have provided valuable habitat for waterfowl, amphibians, and reptile species. It is noted that there is a long-range plan to propose elevating the normal water elevation of Lake Hancock by one foot. If this does occur, the wetland water elevations and particularly the hydroperiods in the Reserve will more accurately match the historic ranges of the lake. The hydrology of the wetlands west of center road will generally match the constructed condition, whereas the hydroperiod of the wetlands east of the center road will extend for a longer duration of the dry season than the constructed conditions.

Vegetative Enhancement - the primary herb planting was conducted within the earthwork locations where the ditches and spoil were graded to restore historic wetland grades. The majority of the trees were planted within the 65-acre restored forested wetland area within the western portion of the property. Dominant trees planted on 10 ft. spacings include cypress (*Taxodium distichum*), black gum (*Nyssa sylvatica* var. *biflora*), pop ash (*Fraxinus caroliniana*), and red maple (*Acer rubrum*). Additional tree species sweet bay (*Magnolia virginiana*), American holly (*Illex cassine*), sweet gum (*Liquidambar styraciflua*), laurel oak (*Quercus laurifolia*), American Elm (*Ulmus americana*). Planted shrubs include buttonbush (*Cephalanthus occidentalis*), with wax myrtle (*Myrica cerifera*) in the higher elevations. Along with the natural regeneration of desirable herbs, there were additional plantings of arrowhead (*Sagittaria lancifolia*), bulrush (*Scirpus validus*), duck potato (*Sagittaria latifolia*), fireflag (*Thalia geniculata*), pickerelweed (*Pontederia cordata*), soft rush, sand cordgrass (*Spartina bakeri*), spikerush (*Eleocharis interstincta*), and spatterdock (*Nuphar luteum*). Supplemental plantings of trees, shrubs and plants will be conducted as necessary to achieve appropriate coverage and maintain success criteria. The non-forested upland buffers adjacent to the wetland mitigation area were purposely included to allow for restoring upland habitat buffers, which include plantings of longleaf pine (*Pinus palustris*), live oak (*Quercus virginiana*), and wax myrtle.

Attachment B – Maintenance & Monitoring, Success Criteria

Maintenance will be conducted primarily to control exotic and nuisance species. Maintenance will include herbicide treatment, bi-monthly treatments for at least five years after construction, quarterly or more often for an additional three years, and perpetual quarterly or semi-annual applications thereafter. Herbicide application will be conducted by a licensed applicator under contract with the SWFWMD. Any maintenance of structures will also be conducted in cooperation between Polk County and the WMD.

Monitoring will be conducted semi-annually for a minimum 5 years and continue until success criteria is met. Monitoring stations have been designated to evaluate the hydrologic and qualitative vegetative conditions across the project area. These areas will be photographed from pre-construction through the minimum five years of post-construction monitoring. Qualitative evaluation of hydrologic conditions, vegetative cover, and wildlife use will be conducted for the entire project area.

Success criteria includes a minimum 20% canopy of the restored forested wetland, measuring trees over 10 ft. tall. Herb cover for the forested wetlands and marsh will include 80% cover of desirable species and less than 10% cover of exotic species; particularly cattails, primrose willow, and water hyacinth. Wildlife use and restored hydrology will be documented and within the anticipated ranges specified per the final design.

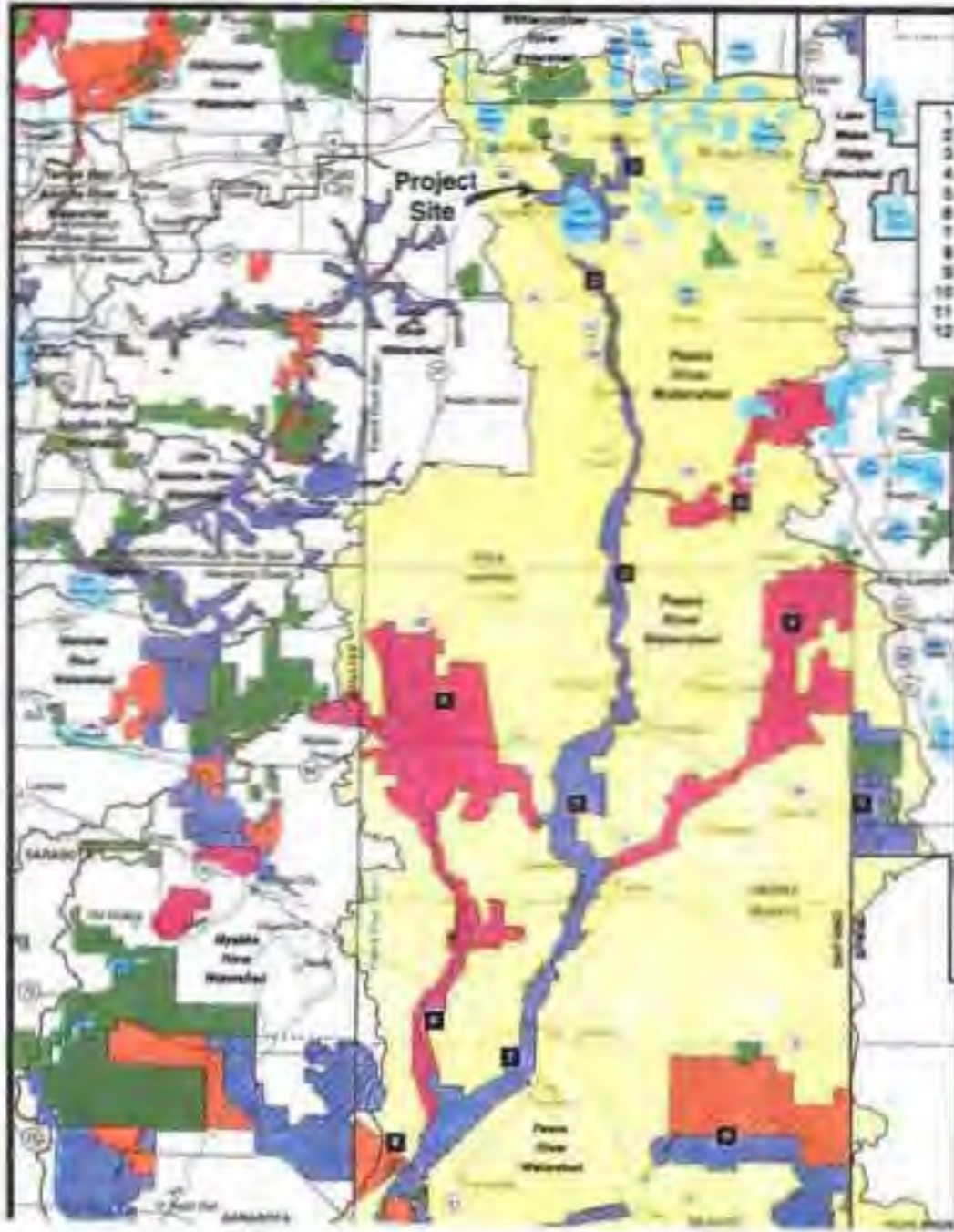
Attachment C – FDOT Mitigation

The following information summarizes the anticipated wetland impacts for those projects proposed for mitigation through construction activities at Circle B Bar Reserve. The proposed FDOT impacts have been substantially decreasing as these projects go through the design and permitting stages. During the permitting of each of these FDOT projects, some of the associated impacts have WRAP evaluations that are tabulated and debited from a credit ledger for the mitigation project, which also has a WRAP evaluation. For those FDOT projects without WRAP evaluations, the wetland impacts are evaluated as providing the highest quality and functions. Subsequently, those impacts and associated credits are debited based on the 1:1 ratio for credits-to-impact acreage. It is noted that there were approximately 6 acres of temporary and 4 acres of permanent marsh and surface water impacts associated with construction activities at the Reserve. The temporary impacts were primarily associated with backfilling the canal and ditches to match historic wetland grade elevations. The permanent impacts included filling wetland-cut ditches to cap and stabilize the central and eastern access road berms and to create ditch blocks. These impacts will be mitigated through on-site enhancement and restoration activities that have been debited from the total mitigation credit available for FDOT projects. The following mitigation information pertains to mitigation of proposed roadway project wetland impacts permitted through December, 2006.

FDOT Wetland Impacts	Mitigation
1- FM 1975331 US 27 – Towerview Rd. to SR 540 Freshwater Marsh – 3.9 acres TOTAL – 3.9 acres	Marsh Enhancement – 6.3 acres Upland Buffer Habitat Restoration – 5.0 acres TOTAL – 11.3 acres (ratio 3:1)
2 – FM 1976791 US 27 – SR 544 to Blue Heron Bay Shrub Wetland – 0.6 acres Freshwater Marsh – 0.9 acres TOTAL – 1.5 acres	Marsh Enhancement – 2.3 acres Upland Buffer Habitat Restoration – 5.0 acres TOTAL – 7.3 acres (ratio 5:1)

<p>3 – FM 1940931 US 17 – Peace River to Tropicana Mixed Forested Wetland – 3.00 acres Freshwater Marsh – 1.42 acres TOTAL – 4.42 acres</p>	<p>Forested Wetland Enhancement – 12.0 acres Marsh Enhancement – 4.0 acres Upland Buffer Habitat Restoration – 6.0 acres TOTAL – 22.0 acres (ratio 5:1)</p>
<p>4 – FM 1938991 US 17 – Livingston to Hardee Co. Mixed Forested Wetland – 0.48 acre Shrub – 6.92 acres Freshwater Marsh – 0.79 acres Freshwater Marsh (Ditch) – 3.40 acres TOTAL – 11.59 acres</p>	<p>Forested Wetland Enhancement – 13.8 acres Forested Wetland Restoration – 13.5 acres Marsh Enhancement – 11.7 acres Upland Buffer Habitat Restoration – 6.0 acres TOTAL – 45.0 acres (ratio 4:1)</p>
<p>5 – FM 1971681 SR 60A – CR 555 to Broadway Mixed Forested Wetland – 0.46 acres TOTAL – 0.46 acres</p>	<p>Forested Wetland Restoration – 1.8 acres Upland Buffer Habitat Restoration – 2.0 acres TOTAL – 3.8 acres (ratio 5:1)</p>
<p>6 – FM 4110391 US 27 – CR 546 to SR 544 Shrub – 0.8 acre Freshwater Marsh – 3.1 acres Freshwater Ditch – 2.8 acres TOTAL – 5.7 acres</p>	<p>Future determination when impacts are evaluated and finalized. Permitting scheduled for April, 2009. Construction scheduled for July, 2010.</p>
<p>7 – FM 1977061 US 27 – SR 540 to SR 542 Open Water – 0.02 acre Fresh. Hardwood Forest – 0.01 acre Mixed Hardwood Forest – 0.44 acre Freshwater Marsh – 1.22 acres TOTAL – 1.77 acres</p>	<p>Final determination when impacts are evaluated and finalized. Permitting scheduled for March, 2008. Construction scheduled for October, 2009.</p>
<p>8 – FM 1977071 US 27 – SR 542 to SR 546 Marsh – 0.7 acre TOTAL - 0.7 acre</p>	<p>Final determination when impacts are evaluated and finalized. Permitting scheduled for July, 2009. Construction scheduled for October, 2010.</p>
<p>9 – FM 1976381 US 98 – Carpenter's Way to Daugherty Road Stream Swamp – 0.1 acre TOTAL – 0.1 acre</p>	<p>Forested Wetland Restoration – 0.8 acre TOTAL – 0.8 acre (ratio 8:1)</p>

<p>10 – FM 1977051 US 27 – SR 60 to Towerview Road Open Water – 0.01 acre Ditch – 0.18 acre TOTAL – 0.19 acre</p>	<p>Marsh Enhancement – 1.5 acres TOTAL – 1.5 acre (ratio 8:1)</p>
<p>11 – FM 4082682 US 98 – Manor Drive to CR 540A Mixed Wetland Forest – 3.0 acres Lake Marsh – 1.0 acres TOTAL – 4.0 acres</p>	<p>Final determination when impacts are evaluated and finalized. Permitting scheduled for February, 2007. Construction scheduled for October, 2010.</p>
<p>12 – FM 4082683 US 98 – CR 540A to SR 540 Lake Marsh – 1.9 acres TOTAL – 4.0 acres</p>	<p>Final determination when impacts are evaluated and finalized. Permitting scheduled for February, 2007. Construction scheduled for November, 2010.</p>
	<p>GRAND TOTALS – 610 Mitigation Acres Marsh Enhancement – 220 Acres Marsh Restoration – 214 Acres Forested Wetland Enhancement – 84 Acres Forested Wetland Restoration – 65 Acres Upland Habitat Restoration – 24 Acres Marsh Creation – 3 Acres</p>
<p>Permitted Impacts to Date (2007 Mit. Plan) – 22.16 Acres</p>	<p>Mitigation Debited to Date (2007 Mit. Plan) Marsh Enhancement – 25.8 Acres Marsh Restoration – 0 Acres Forested Wetland Enhancement – 25.8 Acres Forested Wetland Restoration – 16.1 Acres Upland Habitat Restoration – 24.0 Acres Marsh Creation – 0 Acres TOTAL – 91.7 Acres</p>



- 1 Lake Hancock
- 2 Upper Peace River
- 3 Bowlegs Creek
- 4 Charlie Creek Addition
- 5 Charlie Creek
- 6 Horse Creek
- 7 Lower Peace River
- 8 RW Griffin Reserve
- 9 Bright Hour Watershed
- 10 Peaches/Shell Creek
- 11 Charlotte 1
- 12 Charlotte Harbor
State Buffer Preserve



**FDOT - District 1
MITIGATION SITE
(Peace River Basin)**

**LAKE HANCOCK /
CIRCLE B BAR RESERVE
(SW 66)**

**FIGURE A
WATERSHED
BASIN MAP**



Circle B Bar Reserve

**SW 66 - Circle B Bar Reserve
FIGURE B - Location Map**

0 5,500 11,000 22,000 Feet

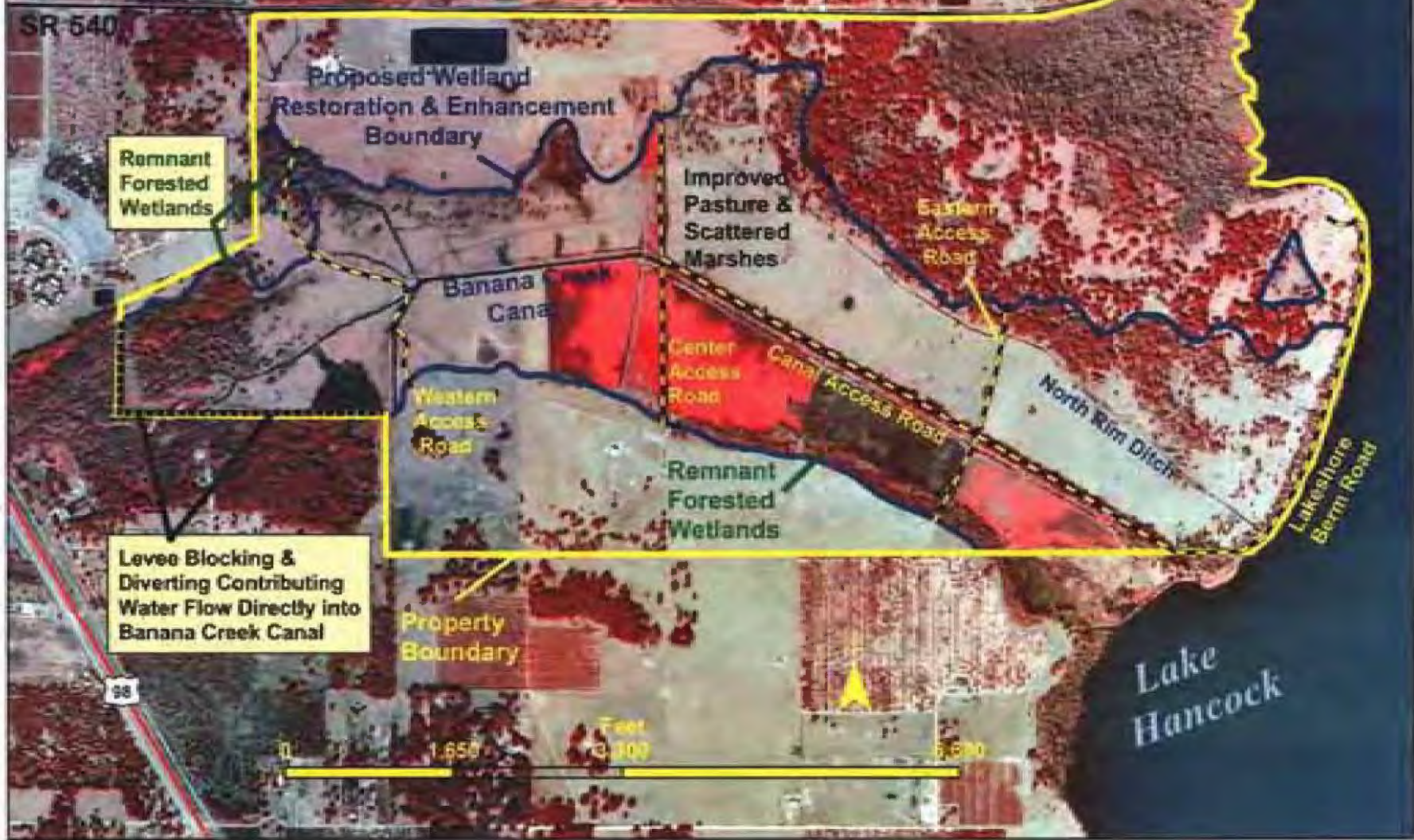


**FDOT - District 1
MITIGATION SITE
(Peace River Basin)**

**LAKE HANCOCK /
CIRCLE B BAR RESERVE
(SW 66)**

**FIGURE C
1927 SOIL SURVEY**

**Figure D - SW 66 - Circle B Bar Reserve
Pre-Construction Site Conditions
Proposed Wetland Restoration &
Enhancement Areas**



**Figure E - SW 66 - Circle B Bar Reserve
Post-Construction Wetland Restoration &
Enhancement Areas**





View of the northeast bahia pasture prior to marsh restoration, looking east from near the lakeshore berm. Banana Creek Canal with oaks on adjacent spoil material (left) and northern upland oak hammock (right).



View from atop the remnant central berm prior to construction. Overlooking the adjacent drainage ditch and northeast bahia pasture.

**FDOT Mitigation Site
(Peace River Basin)**

**Pre – Construction Photos
CIRCLE B BAR RESERVE
(SW 66)**



View from the southwest property boundary, looking north at the western pasture that was historically forested wetlands. The remnant forested wetland is in background (left). The lone tree on the far right is the flagged tree in the photo below.



Opposite view from the top photo, where the access road crosses the western pasture proposed for forested wetland restoration. There is sufficient groundwater hydrology to support scattered soft rush, particularly adjacent to the remnant forested wetland (right).

**FDOT Mitigation Site
(Peace River Basin)**

**Pre - Construction Photos
CIRCLE B BAR RESERVE
(SW 66)**



View south of the north portion of East Road where it crosses the northeast pasture. The Banana Creek Canal with trees on the adjacent spoil material is in the background. The road will be elevated and culverts installed to restore west-east surface water sheet flow and adjacent marsh habitat.



View south from the north end of the remnant and unstable Center Road and adjacent ditch that diverts and drains water south to the Banana Creek Canal. The ditch will be backfilled and clean fill used to reconstruct and elevate the road to restore west-east sheet flow hydrology and adjacent marsh habitat.

**FDOT Mitigation Site
(Peace River Basin)**

**Pre - Construction Photos
CIRCLE B BAR RESERVE
(SW 66)**



***View of the southwest Gator Pond during earthwork activities.
Dredging material used to stabilize the Center and Eastern Access Road berms.***



***View of the finished Gator Pond, backfilled ditch (left), and Western Access Road
during the late stages of construction. Construction equipment moving east
to backfill the Banana Creek Canal (center).***

**FDOT Mitigation Site
(Peace River Basin)**

**Construction Photos
CIRCLE B BAR RESERVE
(SW 66)**



View from Center Road, looking west at the Banana Creek Canal just prior to backfilling with the adjacent spoil material.



Same view of the Banana Creek Canal a week later, just after filling and prior to planting with herbs such as pickerelweed and arrowhead.

**FDOT Mitigation Site
(Peace River Basin)**

**Construction Photos
CIRCLE B BAR RESERVE
(SW 66)**



Standing on the southern end of the Center Road looking north. Fill material was used to elevate the remnant road (3,050 ft. long), and culverts installed to restore west-east sheet flow hydrology through the restored and enhanced wetland habitat.



Final construction of the Center Road and sod being installed to stabilize the slopes. Water starting to pool upstream and attracting white pelicans and wading birds (left).

**FDOT Mitigation Site
(Peace River Basin)**

**Construction Photos
CIRCLE B BAR RESERVE
(SW 66)**



View from the western boundary of the property looking east. The north-south levee (900 ft. long, avg. 5 ft. tall) has just been backfilled into the adjacent ditch to restore western water sheet flow through the remnant forested wetland and proposed forested wetland restoration area. View of a backfilled portion of the Banana Creek Canal is evident along the right side of the photo.



View from the southwest property boundary looking north at the footprint of where the levee was just pushed back into the ditch to restore sheet flow hydrology. The graded area was then planted with hydrophytic plants and trees.

**FDOT Mitigation Site
(Peace River Basin)**

**Construction Photos
CIRCLE B BAR RESERVE
(SW 66)**



Ditch block construction was conducted where the East Road berm crosses the Banana Creek Canal. This portion of the canal was not backfilled to preserve the existing large oaks and maples along the rim spoil material. The rim material has a hiking trail under the canopy used by both the public and wildlife to gain access around the site.



A Menzi unit was utilized in areas where traditional equipment could not access through water, such as this breaching of the rim spoil material to provide hydraulic connectivity to the preserved portion of the Banana Creek Canal.

**FDOT Mitigation Site
(Peace River Basin)**

**Construction Photos
CIRCLE B BAR RESERVE
(SW 66)**



The 3,050 ft. long Center Road berm just after construction as sod is being installed on the slopes. To minimize the potential of sedimentation, the road berms were constructed prior to filling the western segment of the Banana Creek Canal and contributing ditches. An open water component west (left) of the Center Road is heavily used by water fowl, wading birds and alligators.



The 2,000 ft. long East Road just after construction. As with the Center Road, the restored sheet flow is evenly distributed by a series of culverts, as well as "saddle" swales installed at lower road elevations to allow overflow during periodic flood events.

**FDOT Mitigation Site
(Peace River Basin)**

**Construction Photos
CIRCLE B BAR RESERVE
(SW 66)**



The West Road was historically a dry road crossing at natural grade over the pasture. The new road is within the same footprint and still at natural grade, but was reconstructed with crushed concrete. The majority of the road is now below the surface water elevations, maintaining a wet crossing used by vehicles only when necessary. Backfilling of the Banana Creek Canal and contributing ditches are evident (right to left), conducted just prior to removing the western levee to restore flow.



View of the former northeast bahia pasture, with the tree-lined eastern segment of the Banana Creek Canal spoil material evident to the left. This photo was taken after the north rim ditch was backfilled and hydrology restored, but prior to supplemental planting in the open water area. The new outfall to Lake Hancock includes culverts installed within the lakeshore berm (lower right).

**FDOT Mitigation Site
(Peace River Basin)**

**Construction Photos
CIRCLE B BAR RESERVE
(SW 66)**



The wetland restoration activities at the Reserve have helped attract a substantial increase in wildlife populations. Wading birds, water fowl and bald eagles are commonly observed on the tract.



There are estimates that the adjacent 4000-acre Lake Hancock has an alligator population that exceeds 2000. With the restored wetland hydrology and subsequent attraction of more wildlife, alligators of various sizes frequently visit the Reserve.

**FDOT Mitigation Site
(Peace River Basin)**

**Construction Photos
CIRCLE B BAR RESERVE
(SW 66)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Apollo Beach Nature Preserve**

Project Number: **SW 67**

Project Manager: Mike Holtkamp, WMD Operations Director

Phone No: (352) 796-7211, ext. 4524

County: Hillsborough

Location: Sec. 16, T31S, R19E

IMPACT INFORMATION

DOT FM: 2557031 – SR 60, Cypress to Fish Creek ERP #: 43002958.003 COE #: 200205816 (IP-MN)

Drainage Basin: Tampa Bay Water Body(s): Spruce Street Drainage Canal SWIM water body? N

Impact Acres /Types (FLUCFCS): 5.3 ac. 642

This SR 60 project has a total proposed impact of 16.6 acres, 5.3 acres to be mitigated at Apollo Beach, 5.1 acres to be mitigated at Tappan Tract (SW 62), 5.4 acres to be mitigated at Cockroach Bay – Saltwater (SW 75), and 0.8 acres to be mitigated at Cockroach Bay – Freshwater (SW 56).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation Restoration Enhancement Preservation Mitigation Area: **13.8 ac.**

SWIM project? Y Aquatic Plant Control project? N Exotic Plant Control Project? N

Mitigation Bank? N Drainage Basin: Tampa Bay Water Body(s): Tampa Bay SWIM water body? Y

Project Description

- A. Overall project goal:** The creation of various coastal habitats within an area of spoil constructed (1955) from adjacent dredged material from Tampa Bay. The total project area is 38 acres, on a site owned and managed by Hillsborough County Parks Dept., with the habitat creation conducted through the WMD-SWIM Dept. The habitats and associated proposed acreage include intertidal low marsh and mangroves (13.8 acres), intertidal high marsh (7.2 acres), intertidal open water (10.8 acres), dunes (1.2 acres), and upland preservation & enhancement (5.0 acres). The restoration area proposed to mitigate for the DOT wetland impacts include the creation of 13.8 acres of low marsh and mangrove species will naturally recruit in this area during the initial growing season.
- B. Brief description of current condition:** Prior to construction in 2004, the majority of the site included a relatively level spoil "plateau" essentially covered with a monoculture of cogon grass and minor cover provided by goldenrod, beggar's-tick, dog fennel, ragweed, and several upland grasses (refer to site photos). A narrow strip of white and black mangroves were established along the southern shore's waterline, couple areas of dense concentrations as well as scattered Brazilian pepper, with scattered cabbage palm, salt-bush, wax myrtle, and Australian pine. Overall, very low quality habitat dominated by exotic vegetation and minimal opportunities for wildlife use.
- C. Brief description of proposed work:** The majority of the spoil material has been removed, graded to create low and high marsh habitat. The design emphasizes an interconnected network of open water channels and deeper pools, a myriad of planting platforms at various elevations, sinuous edge communities, and areas of upland preservation and enhancement. The open water component is particularly important in the design to offer feeding and resting habitat for the Florida manatee that frequent the area due to the neighboring warm-water discharge from the Tampa Electric Company's (TECO) Big Bend Power Station.

- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The 5.9 acres of the saltwater marsh impacts will be compensated by the creation of 13.8 acres of saltwater low marsh habitat. The DOT funds will be sufficient to reimburse the construction and maintenance of 13.8 acres, which will be buffered with the creation of other saltwater habitats.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** The Tampa Bay Mitigation Bank (TBMB) is the only mitigation bank within the Tampa Bay Drainage Basin. TBMB will be under construction and not anticipated to sell credits until at least 2005.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** The Apollo Beach restoration project is a SWIM project. Constructed through the WMD-SWIM Dept., the site is owned and will be managed by the Hillsborough County Parks Department.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: A private contractor selected by the SWFWMD – SWIM Dept.

Contact Name: Mark Brown, WMD Environmental Scientist Phone Number: (352) 796-7211, ext. 4488

Entity responsible for monitoring and maintenance: SWFWMD- SWIM Dept. and Hills. County Parks Dept.

Proposed timeframe for implementation: Commence: Design complete, Construction commenced 2003

Complete: Construction and planting complete in late 2004, followed by minimum 3 years maintenance & monitoring

Project cost: \$ 450,000 (total); the entire project cost is \$1.5 million. The FDOT wetland impacts and associated funds will reimburse for the construction, maintenance & monitoring for the 13.8 acres of intertidal low-marsh which provides mitigation credit for the 5.3 acres of impact.

Attachments

1. Detailed description of existing site and proposed work. Refer to Attachment A.
2. Recent aerial photograph with date and scale. Refer to Figure B.
3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (Location Map) and Figure C (Design Drawings).
4. Detailed schedule for work implementation, including any and all phases. Construction commenced in 2003, finished by the end of 2004, followed by three years maintenance & monitoring.
5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.
6. Long term maintenance plan. Refer to Attachment B.
7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous text and Attachment C.

Attachment A – Site Conditions & Proposed Plan

The vast majority of pre-construction site was classified as upland. Numerous plant species colonized the upland portions of the site in the 47 years since construction of the Apollo Beach peninsula. With sterile dredged soils and minimal seed source of desirable upland species, the “plateau” (average elev. 9-10 ft.) offered little opportunity for desirable species to colonize. Cogon grass (*Imperata brasiliensis*) was the most

dominant ground cover species (refer to site photos). Other herbs include purple sedge (*Cyperus ligularis*), hurricane grass (*Fimbristylis spathacea*), licorice weed (*Scoparia dulcis*), seaside evening primrose (*Oenothera humifusa*), and camphor daisy (*Haploppus phyllocephalus*). Shrub and tree species were present in the form of scattered individuals and small, dense pockets. Dominant species included Brazilian pepper (*Schinus terebinthifolius*), salt-bush (*Baccharis angustifolia*), wax myrtle (*Myrica cerifera*), lantana (*Lantana camara*), cabbage palm (*Sabal palmetto*), and Australian pine (*Casuarina equisetifolia*). A narrow strip of intertidal wetland exists along the outer, waterward edge of the site. Woody vegetation in this zone consists mainly of white mangroves (*Laguncularia racemosa*) and black mangroves (*Avicennia germinans*) with scattered Brazilian pepper and coinvine (*Dalbergia castaphyllum*). Herbs include sea purslane (*Sesuvium portulacastrum*), saltmeadow cordgrass (*Spartina patens*), and saltwort (*Batis maritima*).

Several proposed habitats have been constructed. The open water component (10.8 acres) includes sub-tidal, mudflats, and salterns created between elevations 0.5 to deeper than -2.0 feet. The interconnected deepwater channels will provide tidal flows into the interior of peninsula. Deeper pools (greater than 3.0 ft.) are created to provide refuge for manatees and juvenile fish. Topographic ridges are constructed in the intertidal zone to trap tidal flows and encourage development of saltern zones.

The intertidal low marsh and mangroves (13.8 acres) is the wetland zone proposed to compensate for the proposed wetland impacts. This zone (elevations 0.5 to +2.0 ft.) will be planted with *Spartina alterniflora* and mangrove species will recruit and generate during the initial growing seasons. The existing eastern shoreline is dominated by mangroves and will be preserved to inhibit erosion and provide a seed source for recruitment. Excavation to provide hydrologic connections for the proposed channels will occur in areas where erosion has eliminated mangrove coverage. The intertidal high marsh (7.2 acres) is constructed between elevations +2.0 to +3.0, with proposed plantings of *Iva* spp., *Spartina patens*, *Batis maritima*, *Borrchia frutescens*, and *Sesuvium portulacastrum*. Mangrove recruitment will also occur within this zone to further diversify the installed plant communities.

A portion of the excavated material is used to construct sand dune habitat along the northern top-of-bank. The dunes and surrounding areas will be enhanced by plantings of sea oats (*Uniola paniculata*), railroad vine (*Ipomoea pescaprae*), beach sunflower (*Helianthus debilis*), along with transplanted cabbage palms and prickly pear cactus. Selected upland areas will be enhanced to increase community diversity and offer roosting & nesting areas for a wide variety of bird species that will frequent the site. Brazilian pepper will be manually cleared and stumps will receive herbicide application using an approved treatment method.

Attachment B – Maintenance & Monitoring Plan, Success Criteria

For estuary creation and restoration projects, with proper construction of appropriate wetland grades to allow for sufficient tidal action, the planted vegetation will survey and recruit throughout the wetland. Salt water limits the re-establishment of exotic vegetation that is more of a concern with freshwater restoration projects. Maintenance for the wetlands will be primarily associated with control of any debris and replacement of herbs that didn't survive the initial planting.

Maintenance to control exotic and nuisance species are generally associated with upland habitat, which is a low percentage of the project area, and will be maintained through the use of herbicide. Maintenance will be conducted as necessary, expected to be quarterly for 2-3 years after planting. Afterward, Hillsborough County staff will continue maintenance as necessary to retain the success criteria. Inspections on a semi-annual basis are anticipated to evaluate vegetative conditions, debris, and any nuisance/exotic vegetation. After each inspection, proper maintenance activities will be conducted to correct any problems.

Monitoring will be conducted semi-annually, followed by annual reports conducted for a minimum three years post-construction. Monitoring will include qualitative evaluation and photo documentation of the portions proposed for mitigation, as well as general habitat conditions of the entire project area. The success criteria will reflect a minimum 90% survivorship for planted material and a total 85% cover of planted and recruited desirable species.



**FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**APOLLO BEACH
(SW 67)**

**FIGURE A
LOCATION MAP
Scale 1 in. = approx. 3200 ft.**



**FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**APOLLO BEACH
(SW 67)**

**FIGURE B
1995 Infrared Aerial
Scale 1 in. = approx. 300 ft.**

ZONE	STABOC	# Plant Species	SIZE	PLANTING D.E.	PLANTING QUANTITY	TOTAL PLANT QUANTITY
CLIFFS	[Hatched Pattern]	Sparganium angustifolium	3 gal	2.8	110	330
		Hydrocotyle sphenoloba	1 gal	2.8	35	105
		Phytolacca sp.	1 gal	2.8	35	105
UPLAND	[Solid Grey Pattern]	Phytolacca sp.	3 gal	1.0	300	900
		Phytolacca sp.	3 gal	1.0	300	900
		Phytolacca sp.	3 gal	1.0	300	900
		Phytolacca sp.	3 gal	1.0	300	900
		Phytolacca sp.	3 gal	1.0	300	900
WATER	[Dotted Pattern]	Phytolacca sp.	3 gal	1.6	150	450
		Phytolacca sp.	3 gal	1.6	150	450
		Phytolacca sp.	3 gal	1.6	150	450
		Phytolacca sp.	3 gal	1.6	150	450
		Phytolacca sp.	3 gal	1.6	150	450

ZONE	STABOC	PLANT SPECIES	SIZE	PLANTING D.E.	PLANTING QUANTITY	TOTAL PLANT QUANTITY
CLIFFS	[Hatched Pattern]	Sparganium angustifolium	3 gal	2.8	110	330
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		Phytolacca sp.	3 gal	1.0	300	900
		Phytolacca sp.	3 gal	1.0	300	900
		Phytolacca sp.	3 gal	1.0	300	900
		Phytolacca sp.	3 gal	1.0	300	900
WATER	[Dotted Pattern]	Phytolacca sp.	3 gal	1.6	150	450
		Phytolacca sp.	3 gal	1.6	150	450
		Phytolacca sp.	3 gal	1.6	150	450
		Phytolacca sp.	3 gal	1.6	150	450
		Phytolacca sp.	3 gal	1.6	150	450



**FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**APOLLO BEACH
(SW 67)**

**FIGURE D
Planting Plan
Scale 1 in. = approx. 300 ft.**



Entrance to the Preserve, owned and managed by Hillsborough County Parks Dept., habitat restoration activities conducted in association with the SWFWMD – SWIM Dept.



Typical view of the site, dominant ground cover of cogon grass, with scattered Brazilian pepper, low quality habitat conditions.

**FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**APOLLO BEACH NATURE PRESERVE-
HABITAT RESTORATION PROJECT
(SW 67)**



Another typical view of the site, cogon grass, scattered B. pepper. Small oak hammock (left background) will be preserved and enhanced.



One of the three proposed southeast open water channel points, connecting the created wetlands to the interbay area. B. pepper along the top-of-bank, minor temporary impacts to mangrove fringe along toe-of-slope in order to construct the connections.

**FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**APOLLO BEACH NATURE PRESERVE-
HABITAT RESTORATION PROJECT
(SW 67)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: I-75 Peace River Bridge Restoration

Project Number: SW 69

Project Manager: Mark Brown, WMD Environmental Scientist

Phone No: (352) 796-7211, ext. 4488

County: Charlotte

IMPACT INFORMATION

WPI: 4046971 – I-75 Bridge Widening over Peace River ERP #: 43021917.00 COE #: NPR (USCG)

Drainage Basin(s): Peace River Water Body(s): Peace River SWIM water body? Y

Impact Acres / Types (FLUCFCS): 0.08 ac. 619 / 612 / 642 – Permanent Impacts from Bridge Embankment Fill
0.72 ac. 612 / 642 - Permanent Impacts from Shading
2.51 ac. 612 / 642 -Temporary Impacts from Construction

TOTAL 3.31 Acres

Note: The total proposed wetland impact associated with the bridge construction is 6.06 acres. In addition to the 3.31 acres of impact listed above, there will be 2.75 acres of mangrove & estuarine permanent impacts from shading that will be mitigated through the purchase of mangrove credits from the Little Pine Island Mitigation Bank (SW 52).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation: 2.51 ac. Restoration (temp. impacts) 2.06 ac. Enhance. (under removed bridge) Mitigation: 4.57 acres

SWIM project? N Aquatic Plant Control project? Y Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin(s): Peace River Water Body(s): Peace River SWIM water body? Y

Project Description

A. Overall project goal: DOT constructed a new northbound I-75 bridge over the Peace River in 2002-2004. The new span is located between the existing northbound and southbound bridges (refer to Figures 13-16 for plan views). To remove the existing northbound bridge, construction equipment required access adjacent to the eastern side of the existing span, resulting in 2.51 acres of temporary wetland impact. Once the bridge span was removed, the existing non-vegetated, shaded area under the existing span (2.06 ac.) and temporary impact area (2.51 ac.) was planted with white mangrove, saltmarsh bulrush, and black needle rush.

B. Brief description of current condition: Prior to the new bridge construction, beneath the former northbound bridge span, there was a dominance of non-vegetated, exposed sand conditions (refer to site photos). For Site C, beneath the outer edges of the bridge span, ground and small shrub-size white mangroves were present due to limited sunlight exposure. Trimmed mangroves were dominant within the proposed temporary impact area of Site C. For Site B (Bird Key), the temporary impact area had some small trimmed mangroves, scattered leather-fern, and some non-vegetated areas where previously cut limbs were prevalent over the ground. For Site A, the temporary impact area included a mixture of white & red mangrove along with a dominance of black rush (refer to site photos).

C. Brief description of proposed work: The bridge contractor constructed the new bridge span before removing the existing northbound span. After the previous northbound span was removed, the contractor conducted additional earthwork to restore pre-construction grade elevations within the temporary impact and enhancement areas. The enhanced and restored wetlands were planted in July, 2004 with 1100 white mangrove, 4800 black rush, and 1700 saltmarsh bulrush. The planting supplemented the natural regeneration of these same species that had already commenced in these areas after construction. Maintenance & monitoring will be conducted for a minimum 3 years and until success criteria is met.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): For the on-site mitigation, the permanent loss of 0.7 acre of mangrove/estuarine marsh habitat will be adequately and appropriately compensated by the enhancement of 2.06 acres of non- to minimally-vegetated wetlands that was beneath the previous northbound span. The 2.51 acres of temporary impact to mangrove and saltmarsh habitat was restored in the same location as the impact. To compensate for the additional 2.75 acres of permanent mangrove and estuarine impact, the impacts are mitigated through purchasing 2.75 credits from the Little Pine Island Mitigation Bank.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: Due to habitat conditions, proximity to the proposed impact, and economical value, the Little Pine Island Mitigation Bank was selected to compensate for some of the proposed wetland impact associated with this project. However, the I-75 Bridge is within the Peace River Basin and the mitigation bank is within the adjacent and downstream Charlotte Harbor Basin. Selection of an appropriate mitigation project within the basin is required to partially mitigate for wetland impacts, in order to avoid cumulative loss of wetland habitat function and value within the Peace basin. Since the on-site wetland restoration and enhancement adequately and appropriately compensates for a portion of the impacts, the mitigation bank can provide additional mitigation for the remaining habitat loss.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : At the time of mitigation selection, there were no existing or proposed saltwater restoration SWIM projects proposed in the Peace River basin.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Contractor for the bridge construction was responsible for the necessary earthwork to restore grade elevations. A nursery contractor was selected for planting and maintenance of the restored wetlands.

Contact Name: Mark Brown, WMD Environmental Scientist Phone Number: (352) 796-7211, ext. 4488

Entity responsible for monitoring and maintenance: The maintenance and monitoring will be conducted by private consultant on contract with the SWFWMD.

Proposed timeframe for implementation: Commence: Bridge construction was conducted from 2001- 2004, planting conducted in July, 2004 Complete: minimum 2 years maintenance & monitoring

Project cost: \$24,000 (total)

Planning, Design, Site Evaluations, Contract Preparation - \$3,000

Planting (4.57 acres) - \$9,000

Maintenance & Monitoring (3 years) - \$12,000

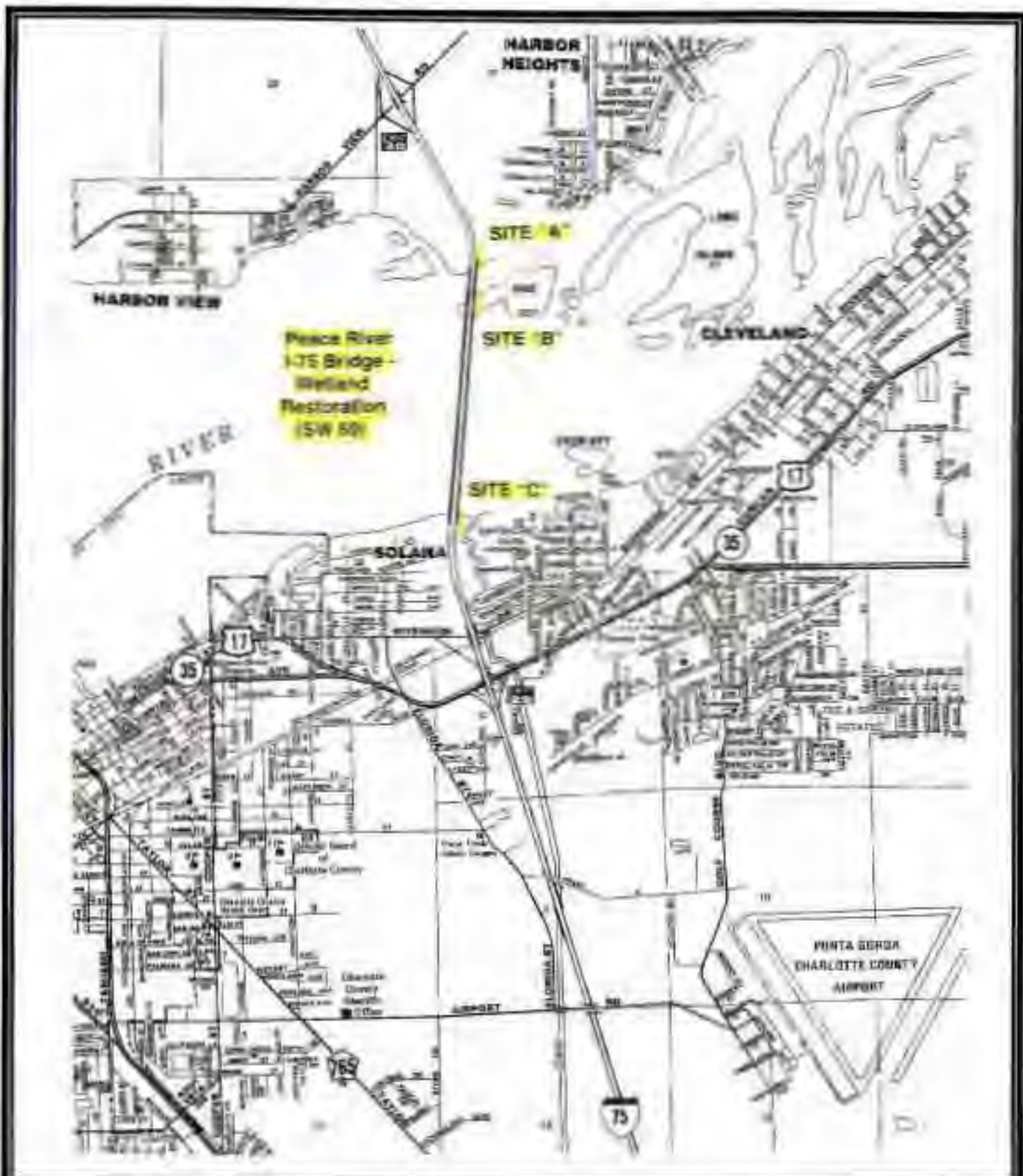
Attachments

- 1. Detailed description of existing site and proposed work.** Refer to previous discussion and site photos.
- 2. Recent aerial photograph with date and scale.** Refer to Figure B, 1995 infrared aerial.
- 3. Location map and design drawings of existing and proposed conditions.** Refer to Figure A (Location Map) and Figures 13-16 (bridge plan views) for pre-post construction conditions.
- 4. Detailed schedule for work implementation, including any and all phases.** Refer to previous discussion on activities.

X 5. Proposed success criteria and associated monitoring plan. Proposed success criteria includes 90% survivorship of planted stock which included white mangroves (*Laguncularia racemosa*), black rush (*Juncus roemerianus*), and saltmarsh bulrush (*Scirpus robustus*). These same species are naturally recruiting and regenerating at the site, the supplemental plantings were concentrated within the less vegetated areas. Success criteria requires a minimum 80% cumulative cover of desirable vegetation, since ground cover within mature mangrove systems are generally sparse. With the proper grading, tidal waters restrict the generation of exotic/nuisance species, which are required to be eradicated during a minimum 3 -year monitoring period. The monitoring will be conducted on a semi-annual basis for a minimum 3-years post-construction. The monitoring will be qualitative, noting species coverage, photo documentation, and vegetative trends and required maintenance activities. The results of the semi-annual monitoring will be prepared within annual monitoring reports and submitted to the ACOE and SWFWMD.

X 6. Long term maintenance plan. Maintenance activities will be conducted as needed for a minimum 3-years post construction. This will include a minimum of quarterly inspections the first year and semi-annual thereafter to conduct a review of the site conditions, herbicide exotic/nuisance species, trash removal, and photo documentation of conditions to be included in the annual monitoring reports.

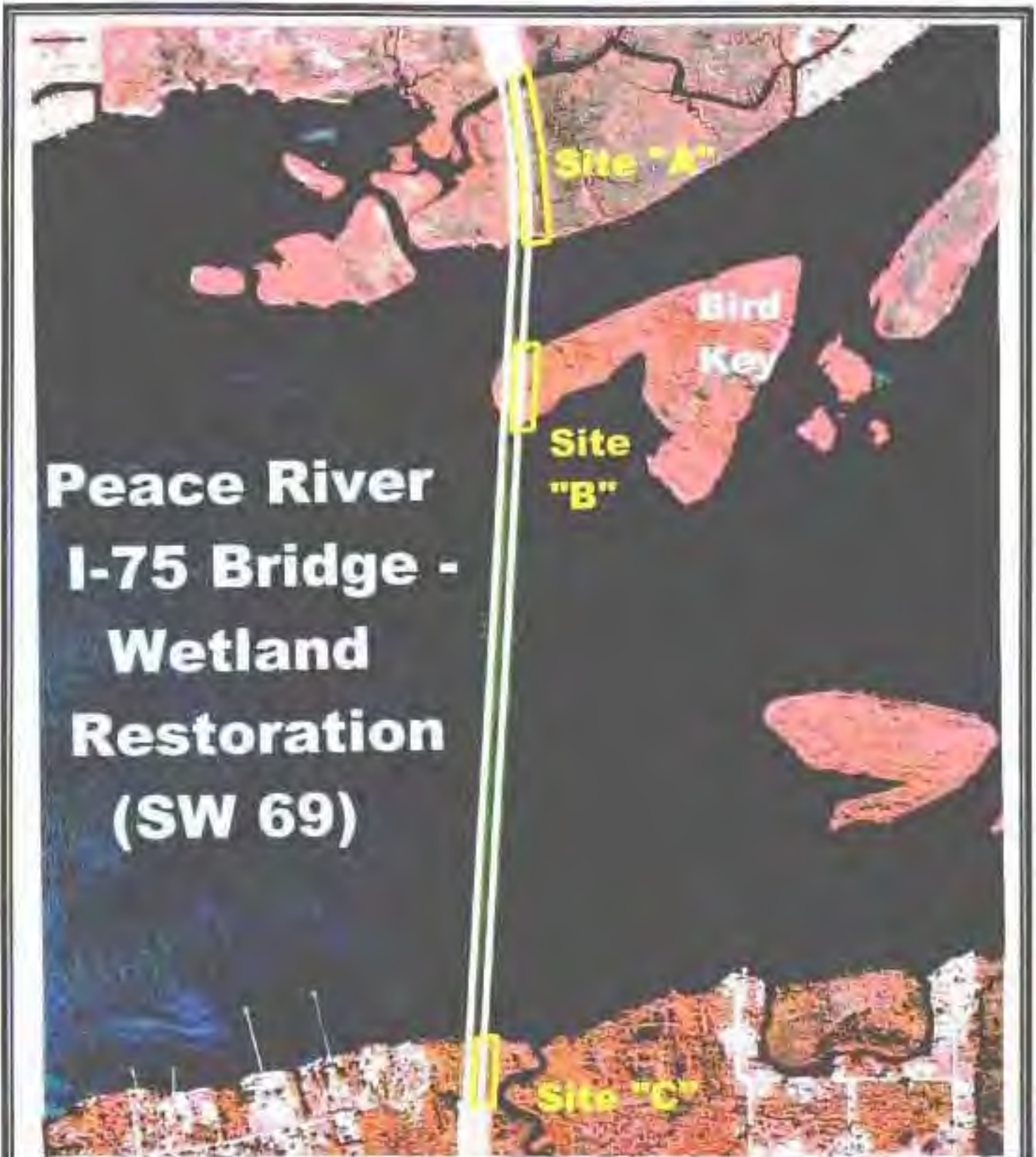
X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.



**FDOT - District 1
MITIGATION SITE
(Peace River Basin)**

**PEACE RIVER / I-75 BRIDGE
RESTORATION
(SW 69)**

**FIGURE A
LOCATION MAP
North, Scale 1.7 in. = 1 mile**



**Peace River
I-75 Bridge -
Wetland
Restoration
(SW 69)**

Bird
Key

Site "A"

Site
"B"

Site "C"

FDOT - District 1
MITIGATION SITE
(Peace River Basin)

PEACE RIVER / I-75 BRIDGE
RESTORATION
(SW 69)

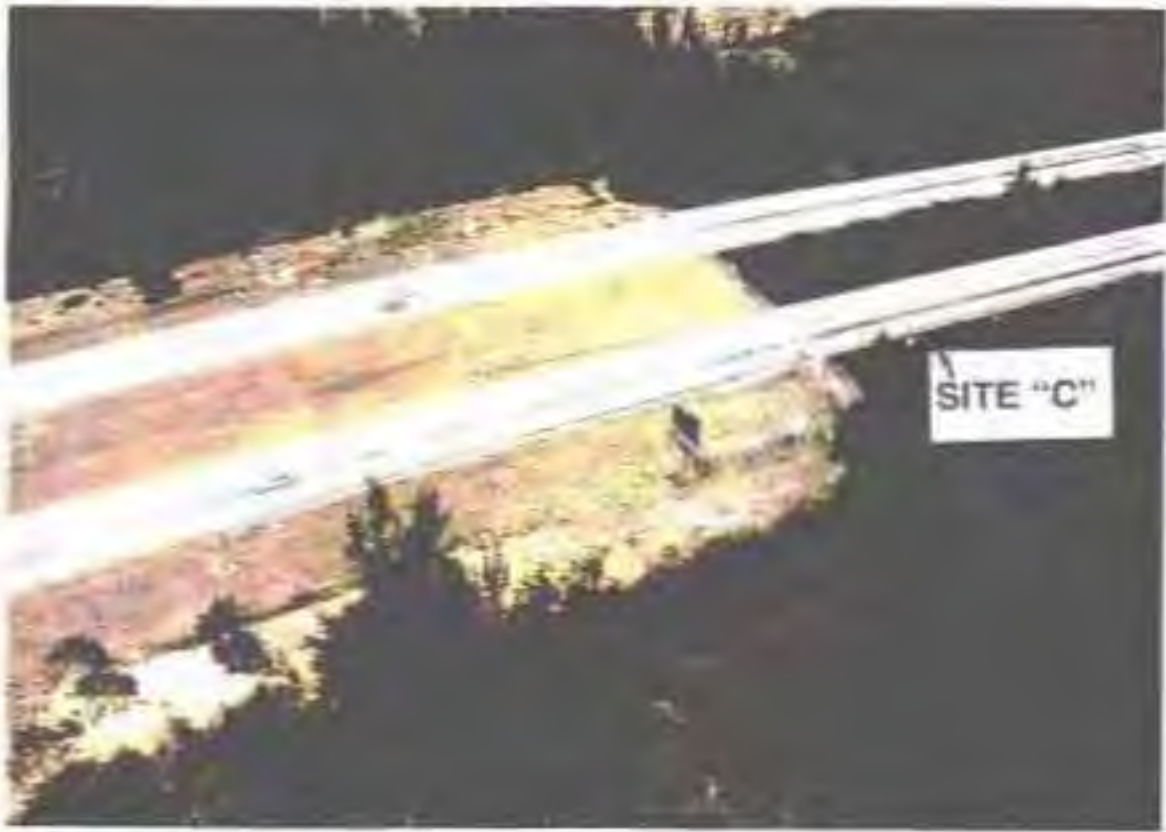
FIGURE B
1995 INFRARED AERIAL
North, Scale 1in. = 1075 ft.



Without St
Facing South



Seagrass bed
on west side
of bridge



Wetland 1
Facing West



Wetland 1
Facing North



Site A - View from top of the northbound bridge, looking south at mangroves and black rush alongside the bridge within the proposed temporary impact area. These species will be planted to restore the temporary impact and to enhance a portion under the bridge span proposed for removal.



Site A - View from the northern bridge embankment area, looking south over the tidal branch (refer to Figure B for aerial depiction). Brazilian pepper along the embankment (foreground) with mangroves and black rush south of the open water and adjacent to the bridge.

**FDOT - District 1 Mitigation Site
(Peace River Basin)**

**Peace River / I-75 Bridge Restoration
(SW 69)**



Site B - View from top of the northbound bridge, looking south at the large mangroves on Bird Key. Note the proposed temporary impact area has minimal coverage of mangroves and ground cover vegetation, primarily scattered leather fern and previously cut mangroves.



Site B - Opposite view from top photo, looking north at the temporary impact area adjacent to the bridge, the temporary impact area and enhancement area under the existing span will be planted with mangroves.

**FDOT - District 1 Mitigation Site
(Peace River Basin)**

**Peace River / I-75 Bridge Restoration
(SW 69)**



Site C - View from the northbound bridge's southern embankment, looking north at the proposed temporary wetland impact area associated with access of construction equipment. The temporary impact limits approximate the area where the mangroves are trimmed adjacent to the existing bridge span.



Site C - View of the temporary impact area (right) and proposed span removal (left). The temporary impact area is dominated by white mangrove, including shrub-size mangroves that have generated under the edge of the existing bridge span.

**FDOT - District 1 Mitigation Site
(Peace River Basin)**

**Peace River / I-75 Bridge Restoration
(SW 69)**



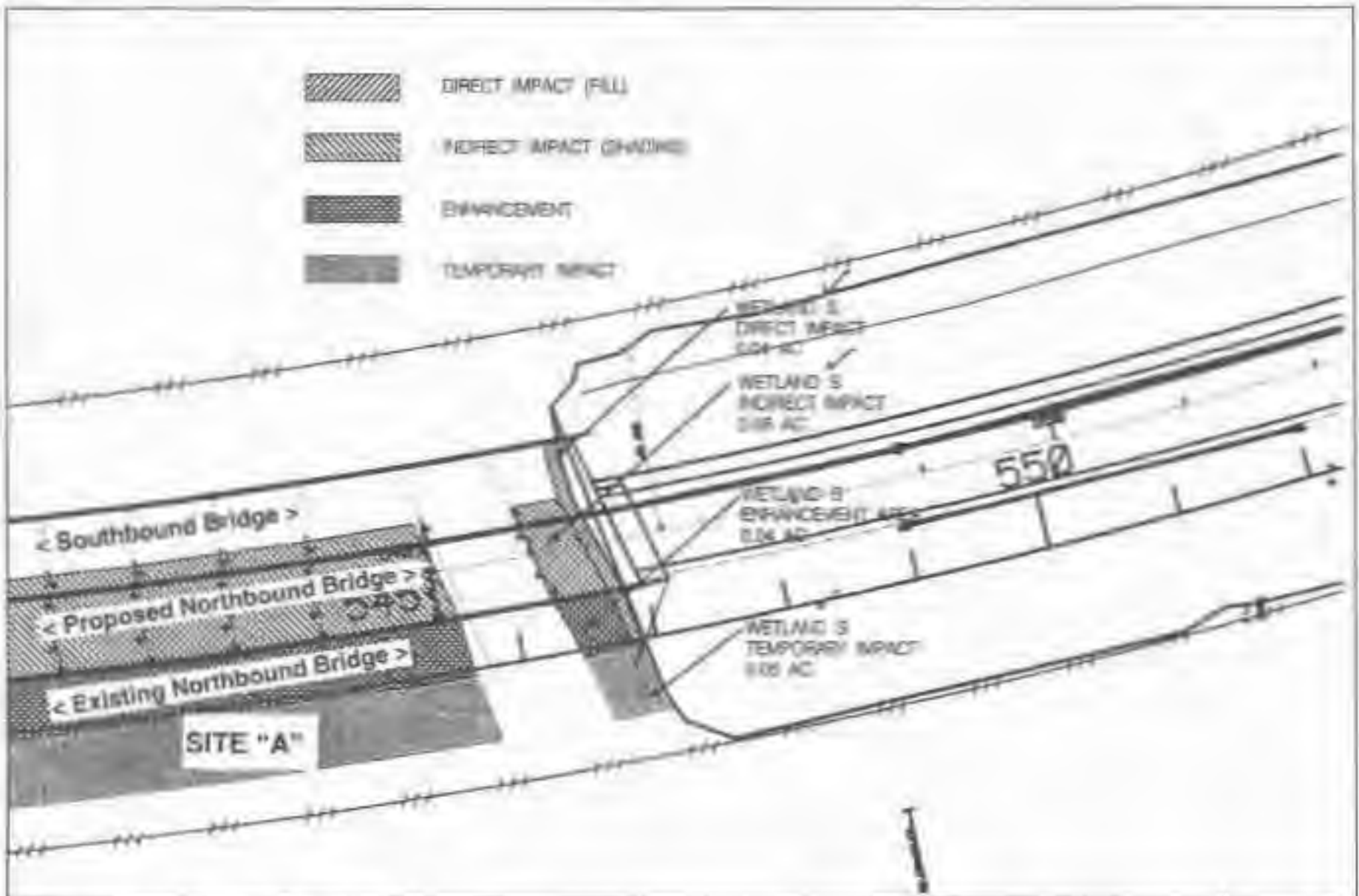
Site C - View under the northbound bridge, minimal vegetation within the area under shade. Once this bridge span is removed, white mangroves are proposed for planting, along with natural generation of mangroves. Stain lines on the bridge pilings indicate normal tidal fluctuations.



Site C - View from the southern shoreline of the Peace River, underneath the northbound bridge proposed for removal. Some red mangrove along the banks, seagrass beds within the river will not be impacted by bridge construction.

**FDOT - District 1 Mitigation Site
(Peace River Basin)**

**Peace River / I-75 Bridge Restoration
(SW 69)**

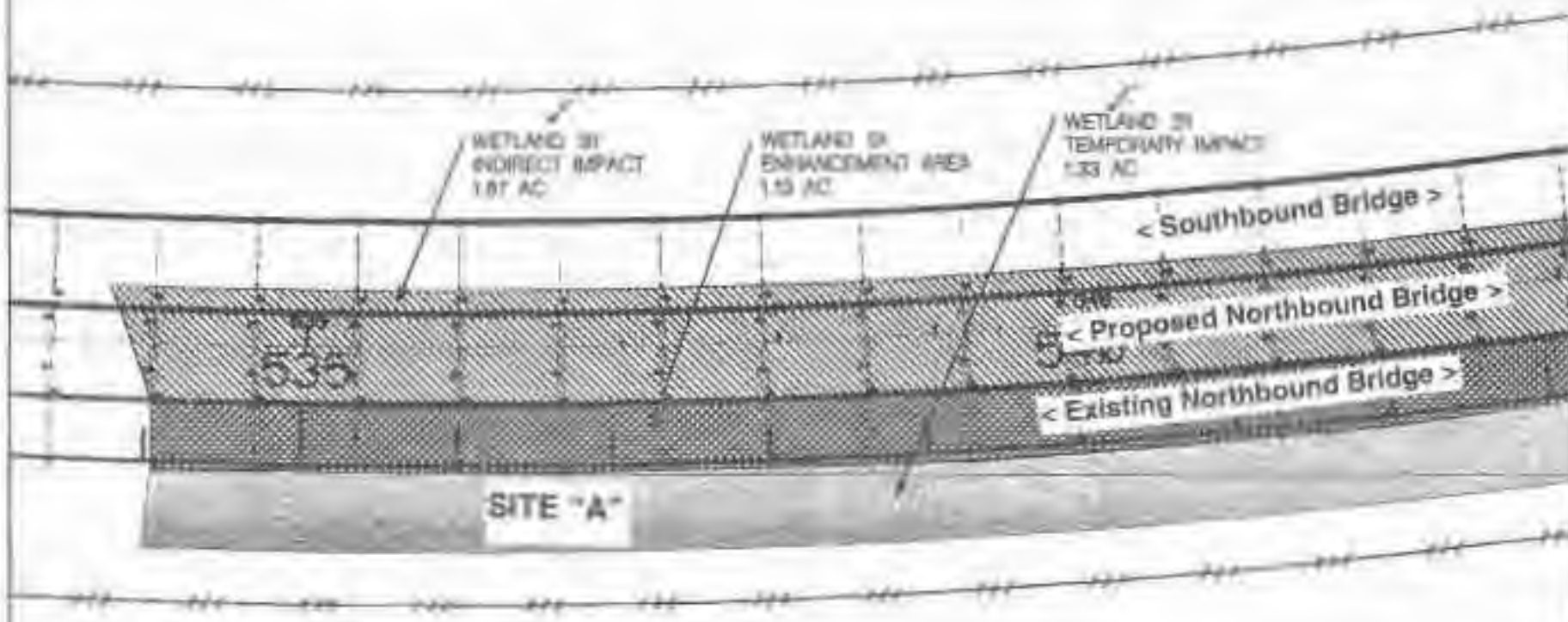


I-75 (S.R. 93) OVER THE PEACE RIVER
 REDECKING AND WIDENING
 DESIGN-BUILD PROJECT

WETLAND IMPACT AREAS

FIGURE 10

-  DIRECT IMPACT (FILL)
-  INDIRECT IMPACT (DRAWING)
-  ENHANCEMENT
-  TEMPORARY IMPACT

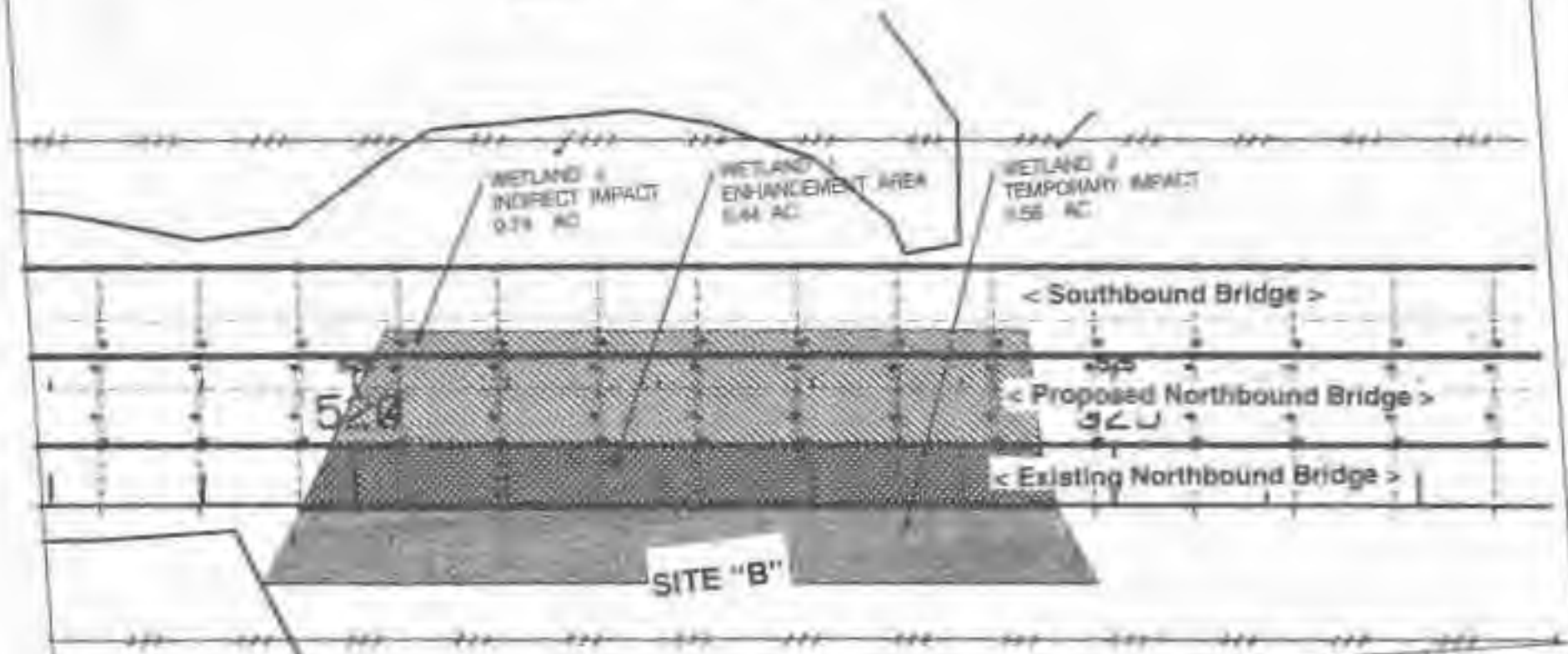


L-175 (L-175) OVER THE PERCE RIVER
 RETROFITS AND WIDENING
 CORNER-BUILD PROJECT

WETLAND IMPACT AREAS

FIGURE 17

-  DIRECT IMPACT (FILL)
-  INDIRECT IMPACT (SHORE)
-  ENHANCEMENT
-  TEMPORARY IMPACT

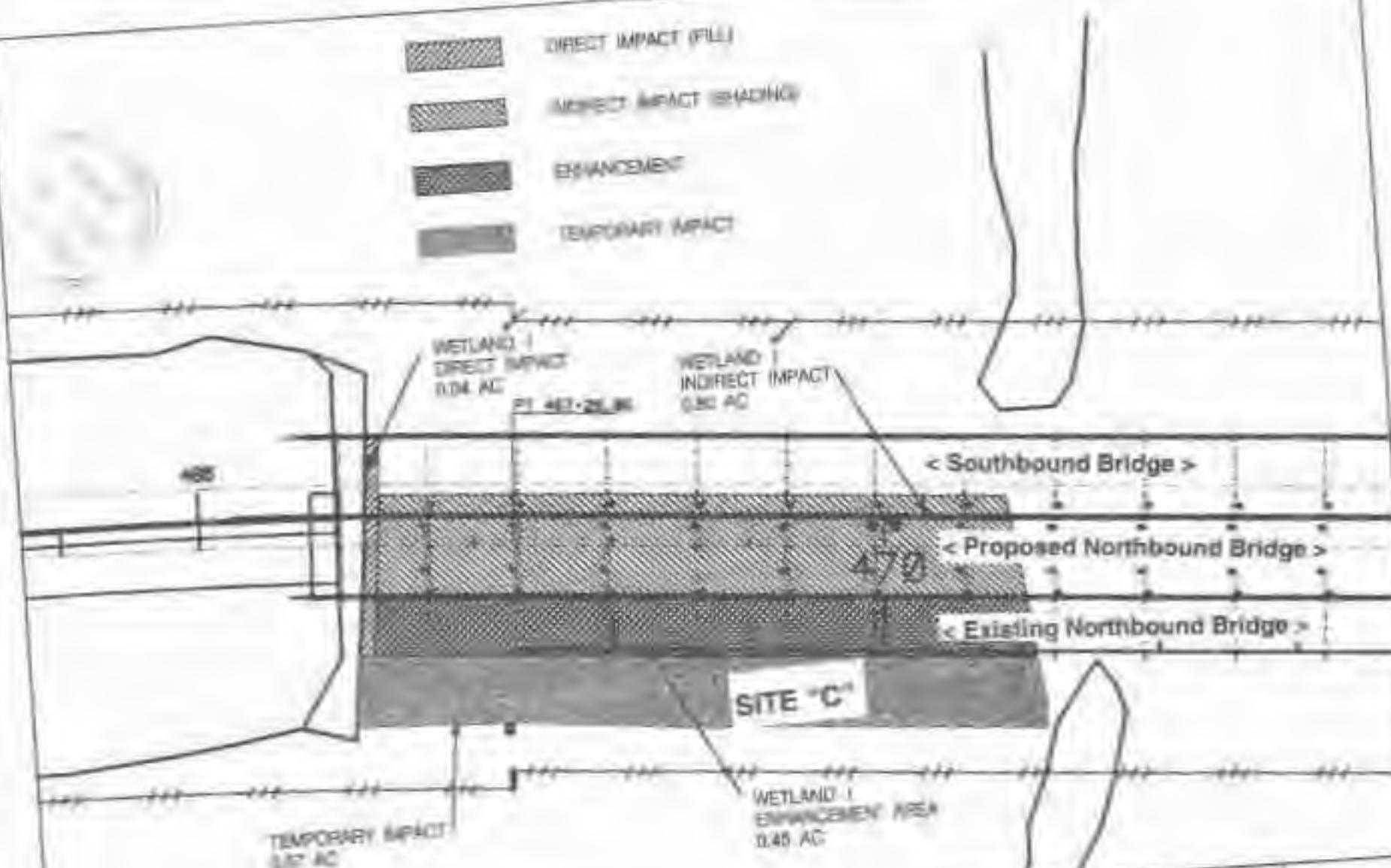


I-75 (SR188) OVER THE PEACE RIVER
 REDECKING AND WIDENING
 DESIGN-BUILD PROJECT

WETLAND IMPACT AREAS

FIGURE 14

-  DIRECT IMPACT (FILL)
-  INDIRECT IMPACT (SHADING)
-  ENHANCEMENT
-  TEMPORARY IMPACT



I-75 (S.P. 63) OVER THE FENCE RIVER
 REDUCING AND WIDENING
 DESIGN-BUILD PROJECT

WETLAND IMPACT AREAS

FIGURE 12

C. Brief description of proposed work: With assistance from eight agency funding sources, Pinellas County constructed the bridge span (Figures D,E, F) in the location of historically open water breaks between the islands (Figure C). This span allows significant hydrologic circulation between the back bays to improve the areas with the worst water quality and stagnation problems. As part of an evaluation for the USEPA, Pinellas County conducted an evaluation of the extent of the minimal anticipated seagrass enhancement, which is depicted on Figure B. A second causeway break is proposed to provide additional recirculation with the construction of another bridge or culverts.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority of the proposed wetland impacts are associated with minor encroachments of associated with urban roadway expansions in western Pinellas County. Since Ft. DeSoto was first designated to the mitigation program, very minor wetland impacts associated with over a dozen FDOT projects were ultimately permitted without requiring mitigation. Therefore, additional minor FDOT within the Pinellas Co. portion of the Upper Coastal Basin will be evaluated to determine if they can be appropriately mitigated at Ft. DeSoto. The most noteworthy anticipated impacts include the 0.4- acre of shading impact to a seagrass bed (#911) associated with the widening of the Pinellas Bayway Bridge, and the very conservative estimate of 1.0 acre of seagrass impacts associated with the Pinellas Bay Structure E over the Intercoastal Waterway. Both projects are within close proximity of Ft. DeSoto Park and the recirculation project was designated to compensate for these impacts due to the very important and large-scale enhancement opportunities to alter the continuous degradation of seagrass beds within a designated aquatic habitat management area. Secondary benefits include restoring tidal conditions to other habitats including adjacent mangroves that border the bays. Appropriate and adequate FDOT impacts and associated funds (\$225,000) are sufficient to compensate for 14% of the \$1.6 million spent for constructing the western causeway in 2004. This causeway break has resulted in an estimated seagrass habitat improvements of 130 acres. Therefore, FDOT will receive mitigation credit for 14% (18 acres) of the total minimal anticipated enhancement area of 130 acres.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection, there were no existing or proposed mitigation banks within the Upper Coastal Basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: This project is also being sponsored by the SWIM program.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: A private contractor selected by Pinellas County

Contact Name: Eric Fehrmann, Environmental Program Manager Phone Number: (727) 464-4761
Pinellas County Dept. of Environmental Management
512 S. Ft. Harrison Avenue
Clearwater, FL 33756

Entity responsible for monitoring and maintenance: Pinellas County Department of Environmental Management

Proposed timeframe for implementation: Commence: Construction – West Span, 2004 Complete: Spring, 2004, followed by water quality and vegetative monitoring, phase II options are being evaluated.

Project cost: Construction: \$ 1.6 million for constructing the west span, FDOT funding portion - \$225,000

Attachments

X 1. Detailed description of existing site and proposed work. Refer to Attachment A, the Pinellas County narrative of the project. Site photos with vegetative conditions are attached. Some minimal mangrove and salt-marsh fringe impacts occurred to construct the bridge. These minor impacts were mitigated by grading additional causeway spoil, planting salt grass and saltmarsh cordgrass, and allowing the mangroves to naturally recruit.

X 2. Recent aerial photograph with date and scale. Refer to Figure B, 1995 Infrared aerial.

X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A - location map, Figure D – structure locations, and Figures E&F – west bridge plan view design. It's noted that the bridge span only has a 4 ft. clearance during high tide, limiting the use of the inner bays to small boats and kayaks. Motor boats are restricted from use in the back bay areas in accordance with Pinellas County habitat protection goals. The use of rubble rip-rap aprons and under the bridges are necessary to minimize channel and bridge scouring.

X 4. Detailed schedule for work implementation, including any and all phases. Construction of the western bridge span was conducted in 2004. Habitat evaluation will be conducted to determine the need and design for another structure in the eastern causeway. Due to the substantial expense associated with constructing a bridge span, the County may decide to install box culverts to achieve tidal recirculation.

X 5. Proposed success criteria and associated monitoring plan. No specific success criteria are proposed, however periodic monitoring of seagrass health and water characteristics are being conducted post-construction. A monitoring plan for water quality and seagrass conditions was adopted by Pinellas County. A copy of the plan is provided as Attachment B. Along with this post-construction monitoring plan, additional pre-construction monitoring will be conducted including summer water temperatures, salinity, dissolved oxygen levels, etc.

X 6. Long term maintenance plan. Maintenance of the seagrass beds is not necessary. The salt-tolerant species planted near the bridge spans are periodically evaluated to make sure survivorship and recruitment of herbs and mangroves occur, and that no erosion is taking place.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

PROJECT: Construction of Bridges to Restore Circulation and Provide Ecological Enhancement in the Ft. DeSoto Park Aquatic Habitat Management Area

LEAD ORGANIZATION: Pinellas County Dept. of Environmental Management

CONTACT PERSON: Eric Fehrmann

512 S. Ft. Harrison Ave

Clearwater, FL 33756

Phone(727)464-4761

Fax (727)464-3174

E-mail: efehrman@co.pinellas.fl.us

COOPERATING ORGANIZATIONS: Southwest Florida Water Management District
Tampa Bay Estuary Program

PROJECT LOCATION: Ft. DeSoto Park Aquatic Habitat Management Area
Located at the mouth of Tampa Bay - HUC - 03100206
Tampa Bay is a SWIM, unified watershed assessment, National Estuary Program and a TMDL High Priority Water Body

WATERSHED RESTORATION ACTION STRATEGY: The poor circulation patterns were first identified in a study performed by Dr. Norman Blake with the University of South Florida in 1985. Dismantling of the waste treatment plants in the Management Area and pumping sewage to mainland treatment plants did not sufficiently solve the water quality problems. This project was then placed in the Pinellas County Capital Improvement Plan and is consistent with the Water Quality, Bay Habitats and Fish & Wildlife components of the Tampa Bay CCMP.

ESTIMATED POLLUTANT LOAD REDUCTION: While this project does not propose to reduce pollutant load from terrestrial sources, water quality improvements will be accomplished through restoration of historical circulation patterns and improved health of the submerged plant community within the back bays of the Management Area. Instead of the summer die-off of seagrass contributing pollutants loads they will function as a sink through continued uptake of nutrients and sediment trapping. Preliminary modeling predicts a 100% exchange of water during an average tidal cycle in the smaller bay and 25% for the larger bay.

PROJECT OBJECTIVES: The objective of this project is to restore circulation to the inner portion of the bays that was severed during the dredging and filling activities that occurred in the late 1950's. Summertime temperatures become extremely elevated in these areas leading to very low dissolved oxygen levels as well as severe seagrass stress resulting in blade necrosis. Restored circulation patterns will lead to improvement in water quality parameters and a healthier seagrass and faunal community. The improved health and viability of seagrasses result in continued seasonal uptake of nutrients and sediment trapping instead of adding pollutant load to the water body due to decaying seagrasses.

PROJECT DESCRIPTION: The project will include the construction and performance evaluation of 40 foot span bridges to replace portions of the filled causeways at Ft. DeSoto Park in Pinellas County. The Park was once a group of separate islands. During the Park's development in the late 1950's and early 1960's the main island was connected to the smaller islands by dredging and filling two causeways, one to provide access to the mainland and the other to create a maintenance area and Park Manager residence. This activity cut off circulation between the back bays.

Data obtained during a 1985 study of water quality, circulation and benthic fauna of the area support the theory that the causeways are restricting flow and reducing water exchange within the back bays of the Park. This study was conducted as a result of the not optimal operation of the four sewage treatment plants located at the park. Water quality was poor bad due to the incomplete treatment of sewage during peak use and suspected entrapment in the back bays.

Tidal surge and flow patterns were mapped to determine if the back bays were flushing or if they were stagnant. As expected, although the tidal flux travels from east to west, the flow patterns merely fill the bays then empty them in a very calm manner not conducive to flushing which led to elevated water temperatures, water quality degradation and sea grass mortality.

Although the plants were dismantled and the sewage pumped to mainland treatment plants, water quality still was poor in comparison with surrounding waters. Field visits confirmed stagnant conditions and at times one can observe differences in the tidal and wind driven water levels between the cells of Mullet Key. If water could pass between the cells pocketing and stagnation would be reduced. Opening the causeways by partial replacement with bridges will restore east-west circulation to the semi-enclosed embayments and will improve ecosystem health.

Pinellas County has started to perform pre-construction water quality monitoring to document the improved conditions. Allowing the natural tidal flux and wind driven gulf/bay water to pass between the cells will help modulate water temperature and improve water quality by restoring the historic circulation patterns that existed prior to the filling of the passes. The bridges will be designed to allow non-motorized vessels to travel between the bays and provide a canoe trail within the park as an added public benefit.

The project directly affects a SWIM priority water body and a high priority TMDL water body. It affects water quality and habitat value at a regional park facility. The Southwest Florida Water Management District has committed \$416,750 to this project. The project is consistent with the Pinellas County Comprehensive Plan, SWIM, the goals of the National Estuary Program and the CCMP. It is also contained within the Pinellas County Capital Improvement Project Program.

Pinellas County is designing the project in-house. Pinellas County proposes to design and permit the project during F.Y. 99/00 with construction to follow. Discussions with permitting personnel revealed that the project is very desirable and that permitting should pose no problems.

SPECIFIC OUTPUTS/DELIVERABLES: Pinellas County will design the hydrologic reconnections and bridges in-house with SWFWMD and consultant assistance to model the hydrodynamic flow patterns. The bridges/supports and other technical aspects will be designed by Pinellas County in-house.

The Pinellas County Department of Environmental Management has already begun to perform water quality testing for the basic parameters over incoming and outgoing tidal cycles. These will be compared to analyses performed after the hydrologic reconnections are established. A comparison will be made and a summary report submitted to funding partners. In addition, Pinellas County is in the process of contacting the local Universities to provide graduate students to perform faunal studies in the areas of the bridges

The project will entail the complete design, permitting (SWFWMD, ACOE) and construction of bridges to a maximum span of 40 feet. This span will allow significant hydrologic flow between the back bays to improve water quality in the areas that currently exhibit the worst water quality. In addition, the structure's size will allow the creation of a public canoe trail that would foster better appreciation of the natural resources of the Aquatic Habitat Management Area. Motor boats are restricted from use in the areas of the project in accordance with Pinellas County's habitat protection goals. Signage will be installed on the bridges specifying the partnership and explanation of how water quality will be improved due to the project. Fishing would also be encouraged with the construction of access areas (ADA accessible).

**Ft DeSoto Park Aquatic Habitat Management Area
Tidal Exchange Restoration:
Event precedent collection.**

Participants

Entities:

University of South Florida College of Marine Science, St. Petersburg, Florida
Delta Seven Inc., St. Petersburg, Florida

Principle Investigators:

Dr. Thomas R. Cuba, University of South Florida Research Adjunct.

Roles of Participants:

University of South Florida College of Marine Science scientists will direct interns and staff on loan from Delta Seven Inc in the collection of data and samples as described below.

Delta Seven Inc. is supports the effort and pledges the following in kind support. Delta Seven will acquire necessary permits, is donating the use of some field equipment and the services of field staff. Equipment includes both field equipment and computer programs (ArcMap GIS, Primer-5, etc). Delta Seven will provide ArcMap files of the limits of the seagrass as of November 23, 2000.

Project Narrative

Context of existing restoration project

Pinellas County has initiated a major restoration project within the Ft. DeSoto Park Aquatic Habitat Management Area. This project will open tidal connections which were closed approximately 40 years ago by causeways and which resulted in serious degradation of the system. Please refer to the scope of the restoration project titled "Restoration of circulation to provide ecological enhancement in the Ft. DeSoto park aquatic habitat management area." for details (NA17F21553). The proposal hereby submitted builds on the already funded project and will allow for an effective evaluation of the effort.

Context of synoptic and associated studies

Participating and advising researchers have identified numerous potential effects of the restoration of the circulation including changes to ichthyofauna, infauna, epifauna, macro-invertebrates, epilithic fauna, macro flora and micro flora, epiflora, water chemistry, sediment chemistry, and water exchange. The restoration will effect a change in virtually every aspect of the ecosystem. The magnitude of such effects is expected to change along gradients created by the restructuring of the tidal flux patterns. Of critical importance in the success of many of these investigations is the necessity to collect certain data prior to the actual opening of the channels. The analysis of these data have been pursued separately because of the time constraints of the funding process pitted against the timing of the restoration effort.

Context of event synoptic data collection

Pinellas county has dedicated an effort equivalent to \$12,822 in in kind service to meet the need to collect water quality data during time period immediately before and after the opening of the channels. The data and samples collected by USF will be temporally consistent with the water quality data collected by the county.

Abstract of proposed work:

In the weeks and hours immediately preceding the establishment of the tidal connections, USF and Delta Seven scientists will visit up to 44 stations located in the project area. At 11 stations, sediment cores will be collected using standard vibra coring protocols. Surficial sediment grabs will be collected at all 44 stations and preserved for subsequent analysis (grain size, TOC). At the time of collection, surface sediments will be tested for sulfide content using an ion specific probe. Twenty four permanent transects will be established for the evaluation of sea grass populations. Along each transect the frequency of necrosis, species composition, blade length, blade width, shoot density, and visual-census macro invertebrate data will be collected. Where *Thalassia testudinum* occurs, ten leaves will be randomly collected and preserved for epiphyte analysis. Along the transect, an area up to one square meter will be harvested by hand to collect entire plants with shoots and rhizomes intact. Harvesting will cease when 15 plants have been collected. These will be preserved for later morphometrics. Ten sites are located in habitats of unconsolidated sediments and ten sites are located along mangrove fringes or in mangrove channels. Ichthyofauna will be collected using seines and traps at each of the 44 sites. Infauna will be collected, field sieved, bagged, stained, and fixed using a 15 cm Eckman box core. Fixed transects equivalent to those established in grass beds will be established in unconsolidated sediments and along mangrove edges for visual census of macro invertebrates. Photographs will be taken to document site conditions. If possible, long term in situ temperature loggers will be pegged into place at each site. During site visits, measurements of salinity, temperature, turbidity, dissolved oxygen, and PAR will be recorded.

Samples will be preserved and stored for later analysis and reduction.

Cost: \$10,000

**FDOT - District 7
MITIGATION SITE
(Upper Coastal Basin)**

**FORT DESOTO
(SW 70)**

**FIGURE A
LOCATION MAP**



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PINELLAS COUNTY, FLORIDA
1998

**PINELLAS COUNTY ENGINEERING DEPARTMENT
STATE OF FLORIDA
PLANS OF PROPOSED
FORT DESOTO WATER CIRCULATION
IMPROVEMENT**

P.I.D. NO. 921573

RELATED STANDARDS AND SPECIFICATIONS

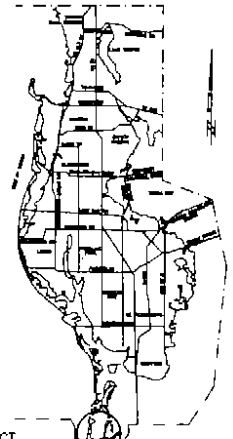
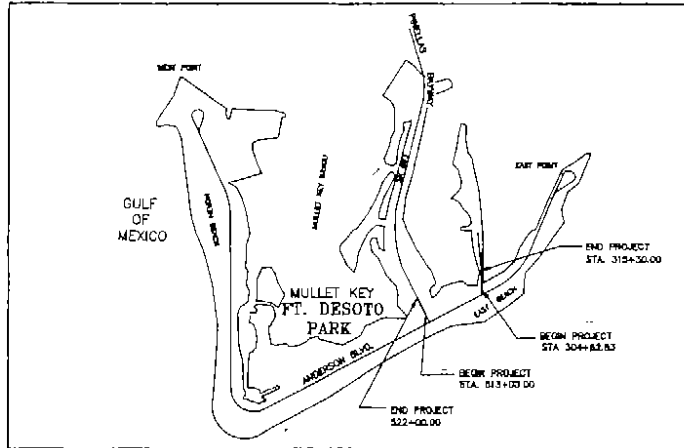
DOCUMENT	DESCRIPTION
D-1	FLORIDA DEPARTMENT OF TRANSPORTATION "MINIMUM SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SIGN AND ALL SUPPLEMENTAL SPECIFICATIONS THEREON"
D-2	STATE OF FLORIDA "MANUAL OF UNIFORM PRACTICES FOR DESIGN, CONSTRUCTION AND MAINTENANCE FOR HIGHWAYS, BRIDGES, TUNNELS, DAMS"
D-3	FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR HIGHWAYS AND BRIDGES"
D-4	PINELLAS COUNTY "SPECIFICATIONS FOR THE STANDARD MATERIALS, PLANT MATERIALS, EQUIPMENT AND CONSTRUCTION METHODS", ALL 2000.
NOTE: THE PROVISIONS OF DOCUMENT D-1 SHALL SUPERSEDE CORRESPONDING PROVISIONS OF DOCUMENT D-1.	
D-5	FLORIDA DEPARTMENT OF TRANSPORTATION "ROADWAY AND RELATED DESIGN STANDARDS", JANUARY, 2000.
D-6	PINELLAS COUNTY ENGINEERING DEPARTMENT "SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" OF CORRECT CORRESPONDENCE TO THESE PLANS.
D-7	PINELLAS COUNTY DEPARTMENT OF PUBLIC WORKS "STANDARD CONSTRUCTION DETAILS" (JANUARY, 2000).

ATTENTION IS DRAWN TO THE FACT THAT THESE PLANS MAY HAVE BEEN PREPARED BY ME OR BY AN ASSISTANT. THIS MUST BE CORRECTED WITH OBTAINING ADEQUATE DATA.

UTILITY WARNING NOTE

BEFORE ANY CONSTRUCTION BEGINS, THE LOCATION OF ALL UTILITIES SHALL BE DETERMINED BY ME OR BY AN ASSISTANT. THIS MUST BE CORRECTED WITH OBTAINING ADEQUATE DATA.

NO.	SUMMARY OF REVISIONS



PROJECT LOCATION

INDEX OF PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2	SUMMARY OF QUANTITIES
3	CONTRACT MAP
4	SECTION NOTES, MAINTENANCE OF TRAFFIC NOTES & RECONSTRUCTION GENERAL NOTES
5	TYPICAL SECTIONS
6	PIPE CONSTRUCTION GENERAL NOTES
7-8	PLAN & PROFILE
9-10	PLAN & PROFILE
11-12	PLAN & PROFILE
13	PLAN & PROFILE
14	SECTIONAL ELEVATION
15-22	SECTION SECTIONS
23	INSTALLATION DETAILS
24	BRIDGE DETAILS
25	RECONSTRUCTION GENERAL NOTES
26	PLAN & PROFILE
27	SECTIONAL ELEVATION
28	PLAN & PROFILE
29	SECTIONAL ELEVATION
30	PLAN & PROFILE

SECTION No. 8, 9
TOWNSHIP No. 33 S RANGE No. 16 E

LENGTH OF PROJECT	

ROAD CLASSIFICATION: PAVE
DESIGN SPEED: 40 MPH

STEVEN H. BLUM, P.E.
FLORIDA REGISTERED PROFESSIONAL ENGINEER IN ROAD
448 COLONY STREET
CLEARWATER, FLORIDA 34615
(727) 464-1114

PROJECT PRODUCTION TEAM
(DATE: 08/20/00)

DESIGN: STEVEN BLUM (TEAM LEADER) (684-3384)
RIGHT-OF-WAY: ROBERT DAVIS
CONSTRUCTION: BOB BENTON
SURVEY: DANNY BARNES
TRAFFIC: ROBERT DAVIS
HIGHWAY: LEONARD CRICHELL
UTILITY COORDINATOR: ROBERT JACOBSON

DESIGNED BY & RECOMMENDED FOR APPROVAL BY: ALBERT BRUNO, CHIEF ENGINEER DATE: _____

RECOMMENDED FOR APPROVAL BY: ELIZABETH HANSEN, DIRECTOR OF PLANS DEPARTMENT DATE: _____

RECOMMENDED FOR APPROVAL BY: JIM A. HENERT, P.E., DIRECTOR OF ENGINEERING DATE: _____

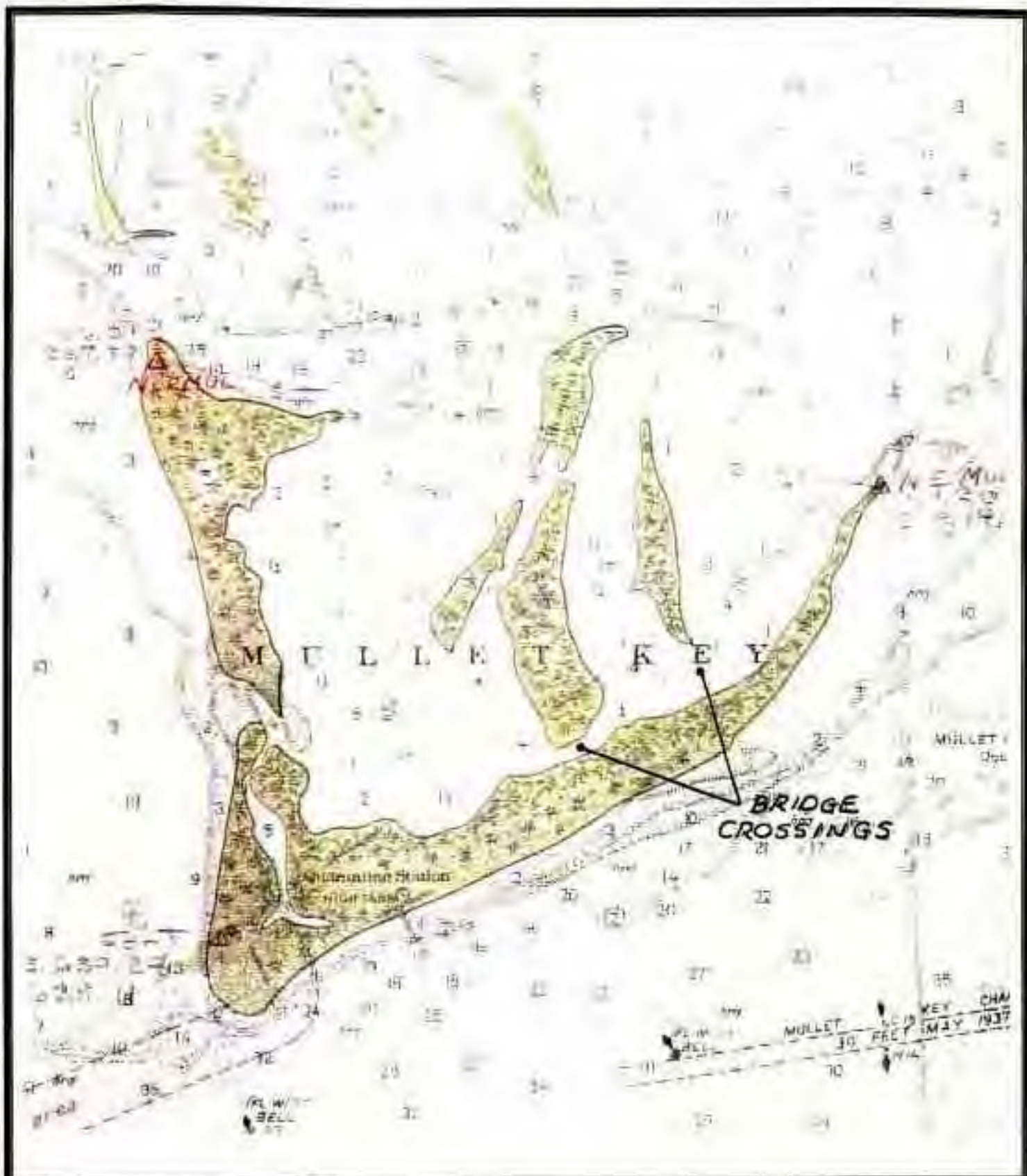
APPROVED BY: J. KEITH WOOD, P.E., DIRECTOR OF PUBLIC WORKS DATE: _____



**FDOT - District 7
MITIGATION SITE
(Upper Coastal Basin)**

**FORT DE SOTO
(SW 70)**

**FIGURE B
1995 INFRARED AERIAL**



**FDOT - District 7
MITIGATION SITE
(Upper Coastal Basin)**

**FORT DE SOTO
(SW 70)**

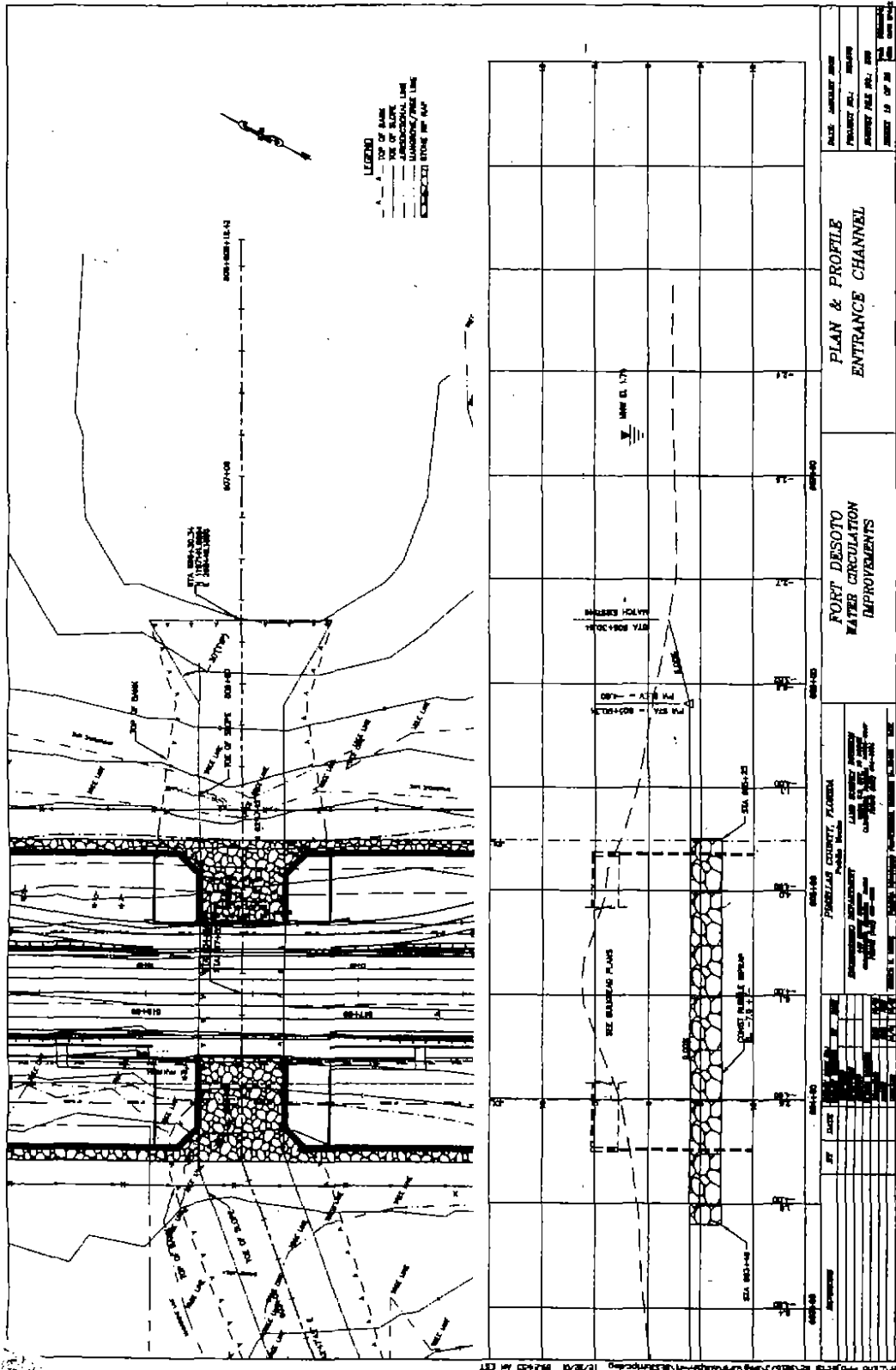
**FIGURE C
HISTORICAL CONDITIONS**



**FDOT - District 7
MITIGATION SITE
(Upper Coastal Basin)**

**FORT DE SOTO
(SW 70)**

**FIGURE D
PROPOSED BRIDGE
CROSSING LOCATIONS**



**FDOT - District 7
MITIGATION SITE
(Upper Coastal Basin)**

**FORT DE SOTO
(SW 70)**

**FIGURE E
Design Plan & Profile
Entrance Channel Bridge**



View of the proposed bridge crossing, looking east from the entrance road toward one of the inner bays. Some minor impacts associated with removing red & white mangroves, and salt grass will occur. The bicycle path (foreground) will have to be relocated alongside the bridge.



View of the entrance road (Pinellas Bayway) south toward the park's visitor center along Anderson Road. This portion of the roadway will have to be slightly elevated to accommodate bridge height clearance. Bicycle path to the left.

**FDOT - District 7
MITIGATION SITE
(Upper Coastal Basin)**

**FORT DE SOTO PARK (SW 70)
West Bridge Crossing
(Entrance Channel)**



View of the proposed bridge crossing, looking east from the maintenance road toward an inner bay. Some minor impacts associated with removing red & white mangroves, and Brazilian pepper will occur.



View of the maintenance road, north toward some of the park's maintenance facilities. This portion of the roadway will have to be slightly elevated to accommodate bridge height clearance.

**FDOT - District 7
MITIGATION SITE
(Upper Coastal Basin)**

**FORT DE SOTO PARK (SW 70)
East Bridge Crossing
(Maintenance Channel)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District
Mitigation Project Name: **Boyd Hill Nature Park**
Project Manager: Linda Seufert, Park Supervisor
County: Pinellas

Project Number: **SW 71**
Phone No: (727) 893-7317
Location: Sec. 16, 35, T31S, R16E

IMPACT INFORMATION (Anticipated Construction Date)

(1) FM: <u>4037701 – US 19, CR 816 to SR 582</u>	ERP #: <u>44022085.001</u>	COE #: <u>NW 14 PCN</u>
(2) FM: <u>2568881 – US 19, Coachman Rd. to Sunset Point</u>	ERP #: <u>4411760.013</u>	COE #: <u>200104383 (LP-PB)</u>
(3) FM: <u>4082011 – Himes Avenue to Hillsborough Avenue</u>	ERP #: <u>44002448.002</u>	COE #: <u>200208419 (NW-MS)</u>
(4) FM: <u>4062561 – East-West Trail, Coopers Bayou - Bayshore</u>	ERP #: <u>44022718.001</u>	COE #: <u>200105298(NW-PB)</u>
(5) FM: <u>2570701 – US 19, 49th St. to 118th Avenue</u>	ERP #: <u>44000188.002</u>	COE #: <u>200206325 (IP-MGH)</u>
(6) FM: <u>2555991 – SR 676 (Causeway Blvd.) US 301 to US 41*</u>	ERP #: <u>43027063.000</u>	COE #: <u>200405583(IP-MIS)</u>
(7) FM: <u>2558881 – US 301 – Sligh Ave. to Tampa Bypass*</u>	ERP #: <u>43024246.000</u>	COE #: <u>200206711 (IP-JF)</u>
(8) FM: <u>4154893 – US 301 – Sun City to Balm Road (2010)**</u>	ERP #: _____	COE #: _____

Drainage Basin: Tampa Bay Water Body: Curlew Creek, Cross Bayou Canal, Cooper's Bayou Canal, Old Tampa Bay
SWIM water body? N, except for Old Tampa Bay

Impact Acres /Types (FLUCFCS) :

(1) FM 4037701 <u>0.1</u> ac. <u>618</u>	(7) FM 2558881 <u>6.4</u> ac. <u>617</u>
(2) FM 2568881 <u>0.3</u> ac. <u>617</u>	<u>1.9</u> ac. <u>618</u>
<u>0.2</u> ac. <u>618</u>	TOTAL 8.3 acres
TOTAL 0.5 acre	

(3) FM 4082011 <u>0.1</u> ac. <u>618</u>	(8) FM 4154893 <u>4.9</u> ac. <u>610</u>
(4) FM 4062561 <u>0.1</u> ac. <u>618</u>	
(5) FM 2570701 <u>0.1</u> ac. <u>617</u>	
(6) FM 2555991 <u>0.2</u> ac. <u>610</u>	

TOTALS – 14.3 Acres

* The freshwater marsh and ditch impacts associated with these projects are being mitigated with habitat activities conducted at Cockroach Bay – Freshwater (SW 56).

** The freshwater scrub and marsh impacts associated with these projects are being mitigated with habitat activities conducted at Ekker Tract (SW 82).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration X Enhancement Preservation Mitigation Area: **92 acres**
SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? Y
Mitigation Bank? N Drainage Basin: Tampa Bay Water Body(s): Lake Maggiore SWIM water body? Y

Project Description

A. Overall project goal: The enhancement of freshwater hardwood wetlands (69.6 acres) and adjacent buffers of upland forested habitat (21.4 acres), and ponds (1 acre) by eradication of the extensive cover of exotic and nuisance species; followed by supplemental planting of appropriate tree species. Enhancement activities are part of an overall plan of eradication and maintenance to control undesirable vegetation within the 300-acre preserve owned and managed by the City of St. Petersburg Parks Dept.

B. Brief description of current condition: The enhancement areas include four designated portions of the Park (Figures B, D, E). Areas 1, 2 and 3 include hardwood hammock wetlands, dominated by laurel oak with additional coverage provided by Brazilian pepper, water oak, live oak, red maple, cabbage palm, and sparse understory dominated by ferns. In addition to the wetlands, Areas 1 and 3 include upland hardwood hammocks that buffer the

adjacent forested wetlands. These hammocks are dominated by live oak, scattered longleaf pine, Brazilian pepper, extensive vines, and where the B. pepper is not dense, an understory of scattered saw palmetto. The southeast enhancement area includes approximately half (27 acres) of a forested wetland (Figures B & E, Area 4). This wetland has a more extended hydroperiod than the wetlands in the northeast part of the park. Dominant vegetation within Area 4 include red maple, Brazilian pepper, sweet bay, Carolina willow, primrose willow, elderberry, and grapevine over much of the outer shrub components. Ground cover is sparse due to the heavy shade cover from B. pepper, elderberry and grapevine, but there are various fern species present.

- C. Brief description of proposed work:** Commencing in 2004, the City contracted with private environmental consultants to eradicate the extensive cover of nuisance and exotic vegetation. The dominant species being removed from all the areas is Brazilian pepper, which had moderate to very dense cover within the wetland and upland habitats (refer to site photos). Secondary species control include herbicide control and long-term maintenance of primrose willow, elderberry, and grapevine. Pepper eradication includes a phased approach of herbicide treatment (Garlon) for initial mortality, hand tools and mechanical removal, and transport to either the on-site mulching facility or Pinellas County incinerator. An extensive follow-up schedule of herbicide applications minimize recruitment and regeneration of exotic & nuisance species. Areas of previous eradication in the Park have exhibited good regeneration of desirable tree and herb species. Supplemental tree plantings have been conducted to minimize the time lag of regeneration of forested wetland canopy. Historically, the City could only annually fund 5-10 acres of habitat enhancement at the park. At that rate, exotics eradication could not be successful due to the continuous seed source recruiting back into previously enhanced areas. Therefore, the combination of mitigation and grant funding has allowed the City to hire private contractors to eradicate exotics over a shorter duration.
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The DOT impacts proposed for mitigation at the Park include a dominance of freshwater forested and shrub wetlands. The proposed wetland enhancement areas at the Park include a couple of the largest forested freshwater wetlands remaining within peninsular Pinellas County. The park is essentially an oasis for wildlife and wetland functions that has been substantially altered and diminished by the nuisance & exotic species problem, which is extensive and only worsen if not brought under control. The Park provides opportunities to mitigate the proposed impacts with large-scale, extensive habitat improvements.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** The Tampa Bay Mitigation Bank (TBMB) is the only mitigation bank within the Tampa Bay basin. However at the time of mitigation selection, bank construction had not commenced and credit sales were not available.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** Several SWIM projects have been selected to provide FDOT mitigation for saltwater wetland and freshwater marsh impacts in this basin. However, at the time of mitigation nomination, none of the SWIM projects in the basin had the opportunity to provide appropriate mitigation for forested freshwater wetland impacts. However the adjacent Lake Maggiore sediment dredging is a SWFWMD-SWIM and City of St. Petersburg sponsored project. The Boyd Hill Park project was selected due to the opportunity to appropriately mitigate the proposed wetland impacts with ecologically beneficial habitat improvements.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Private environmental contractors working for the City of St. Petersburg Parks Dept
Contact Name: Linda Seufert, Boyd Hill Park Supervisor Phone Number: (727) 893-7317
Boyd Hill Nature Park
1101 Country Club Way South
St. Petersburg, FL 33705

Entity responsible for monitoring and maintenance: City of St. Petersburg or designee
Proposed timeframe for implementation: Commence: Initial Eradication 2004-2007 Complete: Minimum 3 years maintenance & monitoring

Project cost: \$ 480,000 (total);
Exotic & Nuisance Species Eradication (Areas 1, 3, 4) - \$200,000
Exotic & Nuisance Species Eradication (Area 2) - \$60,000
Supplemental Tree & Shrub Plantings - \$120,000
Minimum 3 years Maintenance & Monitoring - \$100,000

Attachments

- 1. Detailed description of existing site and proposed work. Refer to previous discussion and Attachment A.
- 2. Recent aerial photograph with date and scale. Refer to Figures B, D, and E.
- 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (Location Map) and Figures B, D, and E (Work Area).
- 4. Detailed schedule for work implementation, including any and all phases. Refer to Attachment B.
- 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.
- 6. Long term maintenance plan. Refer to Attachment B.
- 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous text.

Attachment A – Existing Site and Proposed Work

Freshwater wetlands are less common than saltwater wetlands within the Tampa Bay Drainage Basin, particularly forested wetlands and freshwater systems within Pinellas County. As a result, locating freshwater wetland mitigation opportunities within this basin is difficult. The Park has historically had extensive problems with exotic and nuisance species, particularly Brazilian pepper that heavily invaded all the habitat areas. Prior to public ownership, the Park was operated by a private entity that planted exotic species. The Park staff was diligent in it's efforts to eradicate exotic and nuisance species, but lack of funding sources limited such pursuits to small areas of 5-10 acres per year. In order to minimize the continuous recruitment and generation of exotic seed sources within the Park, the opportunity to eradicate these species within large segments is particularly important.

Areas 1, 2, and 3 – These areas are part of a historically contiguous forested wetland bordered by upland habitat. Prior to restoration commencing in 2004, the density of B. pepper varied within Areas 1 and 2 to an average sub-canopy cover of 30%. The pepper was much larger and more coverage within the southern portions of Area 3. Within Areas 1-3, the dominant exotic or nuisance species throughout the wetlands and uplands is Brazilian pepper. The pepper received herbicide treatment (Garlon), manual cutting and removed to the nearby mulching and incinerator facility. With limited ground cover vegetation within the wetlands, spreading the mulch minimizes natural regeneration of herbs expected to grow as a result of opening more canopy. Herbicide treatment of any pepper regeneration and other existing and generated exotic & nuisance species are conducted as necessary, and additional tree and shrub species will be planted in areas with

minimal tree cover due to existing dense pepper. Supplemental wetland trees include laurel oak, red maple, and cypress. The two small ponds within Area 1 have some exotic & nuisance coverage (primarily cattails). These will receive herbicide treatment and plantings of desirable species such as pickerelweed, arrowhead, and bulrush. The Park periodically implements prescribed burns as necessary within the uplands to maintain appropriate vegetative coverage and density. Along with the pepper removal, grapevine is the most prolific nuisance species that is controlled by hand and mechanical means. Afterward, the prescribed burning will help limit regeneration of the exotic and nuisance species. Supplemental plantings of longleaf pine, wax myrtle, and gallberry are being conducted within the uplands.

Area 4 - The 57-acre hardwood swamp within the southeast section of the property is partially utilized for FDOT mitigation, and approximately half of the swamp's enhancement (30 acres) has been designated to provide mitigation for wetland impacts (6 acres) associated with a nearby Lowe's Department Store. This hardwood swamp is one of the largest forested freshwater wetland habitats within peninsular Pinellas County, which requires the system provide more wetland and wildlife functions than would be expected of a similar system in a less congested urban setting. This wetland receives direct stormwater flow from the contributing basin, which like all the surrounding land use is high density residential. The wetland treats stormwater before flowing into Lake Maggiore. During high water conditions, the lake overflows into this wetland, providing even more opportunity for water quality treatment and flood attenuation.

Due to the muck and seasonal high water conditions of this swamp, necessary construction and mechanical removal of B. pepper is conducted during dry season periods, with temporary matting placed where necessary for stable footing of equipment. Erosion control measures (hay bales, silt screens) are installed at the construction locations as necessary to minimize sedimentation into Lake Maggorie. As expected within one of the most developed areas in the state, Lake Maggiore's water quality conditions are poor. Hydraulic dredging of lake bottom sediments were also conducted in 2004 and 2005; with \$12 million spent by the WMD and the City of St. Petersburg. The combination of the lake dredging and wetland enhancement provide a substantial ecological improvement and inter-relationship mosaic of wetland and surface water habitats. In addition, the City received grants toward funding exotic and nuisance species removal within the remaining areas of the Park; which is primarily upland habitats. This further minimizes the exotic and nuisance species seed sources that recruit into the wetlands. Wildlife species depend on many habitat conditions for various functions and values within their life cycles. With the lake improvement, wetland and upland enhancement activities conducted in the Park, this will provide an exponential increase of ecological value compared to just enhancing one habitat component. The following information depicts the designated mitigation acreage for enhancement:

	Upland Enhance.	Wetland Enhance.	Pond Enhance.	TOTAL
Area 1	10.0 ac.	9.0 ac.	1.0 ac.	20.0 ac.
Area 2	2.0 ac.	26.0 ac.	--	28.0 ac.
Area 3	9.4 ac.	7.6 ac.	--	17.0 ac.
Area 4	--	27.0 ac.	--	27.0 ac.
	21.4 ac.	69.6 ac.	1.0 ac.	92.0 ac.

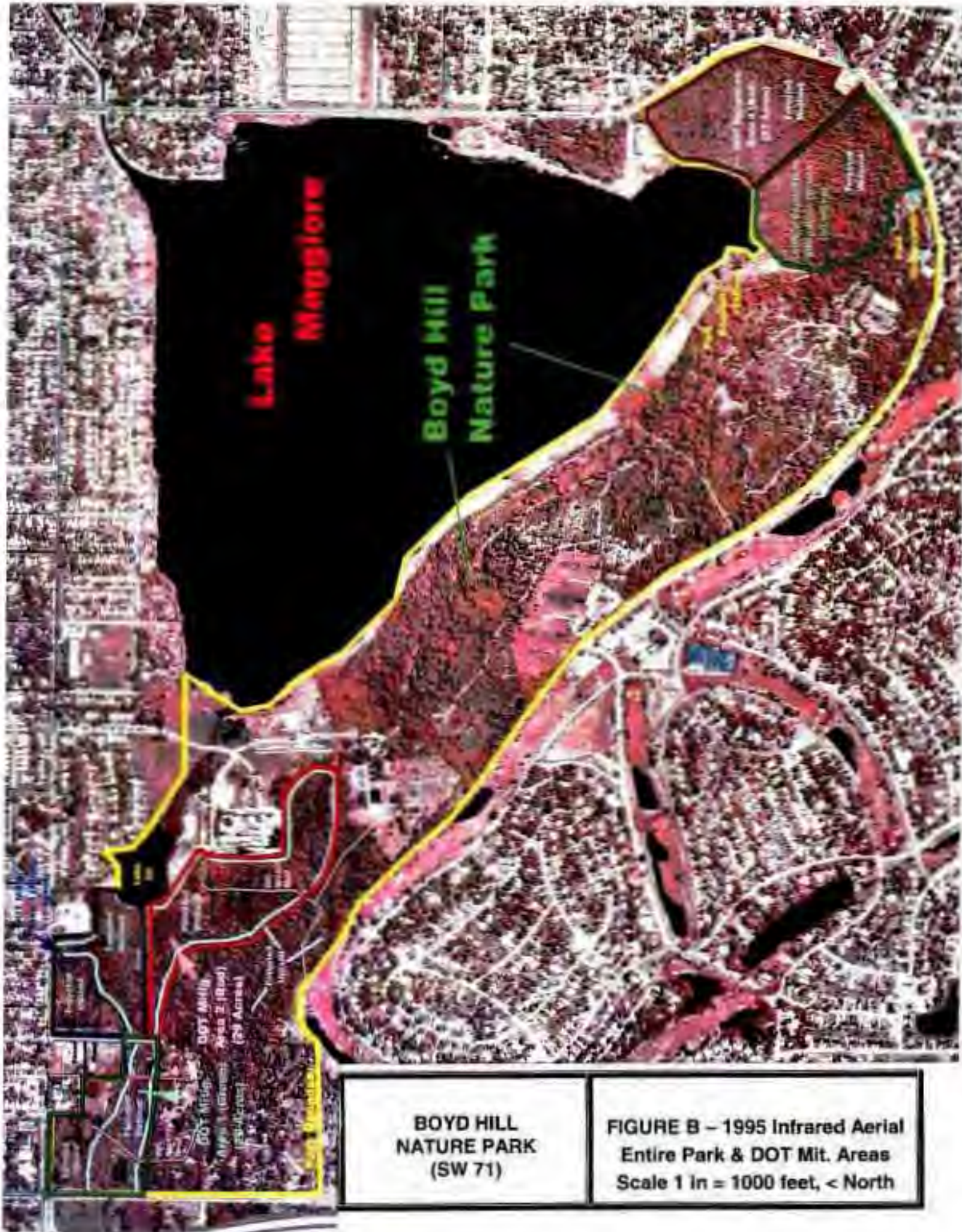
Attachment B – Schedule, Maintenance & Monitoring, Success Criteria

Through 2007, eradication activities were conducted for Areas 1, 3 and a portion of 4. Each area has received some supplemental planting necessary to achieve the desired success criteria, followed by a minimum three years of maintenance & monitoring activities.

The City contracted with private consultants to conduct the maintenance activities. The maintenance to eradicate exotic and nuisance species has included manual removal and herbicide. Regeneration is generally more prolific within the first few years after initial eradication. At a minimum, maintenance is planned to occur every other month for the first year post-construction, and quarterly in years 2 and 3. After

the third year, periodic maintenance activities will be required to minimize regeneration. After a minimum three-year maintenance & monitoring period and success criteria is achieved, the Park will be responsible to continue herbicide maintenance activities to maintain the same level of success criteria. The City has exhibited substantial efforts toward eradication of exotic and nuisance species from the upland and wetland habitats throughout the Park (refer to site photos).

Monitoring will include qualitative analysis of the enhanced habitat on a semi-annual basis. The qualitative information will be compiled into annual reports, which will also document maintenance activities and efforts toward achieving success. These semi-annual inspections will be conducted for a minimum three years after all of the initial eradication. Success criteria will require less than 10% cover of Brazilian pepper, elderberry, grapevine, and primrose willow, and a minimum 90% survivorship of planted stock within each of the designated mitigation areas.



**BOYD HILL
NATURE PARK
(SW 71)**

**FIGURE B – 1995 Infrared Aerial
Entire Park & DOT Mit. Areas
Scale 1 in = 1000 feet, < North**



**FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**BOYD HILL
NATURE PARK
(SW 71)**

**FIGURE C
Park's Exotic & Nuisance
Species Coverage**



**FDOT – District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**BOYD HILL
NATURE PARK
(SW 71)**

**FIGURE D – 1995 Infrared Aerial
DOT Mitigation Areas 1-3
Scale 1 in = 500 feet, < North**



**FDOT – District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**BOYD HILL
NATURE PARK
(SW 71)**

**FIGURE E – 1995 Infrared Aerial
DOT Mitigation Area 4
Scale 1 in = 440 feet, ^ North**



Owned and managed by the City of St. Petersburg, Boyd Hill Nature Park is one of largest parks in Pinellas County and known for having one of the most active environmental educational programs in the region.



For a narrow fringe of the southeast forested wetland that borders Country Club Way and M.L. King Street, the Park has conducted exotic & nuisance species eradication and planted trees. For the DOT mitigation, this same activity is proposed for the remaining portion of the same forested wetland (background).

**FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**BOYD HILL NATURE PARK
(SW 71)**



Even though there are desirable tree species within the southeast forested wetland, this recently cut area of B. pepper within the same system is representative of some pockets where the extensive exotics coverage limit the opportunity for desirable species to generate.



This wetland within the northwest portion of the Park recently received mechanical removal of the Brazilian pepper. The remaining trees represent the minimal cover of what otherwise was a dense, closed canopy of B. pepper. Maple saplings and fern species are starting to regenerate, supplemental tree planting may be initiated, with an extensive herbicide maintenance plan to minimize B. pepper regeneration.

**FDOT - District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**BOYD HILL NATURE PARK
(SW 71)**



Forested Uplands – The uplands within Areas 1-3 have a dominance of live oaks over saw palmetto, but scattered individuals and pockets of Brazilian pepper (above right) are common. Pepper eradication followed where necessary with native tree and shrub plantings will be conducted.



Forested Uplands – Some of the uplands include dense vine coverage within oak dominated hammocks. The vines will be removed by mechanical and herbicide treatment. All the enhanced uplands will receive periodic prescribed burns to minimize regeneration of undesirable species and maintain proper vegetative cover.

**FDOT – District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**BOYD HILL NATURE PARK
(SW 71)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Serenova – Sites 2, 3, 4, 8**

Project Number: **SW 74**

Project Manager: Manny Lopez, WMD Environmental Scientist

Phone No: 352-796-7211, ext. 4270

County: Pasco

Location: Sec. 23, R17E, T26S

Sec. 34, R17E, T25S

IMPACT INFORMATION

DOT FM: 2563161, SR 52 – Hicks to Moon Lake

P #: 4007804.005 COE #: 90IPI-03363

Drainage Basin: Upper Coastal Water Body(s): Buckhorn Creek

SWIM water body? N

Impact Acres /Types (FLUCFCS) : 1.6 ac. 617

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation ___ Restoration x Enhancement ___ Preservation Mitigation Area: **26 acres**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N

Mitigation Bank? N Drainage Basin: Upper Coastal Water Body(s): Pithlachascotee River SWIM water body? N

Project Description

A. Overall project goal: The Serenova Preserve is owned and managed by the SWFMWD (Figure A), and has several wetland enhancement opportunities being evaluated (Figure B). Enhancement activities at four areas are proposed to mitigate for the wetland impact associated with the one SR 52 project. The Pithlachascotee River and Five Mile Creek are tributary systems that cross east-west through the Serenova property. The Pithlachascotee River has two access road berm crossings (Site 2 - actively used, Site 4 - abandoned) and Five Mile Creek has one crossing (Site 3). Each crossing requires improvements to restore surface water flow conditions through the floodplains and minimize continuous problems with erosion and sedimentation. Site 8 is a large outfall ditch of a cypress system, requiring ditch filling and/or block in order to enhance wetland hydrologic conditions.

B. Brief description of current condition: The Pithlachascotee River and Five Mile Creek are forested wetland floodplains of relatively high-quality with a diverse canopy cover dominated by laurel oak, sweet gum, cypress, red maple, cabbage palm, and tupelo. A sub-canopy has saplings of the same species as well as Virginia willow, buttonbush, and wax myrtle. Ground cover is sparse due to canopy cover and periodic flooding conditions, dominated by various fern and sedge species. However, hydraulic characteristics of the floodplains are altered by the berms and undersized culverts. The abandoned Pithlachascotee River crossing has a berm that currently blocks and diverts surface water flow along the berm and through a dredged channel segment of the river, and a partially collapsed bridge tressel over the channel that also catches wood debris and blocks flow (Figure B, Site 4, refer to site photos). Another berm crossing of the river is used for management access, but has insufficient and undersized culverts (Site 2). The Five Mile Creek roadway crossing has appropriate size culverts but insufficient rubble rip-rap to control erosion (Site 3). The cypress system associated with Site 8 has a dense canopy and fern understory, but hydrologic indicators demonstrate minimal hydroperiods due to the outfall ditch.

- C. Brief description of proposed work:** To restore the primary flow patterns of the Pithlachascotee River, a surface water modeling effort was contracted in 2006 to determine the appropriate sizes and locations of culverts required for Site 2. Culvert replacements will include stabilization methods such as the addition of rubble, sand-cement bag rip-rap, and/or other material. This will eliminate the current undermining of the culverts and downstream sedimentation. The abandoned Pithlachascotee River floodplain berm crossing will have sufficient fill material removed to restore the floodplain flow patterns, as well as the removal of the dilapidated bridge. The Five Mile Creek crossing has sufficient culverts but additional berm stabilization. The ability to maintain vehicular access for land management activities will be a major factor in determining the type of crossing and material. The outfall ditch from the cypress system (Site 8) will have the ditch partially backfilled to enhance hydrologic conditions of the cypress wetland.
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The DOT-SR 52 project is close to the northern limits of the Serenova Tract. The roadway and associated mitigation was constructed, but it was determined that even though the on-site wetland mitigation project has ecological value and will be preserved, it will not be able to maintain all the wetland functions due to unforeseen hydrologic limitations. Therefore, this additional mitigation option at Serenova will regionally enhance the hydrologic characteristics of forested wetland habitats, which in turn will enhance the other wetland functions and values. This mitigation project will only be used to compensate for wetland impacts associated the SR 52 project.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** There are currently no existing or proposed mitigation banks within the Upper Coastal Basin.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** There are no existing or proposed SWIM projects in the Upper Coastal basin that can appropriately provide the mitigation for the proposed impacts.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD Operations Department

Contact Name: Manny Lopez, WMD Environmental Scientist

Phone No: 352-796-7211, ext. 4270

Entity responsible for monitoring and maintenance: Monitoring not necessary, any structure maintenance will be coordinated through the WMD Land Management and Operations Departments

Proposed timeframe for implementation: Commence: Surface Water Modeling – 2006

Complete: Construction – 2007 or 2008, pending river hydrologic conditions to avoid turbidity during construction.

Project cost: \$130,000 (total); Hydraulics Study & Design - \$40,000, Construction - \$90,000

Attachments

X 1. Detailed description of existing site and proposed work. Refer to previous discussion and Attachment A.

X 2. Recent aerial photograph with date and scale. Refer to Figures B, C, and D, 1995 aerials.

X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A for location map, design drawings of any culvert crossings will be conducted as part of the hydraulics study.

X 4. Detailed schedule for work implementation, including any and all phases. The hydraulics study and construction will be completed in 2006. Actual construction to install the culverts and breach the berm will depend on final design plans and weather conditions. Construction will be attempted to coincide with no river flow conditions to avoid potential turbidity.

X 5. Proposed success criteria and associated monitoring plan. No success criteria or monitoring is proposed, the restoration of hydraulic and hydrologic patterns will be documented as part of the hydraulics study.

X 6. Long term maintenance plan. Specific maintenance activities are not anticipated, but periodic inspection of the structures, rip-rap, etc. will be conducted to ensure they function as intended.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

Attachment A – Existing & Proposed Work

The following information provides additional details of the site conditions and anticipated improvements. The acreage of direct versus secondary wetland enhancement opportunities is difficult to quantify and qualify, particularly prior to hydraulic modeling of the crossings. A minimal acreage of anticipated direct wetland enhancement is proposed for mitigation credit. This minimal enhancement is based on wetland floodplain limits of 350 ft. upstream and downstream of each crossing (Sites 2, 3, 4), and the most northern 300 ft. perimeter of the cypress wetland associated with Site 8. The enhancement acreage is presented for each site.

Site 2 – This access road berm over the Pithlachascotee River is used for maintenance and management of the Serenova property. The three existing 48-inch culverts have stain indicators that demonstrate normal flow conditions that exceed 70% of the available flow capacity, resulting in pooling of water upstream of the crossing and detaining flow from reaching the downstream wetland floodplain. The crossing is also very wide (700 ft.) and with only one additional small overflow culvert, the contributing flow is funneled through the large culverts that substantially minimize the expansion of surface water patterns throughout the downstream floodplain, while extending the hydroperiods of the upstream floodplain wetlands. The existing culverts are undersized and without rip-rap material, scouring of berm material has resulted in downstream sedimentation. Anticipated enhancement will include replacing the culverts, probably additional and larger pipes at the main river channel. Additional overflow culverts will be installed within other areas of the berm to restore surface water flow conditions to the downstream wetlands. Rip-rap material will be placed around the culverts along the berm as well as underneath each pipe to eliminate undermining and dissipate velocities. Anticipated direct wetland enhancement (length 700 ft. x width 700 ft. = 11 acres).

Site 3 – The crossing of Five Mile Creek had scouring and loss of berm material from around the culvert (refer to photo). Even though this crossing is shorter than Site 2, the condition of the berm is actually less stable than the much larger berm of Site 2. The scouring has resulted in more downstream sedimentation so if culverts are replaced, additional berm stabilization will have to occur. It is anticipated that rubble rock aggregate or other material will be installed. Anticipated direct wetland enhancement (length 700 ft. x width 150 ft. = 2 acres).

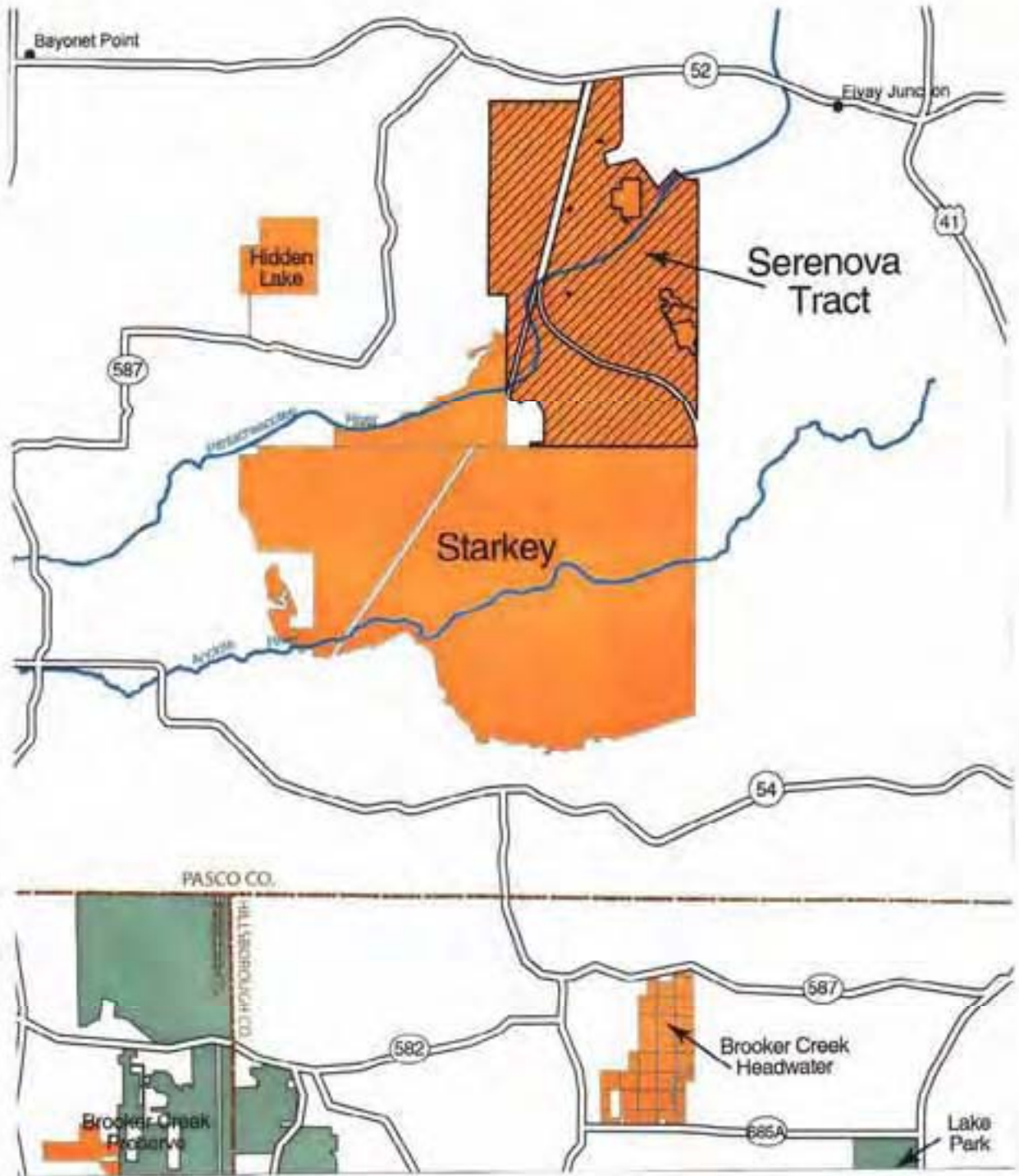
Site 4 – This remnant tram road has a dilapidated bridge and considering the accessibility of the other Pithlachascotte River crossing (Site 2), neither replacing the bridge nor placing culverts within the access berm are necessary. Since there are no existing culverts in the berm, like the other two crossings, flow conditions are detained upstream and more concentrated within the main channel and associated downstream areas. In order to restore normal floodplain flow patterns, the majority of the berm material will be removed from the floodplain. There is evidence that snags, limbs and other debris periodically get caught in the bridge debris within the river that also alters flow conditions. The remaining bridge debris will eventually drop into the river so it will also be removed. Anticipated direct wetland enhancement (length 700 feet x width 700 feet = 11 acres).

Site 8 – This is a large outfall ditch, with a bottom width over 10 ft, and top-of-bank width varying 30-50 ft. The ditch depth from top-of-bank varies because most of the ditch was dredged through elevated topography to provide positive flow. But because of the excessively drained, sandy soil conditions, the ditch hydroperiods are intermittent. Even though the cypress wetland is large, the area of direct wetland enhancement is anticipated near the northern extent of the system. The proposed condition includes either ditch blocks or backfilling the majority of the ditch. Anticipated direct wetland enhancement (length 300 feet x width 350 length = 2 acres).

Summary

The Serenova parcel (7000 acres) was purchased by the Florida Turnpike and deeded to the SWFWMD for public ownership and management to provide partial mitigation for wetland impacts associated with the construction of the Suncoast Expressway. In a settlement agreement between the Turnpike Authority and the Florida Audubon Society, the Turnpike provided \$50,000 to the WMD toward evaluating potential wetland enhancement opportunities, and to conduct as many of the approved activities within those funding limits. The evaluation resulted in 13 sites with various levels of wetland impacts due to historic man-made alterations (Figure B - Sites 1 through 13). Once located, additional evaluation was conducted to see which sites justified enhancement or restoration. All but one of Sites 9-13 are associated with dredged ponds within cypress wetlands. These impacts occurred over 30 years ago, and natural generation of mature cypress has occurred on the dredged spoil material and the open water components have coverage of desirable species. As a result, the evaluation indicated that backfilling these ponds would result in the loss of the minimal and very desirable open water habitat of the Serenova property. As a result, Sites 1-8 will be the only hydrologic wetland improvement projects proposed at Serenova.

Additional evaluation was conducted to determine which of the proposed restoration sites 1-8 could be enhanced with the available Turnpike funds and which sites would be adequate and appropriate to provide mitigation for the SR 52 wetland impacts. There were adequate funds to conduct the enhancement activities associated with Sites 1, 5, 6, and 7 and these enhancement activities are fulfilling the mitigation agreement with the Turnpike and Audubon. In order to compensate for the proposed SR 52 wetland impacts, Sites 2, 3, 4, and 8 were evaluated and designated to provide the appropriate mitigation for the DOT impacts.



**FDOT - District 7
MITIGATION SITE
(Upper Coastal Basin)**

**SERENOVA
WETLAND
ENHANCEMENT
(SW 74)**

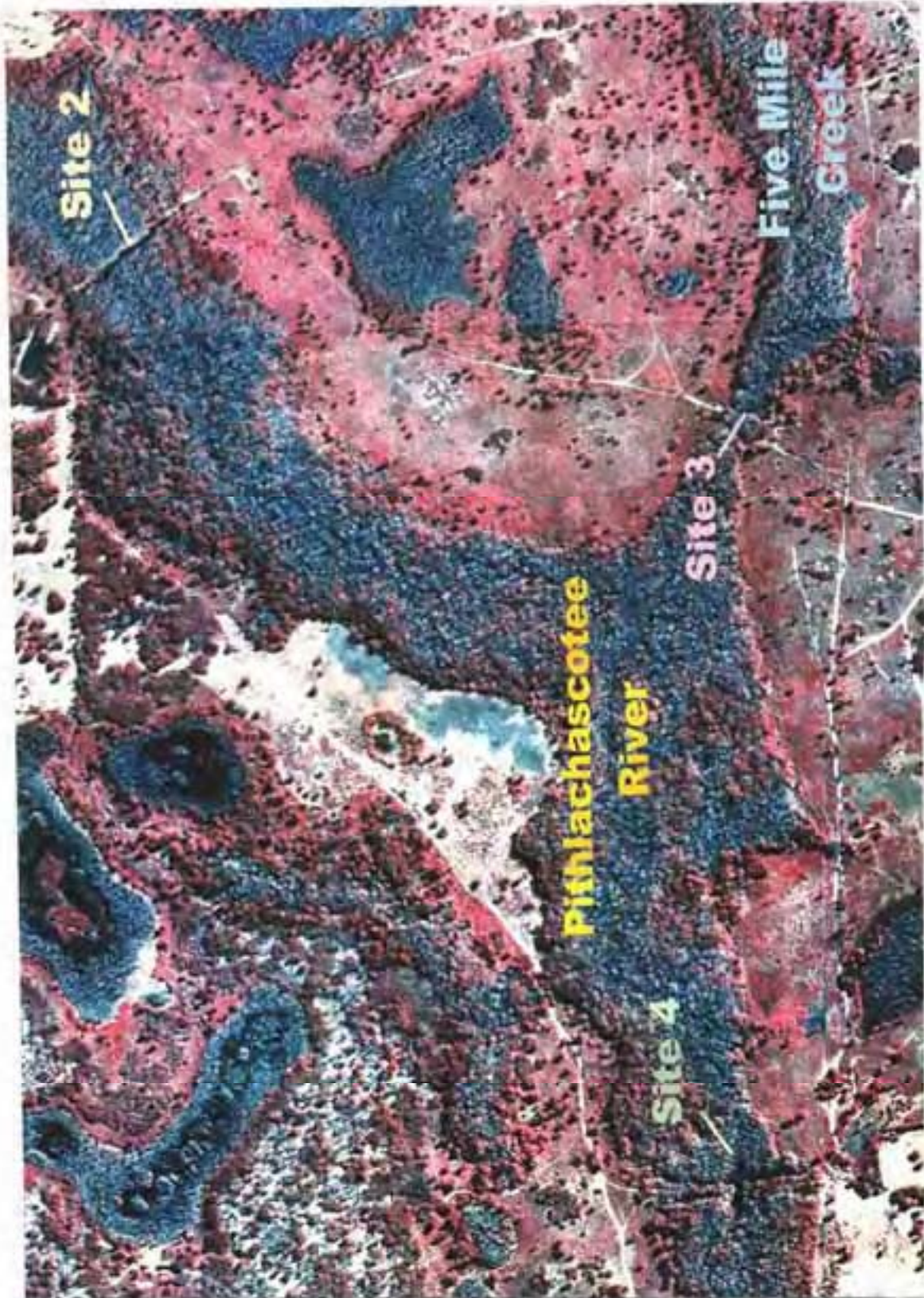
**FIGURE A
Location Map
Scale 1 in. = 2 miles
North ^**



**FDOT - District 7
MITIGATION SITE
(Upper Coastal Basin)**

**SERENOVA
WETLAND
ENHANCEMENT
(SW 74)**

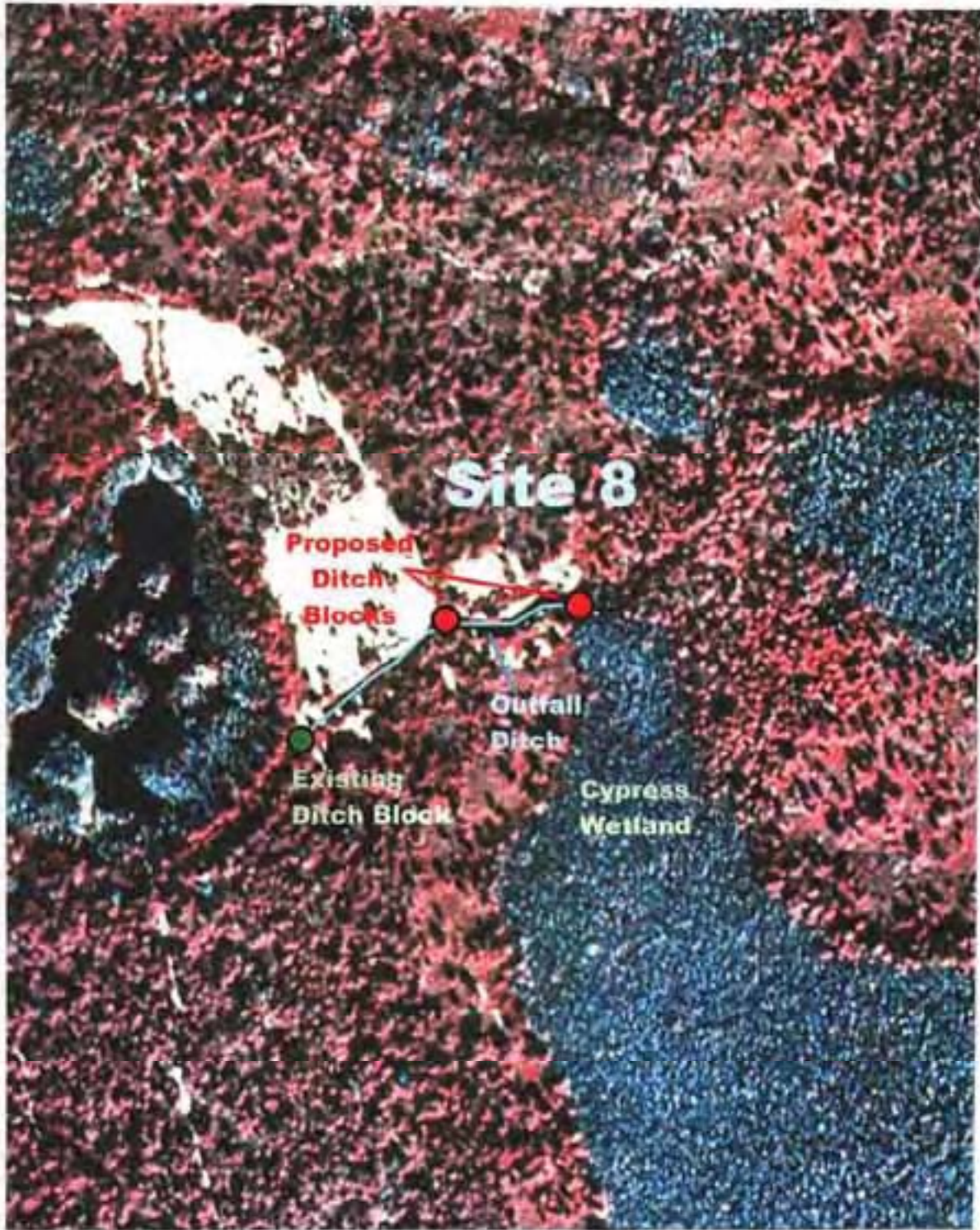
**FIGURE B
Potential Wetland
Enhancement Sites
Scale 1.7 in. = 1 mile, North ^**



FDOT - District 7
MITIGATION SITE
(Upper Coastal Basin)

SERENOVA
WETLAND
ENHANCEMENT
(SW 74)

FIGURE C
Wetland Enhancement
Sites 2, 3, 4
Scale 1 in. = 700 ft., < North



FDOT – District 7
MITIGATION SITE
(Upper Coastal Basin)

SERENOVA
WETLAND
ENHANCEMENT
(SW 74)

FIGURE D
Wetland Enhancement
Site 8
Scale 1 in. = 500 ft., ^ North



Site 2 – View of access road berm crossing through the Pithlachascotee River floodplain, the majority of this crossing's sideslopes are stabilized.



Site 2 – The undersized culverts within the main channel crossing of the Pithlachascotee River. Erosion evident between the center and left culvert, Abandoned refrigerator used as slope stabilization between center and right culvert. These culverts will be replaced with probably more and larger concrete culverts, as well as proper sideslope and pipe stabilization.

**FDOT – District 7
MITIGATION SITE
(Upper Coastal Basin)**

**SERENOVA – WETLAND
ENHANCEMENT
(SW 74)**



Site 4 – Side view of the abandoned tram berm crossing through the Pithlachascotee River floodplain. Breached berm material will be placed within dredged donor area (left), which will elevate and restore the historic floodplain grade.



Site 4 – View of the floodplain vegetative and grade elevation conditions, which is 4-5 feet lower than the tram berm elevation evident in the background. This berm blocks and diverts flow to the main channel of the Pithlachascotee River.

**FDOT – District 7
MITIGATION SITE
(Upper Coastal Basin)**

**SERENOVA – WETLAND
ENHANCEMENT
(SW 74)**



Site 4 – Portion of the abandoned tram berm north of the Pithlachascotee River. The berm breach will only be as wide as needed to restore flow (probably 30-40 feet) with gradual, stabilized slopes. Berm placement and construction will be located within an area to minimize removal of oaks along the sideslopes.



Site 4 – The old tram bridge will continue to decay and eventually fall into the river, which will catch debris, so it will be removed.

**FDOT – District 7
MITIGATION SITE
(Upper Coastal Basin)**

**SERENOVA – WETLAND
ENHANCEMENT
(SW 74)**



Site 3 – The undersized pipe crossing of Five Mile Creek has resulted in erosion of the fill cap and downstream sedimentation. Further evaluation of this crossing and associated access management will determine whether additional culverts will be installed, or construction of a stabilized wet crossing.



Site 8 – The ditch outfall area along the wetland/upland boundary is shallow and wide, a ditch block will be installed to remove the dewatering conditions caused by the ditch.

**FDOT – District 7
MITIGATION SITE
(Upper Coastal Basin)**

**SERENOVA – WETLAND
ENHANCEMENT
(SW 74)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Cockroach Bay Restoration - Saltwater

Project Number: SW 75

Project Manager: Brandt Henningson, PhD. SWIM Environmental Scientist

Phone No: (813) 985-7481 ext. 2202

County: Hillsborough

Location: Sec. 16, T32S, R18E

IMPACT INFORMATION

(1) FM: 2557031, SR 60 – Cypress St. to Fish Creek * ERP #: 43002958.003 COE #: 200205816 (IP-MN)
(2) FM: 2571391, Ulmerton Road, US 19 to 49th St. ERP #: 44026223.000 COE #: SAJ-2003-11664

Drainage Basin(s): Tampa Bay Drainage Basin Water Body(s): Fish Creek SWIM water body? N

Impact Acres / Types (FLUCFCS): (1) FM 2557031 - 5.4 acres 642
(2) FM 2571391 - 0.1 acre 612
TOTAL 5.5 acres

*The total impacts associated with this project are 16.6 acres. The ditch, pond, freshwater marsh, and mangrove impacts of this project (5.1 acres) are being mitigated at Tappan Tract (SW 62). Approximately half of the saltwater marsh impacts (5.3 acres) are being mitigated at Apollo Beach (SW 67), the remaining saltwater marsh impacts (5.4 acres) at Cockroach Bay - Saltwater. The remaining impacts (0.8 acre) are freshwater marsh being mitigated at Cockroach Bay- Freshwater (SW 56).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation Enhancement Restoration Mitigation Area: 15.1 ac. SWIM project? Y
Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N Drainage Basin(s):
Tampa Bay Drainage Water Body(s): Tampa Bay, Cockroach Bay SWIM water body? Y

PROJECT DESCRIPTION

A. Overall project goals: Cockroach Bay includes a multi-agency (USACOE, SWFWMD, FDEP, Hills. Co. Parks) wetland and upland habitat restoration effort on property acquired by Hillsborough County (total 651 acres). The SWFWMD is responsible for the initial wetland habitat creation & restoration activities, and Hillsborough Co. Parks is responsible for the perpetual management. The saltwater marsh impacts (5.4 acres) are mitigated through converting an upland fallow farm field to create salt-water marsh habitat (7.9 acres), and open water tidal pools and channels (7.2 acres). The minor mangrove impacts (0.1 acre) are mitigated with natural recruitment of mangrove habitat within the created marsh habitat.

B. Brief description of current condition: As depicted on the infrared aerial (Figure B), prior to the habitat construction in 2005, the wetland creation site was an upland fallow field and historically a row crop area. The site is bordered along the west by an upland oak hammock adjacent to the mangrove fringe of Tampa Bay. There was a Brazilian pepper fringe along the eastern boundary, and a separate freshwater wetland creation project constructed within another former upland fallow field south of the tract. This additional wetland creation project is providing mitigation for wetland impacts associated with the expansion of the Crosstown Roadway Extension.

C. Brief description of proposed work: The construction activities included dredging the uplands to create saltwater marsh habitat, along with tidal pools and channels that connect to other wetland creation areas south and east of the project site (Fig. C).

The saltwater marsh habitat includes low marsh (4.6 acres) planted with smooth cordgrass (*Spartina alterniflora*), and marshhay cordgrass (*Spartina patens*). The high marsh habitat includes plantings of knotgrass (*Paspalum distichum*) and sand cordgrass (*Spartina bakeri*) (Fig. D). The intertidal pools and channels encompass 7.2 acres. The dredged material was placed into an adjacent mine cut east of the site (referred to as the Southeast Pit) to create additional saltwater wetland habitat not associated with the mitigation plan.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The wetland impacts include 5.4 acres of saltwater marsh habitat and a minor 0.1-acre of mangrove impact. The creation of saltwater marsh habitat (7.9 acres) and connecting intertidal pools and channels (7.2 acres) will appropriately mitigate for these DOT impacts at a minimum ratio of 2.7:1. This creation effort is buffered within an existing oak hammock (west), creation of freshwater marsh habitat (south), and upland restoration east of the project site.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The only mitigation bank in the basin is the Tampa Bay Mitigation Bank, which is also within the Cockroach Bay area. At the time of selecting mitigation for the proposed wetland impacts, the mitigation bank was not under construction nor had available credits.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : This project is part of a large SWIM restoration effort for the Cockroach Bay area. The Cockroach Bay restoration effort has been guided by the Cockroach Bay Restoration Alliance, made up of stakeholders including the agencies, landowners, and the Tampa Bay Mitigation Bank. The SWFWMD - SWIM Section has coordinated the wetland creation and restoration, and the majority of the upland habitat activities of the project. Hillsborough County Parks is responsible for the stormwater facilities, some upland restoration, and perpetual maintenance & management activities. Even though there are various restoration phases throughout the Cockroach Bay Habitat Restoration area, they are all inter-related based on site conditions. An ecological transition of upland habitat to palustrine wetlands, followed by salinity gradients of various marsh habitats toward estuarine wetlands. A freshwater wetland creation and coastal hammock restoration area (34 acres) was also selected and constructed in 2004 for the FDOT mitigation program (SW 56 Cockroach Bay Restoration – Freshwater). Because of the extensive planning and evaluation of the restoration, being co-located with on-going restoration efforts that are managed and maintained by Hillsborough County, the designated mitigation portions have been very successful.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD Operations Department constructed the project in 2005

Contact Name: Brandt Henningson, PhD, SWIM Environ. Scientist Phone Number: (813) 985-7481 ext. 2202

Entity responsible for monitoring and maintenance: SWFWMD

Proposed timeframe for implementation: Commence: Design, 2002 Complete: Construction in 2005, followed by minimum 3 years maintenance & monitoring, perpetual management by Hillsborough County

Project cost: \$ 450,000 (total); \$100,000 for design, \$350,000 for construction, planting, and maint. & monitoring

Attachments

- 1. Detailed description of existing site and proposed work. Refer to previous discussion.
- 2. Recent aerial photograph with date and scale. Figure B - 1995 Infrared Aerial.
- 3. Location map and design drawings of existing and proposed conditions. Figure A - Location Map, final design plans on Figures C,D,E.
- 4. Detailed schedule for work implementation, including any and all phases. The final design for this portion of the Cockroach Bay plan was completed at the end of 2002, construction and planting was conducted in 2005, followed by a minimum 3 year monitoring period.
- 5. Proposed success criteria and associated monitoring plan. Refer to Attachment A.
- 6. Long term maintenance plan. Refer to Attachment A.
- 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion under Comment D.

Attachment A – Maintenance & Monitoring, Success Criteria

The maintenance activities are conducted by private contractors selected by the SWFWMD, and primarily relate to eradication and control of invasive exotic vegetation. Maintenance is a more intensive effort during the first couple years after planting to allow for establishment of desirable plant species, and less frequent maintenance as the project matures. Maintenance will continue to be conducted as necessary, expected to be quarterly for two to three years. After the site meets success criteria maintenance activities will continue to be conducted as necessary by Hillsborough County herbicide crew who is stationed at the County's Cockroach Bay facilities. Inspections on a semi-annual basis are anticipated to evaluate vegetative conditions, debris, and any nuisance & exotic vegetation. After each inspection, proper maintenance activities are conducted to correct any problems.

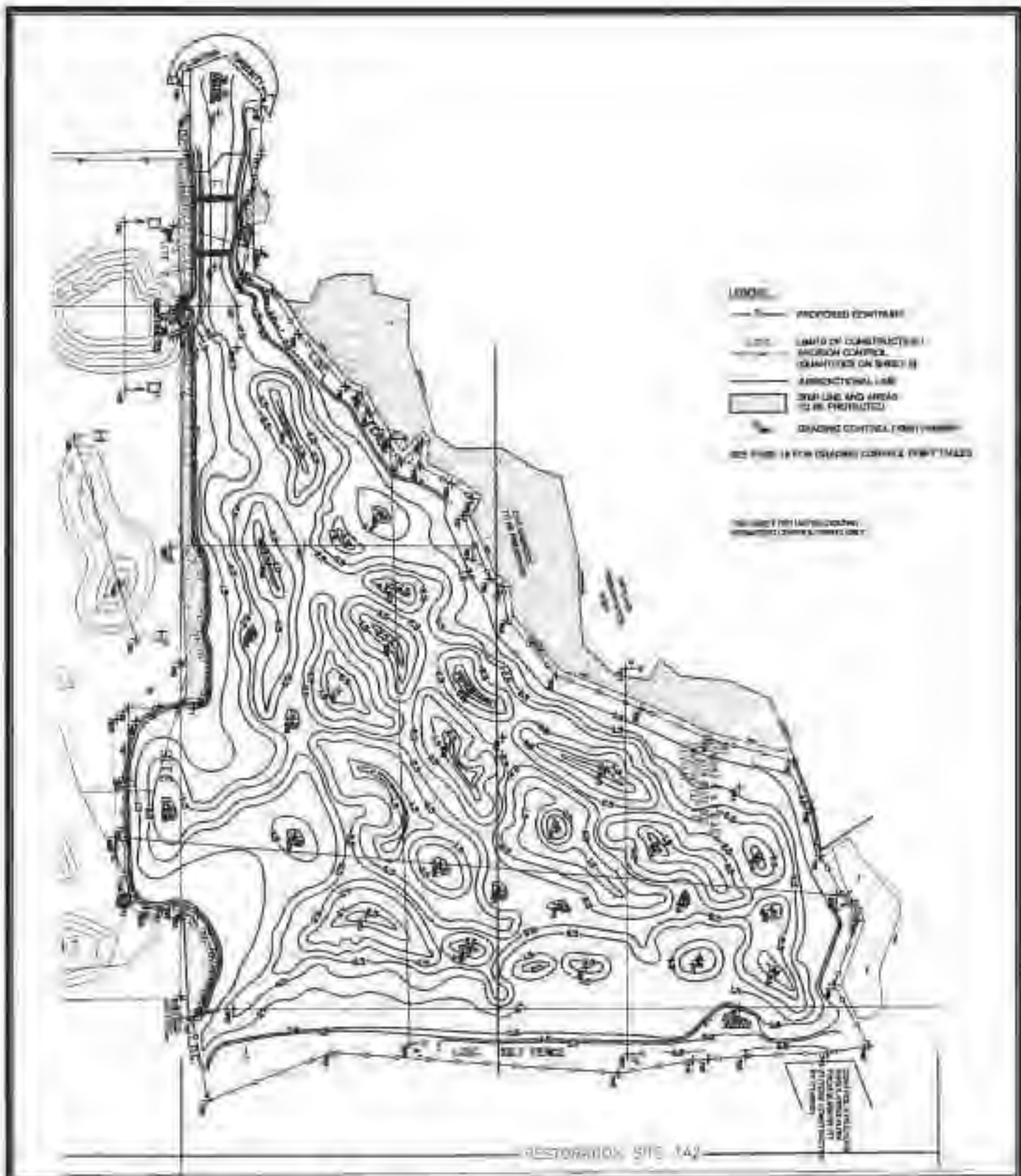
Monitoring will be conducted by a SWFWMD consultant on a semi-annual basis, followed by annual reports conducted for a minimum three years post-construction. Monitoring will include qualitative evaluation and photo documentation of the mitigation area, to evaluate and document species survival, coverage, wildlife use, exotic & nuisance species coverage, and recommended actions needed to ensure or enhance success. The success criteria will reflect a minimum 90% survivorship for planted material for one-year post planting, a total 85% cover of planted and recruited desirable species, and less than 5% exotic and nuisance species cover.



FDOT – District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)

COCKROACH BAY-
SALTWATER
(SW 75)

FIGURE B – Infrared Aerial
Scale 1 in = 1070 feet, >North



**FDOT – District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**COCKROACH BAY-
SALTWATER
(SW 75)**

**FIGURE C – Grading Plan
Scale 1 in = 200 feet, North**

1/16" = 1' 0" LIMITS OF CONSTRUCTION
 SPECIAL CLARIFICATION
 (CONSTRUCTION CONTRACT)
 1. PROPOSED LANE
 2. AREA TO BE PROTECTED

1. 10' - 15' (SEE PLAN) 10' (SEE PLAN)
 2. 15' - 20' (SEE PLAN) 15' (SEE PLAN)
 3. 20' - 25' (SEE PLAN) 20' (SEE PLAN)
 4. 25' - 30' (SEE PLAN) 25' (SEE PLAN)
 5. 30' - 35' (SEE PLAN) 30' (SEE PLAN)
 6. 35' - 40' (SEE PLAN) 35' (SEE PLAN)
 7. 40' - 45' (SEE PLAN) 40' (SEE PLAN)
 8. 45' - 50' (SEE PLAN) 45' (SEE PLAN)
 9. 50' - 55' (SEE PLAN) 50' (SEE PLAN)
 10. 55' - 60' (SEE PLAN) 55' (SEE PLAN)

PLANTING SCHEDULE

AREA	TYPE	ELEVATION (FT)
1. 1. 1. 1.	OPEN WATER	25 TO 2.5
1. 1. 1. 1.	LOW MANGROVE	0.0 TO 1.0
1. 1. 1. 1.	MID MANGROVE	1.0 TO 2.0
1. 1. 1. 1.	HIGH MANGROVE	2.0 TO 3.0



PLANTING SCHEDULE

AREA	TYPE	ELEVATION (FT)	PLANTING	DEPTH	SPACING	QTY
1. 1. 1. 1.	OPEN WATER	25 TO 2.5	NO	10'	10'	0
1. 1. 1. 1.	LOW MANGROVE	0.0 TO 1.0	RHIZOPHYTES TAMARISK NYCTAGINACEAE SCAEVOLA	2' depth 4' depth 2' depth 2' depth	10' x 10' 10' x 10' 10' x 10' 10' x 10'	11,000 8,100 12,000 2,000
1. 1. 1. 1.	HIGH MANGROVE	2.0 TO 3.0	RHIZOPHYTES TAMARISK NYCTAGINACEAE SCAEVOLA	2' depth 4' depth 2' depth 2' depth	10' x 10' 10' x 10' 10' x 10' 10' x 10'	11,000 8,100 12,000 2,000
1. 1. 1. 1.	UPLAND	3.0 TO 4.0	PALM GROVE TAMARISK NYCTAGINACEAE SCAEVOLA	2' depth 4' depth 2' depth 2' depth	10' x 10' 10' x 10' 10' x 10' 10' x 10'	11,000 8,100 12,000 2,000

**FDOT - District 7
 MITIGATION SITE
 (Tampa Bay Drainage Basin)**

**COCKROACH BAY-
 SALTWATER
 (SW 75)**

**FIGURE D - Planting Plan
 Scale 1 in = 150 feet, ^North**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Souhwest Florida Water Management District

Mitigation Project Name: Lake Lowery Tract

Project Number: SW 76

Project Manager: Gaye Sharpe, Polk County Environmental Lands Coordinator

Phone No: (863) 534-7377

Polk County Natural Resources Division

County: Polk

Location: Sec. 10 T27S, R26E

IMPACT INFORMATION (Proposed Construction Date)

(1) FM: <u>1976791, US 27 - SR 544 to Blue Heron Bay *</u>	ERP#: <u>43023431.000</u>	COE #: <u>200202574 (IP-JPF)</u>
(2) FM: <u>4038901, US 27 - Blue Heron Bay to CR 547</u>	ERP#: <u>43023431.001</u>	COE #: <u>200205885 (IP-JPF)</u>
(3) FM: <u>2012041, I-4 - CR 557 to Osceola Co. Line (Seg. 6,7,9)**</u>	ERP#: <u>43011896.032</u>	COE #: <u>SAJ-1994-3591 (IP-MGH)</u>
(4) FM: <u>1977061, US 27- SR 546 to SR 544 (2009)*</u>	ERP#: _____	COE #: _____

Drainage Basin: Ocklawaha Water Body(s): Tower Lake SWIM water body? N

Impact Acres / Habitat Types (FLUCFCS):

(1) FM 1976791	<u>0.02</u> ac. <u>510</u>	(3) FM 2012041	<u>0.59</u> ac. <u>621</u>
	<u>0.30</u> ac. <u>630</u>		<u>3.76</u> ac. <u>640</u>
	<u>0.14</u> ac. <u>631</u>	TOTAL	4.35 acres
TOTAL	0.46 acres		

(2) FM 4038901 1.9 ac. 630 (4) FM 4110391 1.0 ac. 641 **TOTAL: 7.71 acres**

*Note – portions of these two US 27 segments are within the Peace Basin and the associated wetland impacts are being mitigated at the Circle B Bar Reserve (SW 66).

** Note – A portion of this I-4 project is within the Withlacoochee Basin and the associated wetland impacts are being mitigated at the Hampton Tract (SW 59). Another portion of this project is within the Kissimmee Ridge Basin and the associated wetland impacts are being mitigated at the Reedy Creek Mitigation Bank (SW 49).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation ___ Restoration ___ Enhancement X Preservation Mitigation Area: 198 acres
SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N
Drainage Basin: Ocklawaha Water Body(s): Lake Lowery SWIM water body? N

Project Description

A. Overall project goal: The primary goal includes acquisition, preservation, and management of high quality wetland habitat within the Lake Lowery floodplain. The 198-acre portion designated for mitigation credit is part of a 397-acre parcel purchased in Feb., 2002 in a joint acquisition between the SJRWMD and Polk County. In 2003, Legislative actionl resulted in the water management review and responsibility of a portion of Polk County being transferred from the SJRWMD to the SWFWMD, which included transferring the partial ownership of this tract. In addition to providing mitigation for FDOT wetland impacts, the site fulfills overall objectives of acquiring many parcels within the 100-year flood zone of Lake Lowery. The benefits of this acquisition are further enhanced since the tract is adjacent to 5700-acres of habitat owned and managed by the FFWCC (Fig. B, Hilochee Wildlife Management Area, Osprey Unit), as well as within the Green Swamp Area of Critical State Concern.

- B. Brief description of current condition:** The majority of the entire 397-acre tract is a large palustrine marsh with islands of forested wetlands and shrub wetlands, and a partial perimeter of forested wetlands within the southern portion of the tract (Fig. C). Dominant cover of the marsh includes pickerelweed and maidencane. Other common species include smartweed, arrowhead, and sand cordgrass. There are separate pockets of sawgrass and Carolina willow. The forested wetland areas have dominant canopy and sub-canopy species of bays, tupelo, and cypress; with additional cover provided by red maple and dahoon holly. The ground cover within the forested component includes a dominance of lizard's-tail and various fern species. A buffer of pine flatwoods is located along the northeast and southeast portion of the marsh. An improved pasture is located along the western and northern boundary of the marsh. The tract is an undivided 50/50 interest between the SWFWMD and Polk County, therefore it was determined that the mitigation credit would be designated within a 198-acre area of the wetland. The upland buffers provide important functions for the wetland area, but are not designated for mitigation credit (refer to Figure C). The wetland conditions represent high quality conditions with minimal exotic and nuisance species coverage. Wildlife use is substantial, foraging opportunities for wading birds are high, and sandhill crane nesting has been documented for the marsh. Amphibian presence is substantial, particularly the frog population.
- C. Brief description of proposed work:** The wetlands are of high quality and no direct enhancement is necessary. Indirect enhancement has been provided by removal of cattle and the threat of potential development activities along the perimeter of the marsh through public acquisition. Without the development threat, there is substantially less potential for invasion of exotic/nuisance vegetation and water quality degradation that is often associated with residential development (i.e. septic tanks, fertilizers, etc.). The potential of silviculture activities of the forested components are also removed through public acquisition, protection, and management.
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The FDOT wetland impacts include approximately 3 acres of forested wetland and 4.8 acres of marsh habitat. The preservation of 198 acres of high quality marsh, shrub, and mixed forested wetland habitat appropriately and adequately compensates for these impacts with a 25-to-1 ratio.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** At the time of mitigation selection, the SJRWMD considered the use of a mitigation bank to compensate for the anticipated wetland impacts. The only mitigation bank in the basin (Lk. Louisa/Green Swamp Mitigation Bank) has a dominance of xeric habitat restoration and bayhead enhancement. The wetland impacts and mitigation include a dominance of mixed forest and marsh habitat. Therefore, the Lake Lowery option was deemed by the SJRWMD to be a more appropriate mitigation option for the proposed impacts.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** There are no SWIM water bodies within this basin.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: No construction activities necessary or proposed

Contact Name: Gaye Sharpe, Polk Co. Environmental Lands Coordinator

Phone No: (863) 534-7377

Entity responsible for monitoring and maintenance: No monitoring or maintenance necessary or proposed

Proposed timeframe for implementation: Commence: Evaluation, 2000 Complete: Acquisition, 2002

Project cost: \$255,436 (total); SJRWMD reimbursed by FDOT in 2002

\$126,953 – Acquisition Costs for 198 acres – 50% Ownership

\$69,000 – Administrative Costs

\$59,482 – Long-Term Management Costs

Attachments

X 1. Detailed description of existing site and proposed work. Refer to previous text and Attachment A.

X 2. Recent aerial photograph with date and scale. Refer to Figures B and C.

X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A for the location, Figure C for existing and proposed wetland mitigation conditions.

X 4. Detailed schedule for work implementation, including any and all phases. Joint land acquisition was conducted by the SJRWMD and Polk County in 2002. The SJRWMD were reimbursed by FDOT for their portion of the acquisition, administrative costs, and long-term management to designate 198 acres of mitigation for FDOT impacts. Additional information in Attachment B.

X 5. Proposed success criteria and associated monitoring plan. No success criteria or monitoring necessary or proposed due to the high quality of existing wetland habitat conditions.

X 6. Long term maintenance plan. No specific maintenance activity necessary or proposed for the wetland area designated for mitigation purposes, additional information in Attachment B.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion in Item D.

Attachment A – Existing and Proposed Activities

Lake Lowery is a 900-acre lake surrounded by thousands of acres of wetlands and floodplains, including the large wetland associated with this project. The lake and associated wetlands are located in the Green Swamp Area of Critical State Concern and a headwater area for the Palatlakaha, Withlacoochee, and Peace basins. A little of the Lake Lowery Tract's northwestern portion is within the Withlacoochee basin (Figure C), but the designated mitigation area is within the Palatlakaha basin, a sub-basin of the Ocklawaha River Basin. The topography for the floodplain wetlands in the vicinity is relatively flat, which has resulted in flooding of homes, septic tanks, wells, and roads. In coordination and cooperation with the SJRWMD, Polk County initiated a priority of land acquisition in the area to minimize the threat of future residential development and associated impact and loss of native habitat, additional flooding, and the inherent water quality degradation caused by such land use conversion.

The wetland associated with the Lake Lowery Tract is high quality in terms of ecological functions and values. There is substantial species richness, diversity, and dense coverage. The majority of the marsh component is dominated by pickerelweed (*Pontederia cordata*), maidencane (*Panicum hemitomon*), smartweed (*Polygonum* spp.), and a perimeter of sand cordgrass (*Spartina bakeri*). Other common species include arrowhead (*Sagittaria lancifolia*), spikerush (*Eleocharis baldwinii*), and bacopa (*Bacopa caroliniana*). There are scattered small pockets (various sizes of less than 30 ft. diameter to 1-2 acres) of sawgrass (*Cladium jamaicense*) and separate pockets of small Carolina willow (*Salix virginica*).

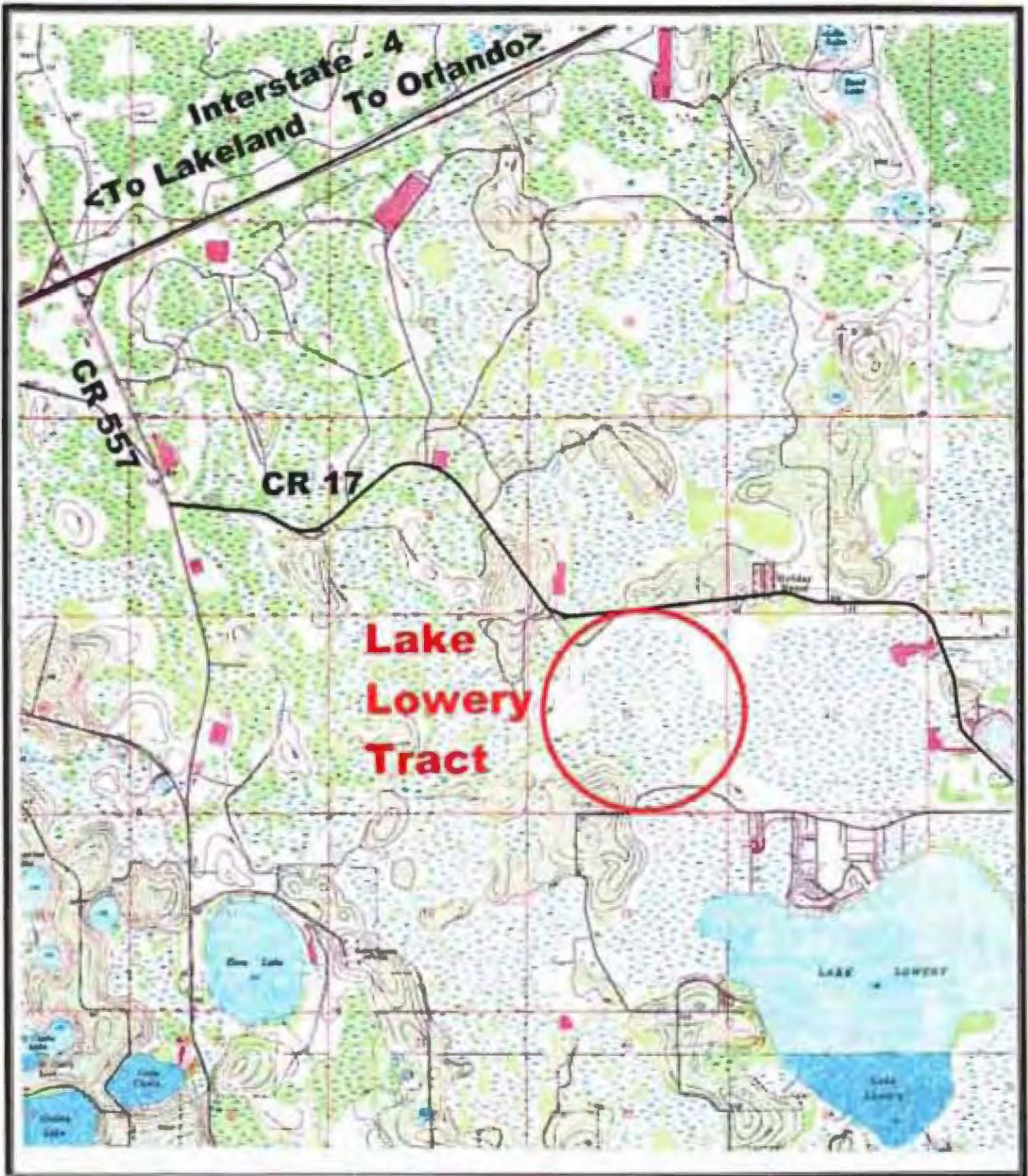
The forested wetland components have a diverse mix of cypress (*Taxodium distichum*) and hardwoods. The most dominant species in the canopy and sub-canopy include bays (*Persea palustris*, *Magnolia virginiana*), and tupelo (*Nyssa aquatica* var. *biflora*); less coverage is provided by red maple (*Acer rubrum*) and dahoon holly (*Ilex cassine*). Due in part to high water conditions and shading, the understory varies in coverage but generally averages 30-60%. The dominant coverage is provided by ferns (*Woodwardia virginica*, *Thelypteris palustris*), and lizard's-tail (*Saururus cernuus*); duckweed (*Lemna* spp.) is common along the water surface.

The adjacent upland buffers of the tract are not designated for DOT mitigation credit, and even though the acreage is minor, the buffers are important components of the acquisition toward maintaining appropriate functions and values of the wetland. The pine flatwoods along the western perimeter of the wetland include a dominance of saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), fetterbush (*Lyonia ferruginea*), wax myrtle (*Myrica cerifera*), and scattered slash pine (*Pinus elliotii*). The upland buffers for the northern and eastern side of the marsh include a dominance of improved pasture with bahiagrass (*Paspalum notatum*) and scattered fennel (*Eupatorium capillifolium*), euthamia (*Euthamia* sp.), and blue maidencane (*Amphicarpum muhlenbergianum*). As the pasture and pine flatwoods transition into the wetland, various sedges (*Cyperus* spp.), broomsedge (*Andropogon glomeratus*, *A. virginicus*), and goldenrod (*Solidago* spp.) are present. The presence of dead fennel within the pasture buffer/wetland edge is due to high water conditions associated with the 2003 "El Nino" weather patterns.

Beyond periodic inspections and the potential of prescribed burns in the uplands, there are no maintenance or management activities currently proposed or adopted for the site. There are still some outparcels between the western boundary of the property and the FWC Hilochee Wildlife Management Area (refer to Figs. B & C). Polk County has considered restoring the pastures to upland habitat conditions. However, until if and when such time that hopefully the adjacent landowners are willing to sell their property to the County, attempting to restore the buffers is problematic. These remnant upland outparcels cannot be developed due to lack of access but cattle grazing operations can still be conducted. However, the limitation of potential upland restoration does not downgrade the habitat value of the tract or the buffers. Since it is unknown whether the buffers will be further enhanced and/or restored, that condition does not influence the mitigation credits since the designated mitigation area is within the wetland portion of the tract. The ecological "lift" and associated mitigation credit would be slightly increased with upland restoration activities. However, the ecological value and functions of the wetland and buffers under existing conditions are sufficient to compensate for the minor wetland impact acreage proposed for mitigation at the Lake Lowery Tract.

Attachment B – Mitigation and Ownership Issues

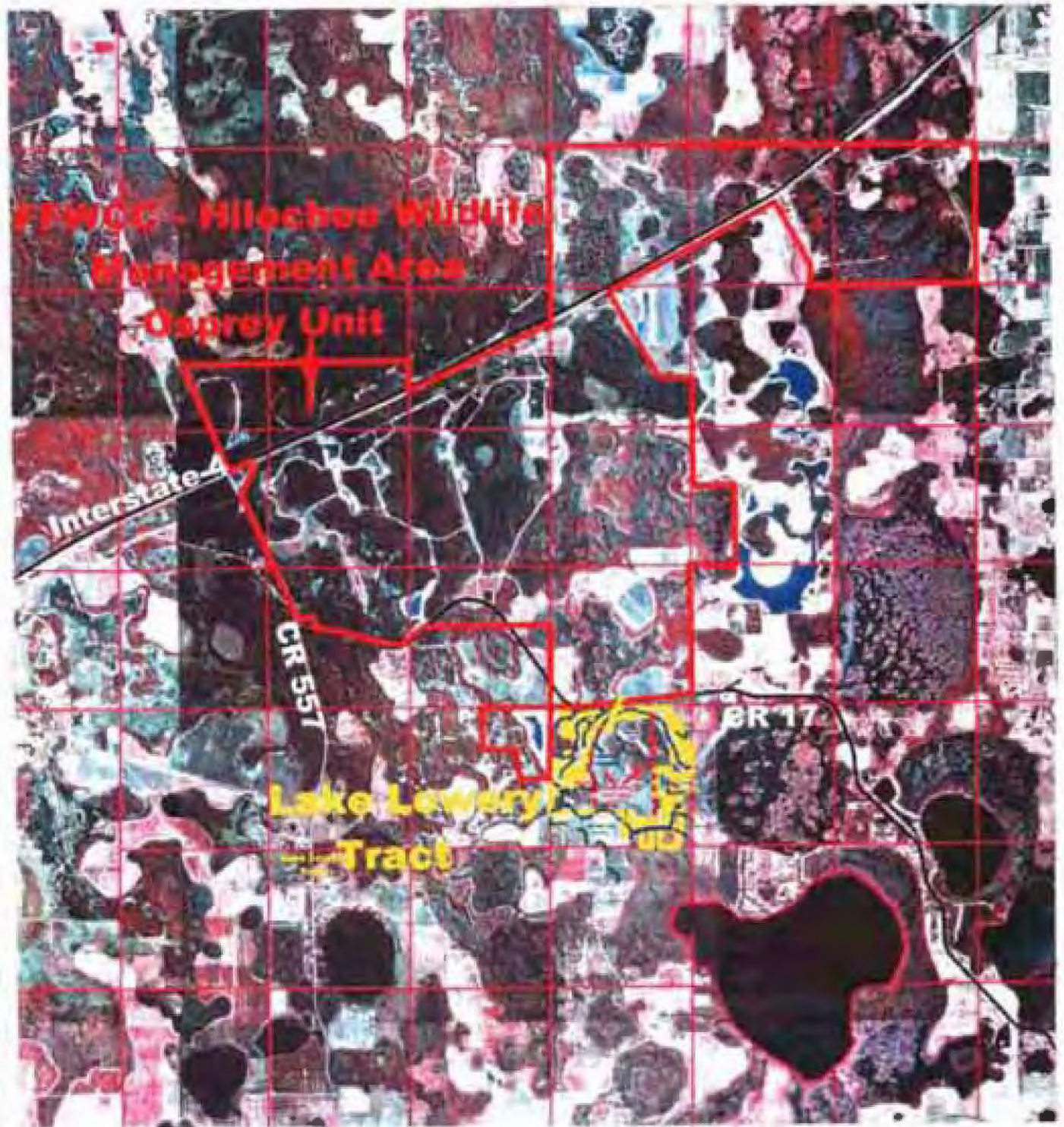
As noted, the Lake Lowery Tract was a joint acquisition pursuit (50/50 split) with the SJRWMD and Polk County. The site was an undivided interest, and the SJRWMD received approval from the regulatory and commenting agencies to designate their 50% interest to also mitigate for FDOT wetland impacts. As of the 2003 Legislative session, the water management and regulatory authority of the Palatlahaha basin within Polk County was transferred to the SWFWMD. This transfer included a wide range of issues, including the 50% share of this property to the SWFWMD.



**FDOT – District 1
MITIGATION SITE
(Ocklawaha River Basin)**

**LAKE LOWERY TRACT
(SW 76)**

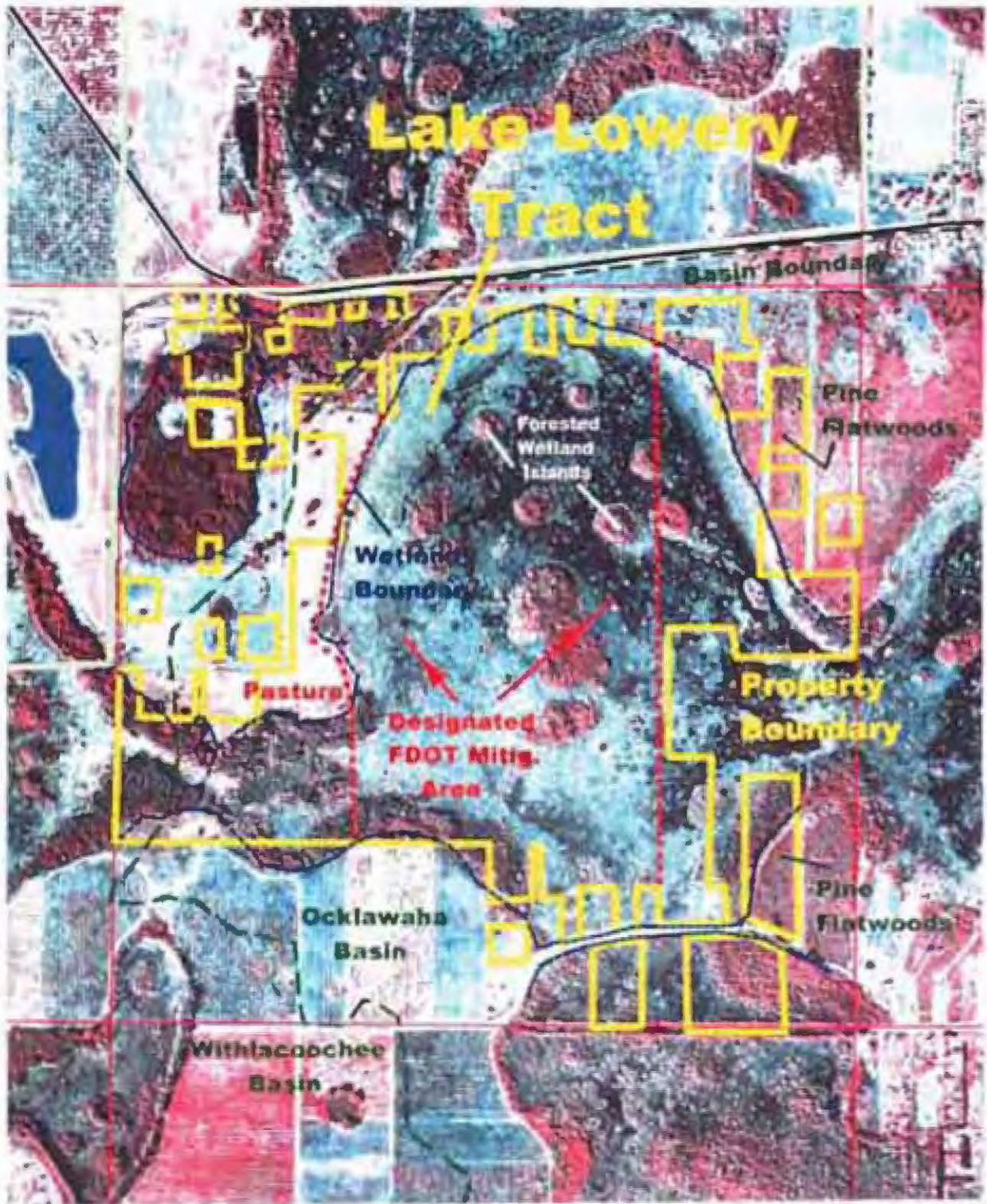
**FIGURE A - Location Map
Scale 1.5 in. = 1 mile, ^North**



**FDOT - District 1
MITIGATION SITE
(Ocklawaha River Basin)**

**LAKE LOWERY TRACT
(SW 76)**

**FIGURE B - Adjacent Public Lands
Scale 1 in. = 1 mile ^North**



**FDOT – District 1
MITIGATION SITE
(Ocklawaha River Basin)**

**LAKE LOWERY TRACT
(SW 76)**

**FIGURE C – Habitat
Scale 1 in. = approx. 1080 ft.
^North**



The majority of the tract is covered with a high quality marsh with a dominance of maidencane and sand cordgrass along the outer zone (foreground). Pickerelweed, smartweed, and maidencane dominate the interior, with scattered pockets of sawgrass, Carolina willow and forested wetland islands (background).



The forested wetlands are located along the southwestern portion of the property and islands within the marsh. Dominant overstory and sub-canopy is provided by sweet bay, swamp bay, tupelo, cypress, and red maple. Understory vegetation includes a dominance of lizard's-tail and various fern species.

**FDOT – District 1
MITIGATION SITE
(Ocklawaha River Basin)**

**LAKE LOWERY TRACT
(SW 76)**



Within the property boundary, the upland buffers (foreground) along the western and northern perimeters of the marsh (background) have a dominant cover of bahiagrass. Other species include broomsedge, euthamia, dog fennel, blue maidencane, and goldenrod. Scattered myrtles and live oaks are also present.



Within the property boundary, the upland buffers along the eastern and southeastern perimeter of the marsh are pine flatwoods that have dominant cover of saw palmetto, gallberry, fetterbush, wax myrtle and scattered slash pine. A forested perimeter dominated by cypress (background) is present along the marsh within the southeastern and southwestern portion of the property.

**FDOT – District 1
MITIGATION SITE
(Ocklawaha River Basin)**

**LAKE LOWERY TRACT
(SW 76)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Conner Preserve**

Project Number: **SW 77**

Project Manager: Mary Barnwell, SWFWMD Sr. Land Management Specialist Phone No: (352) 796-7211, ext. 4475

County: Pasco

Location: Sec. 11,12,13,14, 22,23,24, T25S, R18E; Sec. 7,8,17,18,19,20, T25S, R19E

IMPACT INFORMATION

(1) <u>FM: 4037711, US 19 – Republic Dr. to CR 816 (Alderman)</u>	ERP #: <u>44022085.001</u>	COE #: <u>NW 14PCN</u>
(2) <u>FM: 2571741, US 98 – Hernando Co. Line to US 19</u>	ERP #: <u>4323430.000</u>	COE #: <u>1998-3481 (IP-KF)</u>
(3) <u>FM: 2570501, SR 688 (Ulmerton) – Oakhurst to 119th St.</u>	ERP #: <u>44012347.010</u>	COE #: <u>2002-4931 (NW 14)</u>
(4) <u>FM: 2563221, SR 52 – Moon Lake to Suncoast Parkway</u>	ERP #: <u>43007396.001</u>	COE #: <u>2002-6047 (IP-MN)</u>
(5) <u>FM: 2563321, SR 54 – Rowan Rd. to Mitchell Bypass</u>	MSW #: <u>4011641.004</u>	COE #: <u>1993-2010 (IP-ML)</u>
(6) <u>FM: 2568151, SR 586 (Curlew Rd.) – CR 1 to Fisher Rd.</u>	ERP #: <u>44009837.008</u>	COE #: <u>2002-5245 (NW)</u>
(7) <u>FM: 2563371, SR 54 – Gunn Hwy. to Suncoast Parkway</u>	ERP #: <u>4316251.000</u>	COE #: <u>1999-5203 (IP-ES)</u>
(8) <u>FM: 2563241, US 41 (SR 45) – Tower to Ridge (2010)</u>	ERP #: _____	COE #: _____
(9) <u>FM: 2572983, CR 578 – East Rd. to Mariner (2015)</u>	ERP #: _____	COE #: _____
(10) <u>FM: 4050172, US 98 – CR 485 to CR 491 (2011)</u>	ERP #: _____	COE #: _____
(11) <u>FM: 2572992, CR 485 (Cobb) – SR 50 to US 98 (2016)</u>	ERP #: _____	COE #: _____
(12) <u>FM: 2572985, CR 578 – Suncoast to US 41 (2015)</u>	ERP #: _____	COE #: _____
(13) <u>FM: 2563231, SR 52 – Suncoast Parkway to US 41 (2014)</u>	ERP #: _____	COE #: _____
(14) <u>FM: 2572982, CR 578 – US 19 to East Rd. (2008)</u>	ERP #: _____	COE #: _____
(15) <u>FM: 4188601, US 19 – Sunray to Marine Parkway (2010)</u>	ERP #: _____	COE #: _____

Drainage Basin: Upper Coastal, Hillsborough River Water Body(s): None

SWIM water body? N

Impact Acres / Habitat Types (FLUCFCS):

(1) FM 4037711 <u>0.1</u> ac. <u>618</u>	(9) FM 2572983 <u>0.4</u> ac. <u>641</u>
(2) FM 2571741 <u>1.4</u> ac. <u>621</u>	(10) FM 4050172 <u>0.1</u> ac. <u>610</u>
(3) FM 2570501 <u>0.2</u> ac. <u>630</u>	(11) FM 2572992 <u>6.2</u> ac. <u>630</u>
(4) FM 2563221 <u>3.2</u> ac. <u>617</u>	(12) FM 2572985 <u>0.2</u> ac. <u>617</u>
<u>0.9</u> ac. <u>618</u>	(13) FM 2563231 <u>2.0</u> ac. <u>610</u>
<u>2.3</u> ac. <u>621</u>	<u>0.5</u> ac. <u>618</u>
<u>0.1</u> ac. <u>641x</u>	<u>1.0</u> ac. <u>621</u>
TOTAL 6.5 acres	<u>0.7</u> ac. <u>641</u>
(5) FM 2563321 <u>0.1</u> ac. <u>617</u>	TOTAL 4.2 acres
<u>0.2</u> ac. <u>618</u>	(14) FM 4188601 <u>0.2</u> ac. <u>641</u>
<u>3.3</u> ac. <u>641</u>	
TOTAL 3.6 acres	
(6) FM 2568151 <u>0.1</u> ac. <u>618</u>	
(7) FM 2563371 <u>6.0</u> ac. <u>621</u>	
(8) FM 2563241 <u>2.5</u> ac. <u>610</u>	
<u>0.2</u> ac. <u>617</u>	
<u>5.9</u> ac. <u>621</u>	
<u>2.8</u> ac. <u>631</u>	
<u>0.9</u> ac. <u>641</u>	
<u>1.2</u> ac. <u>641x</u>	
<u>0.6</u> ac. <u>643</u>	
TOTAL 14.1 acres	

TOTAL 43.3 Acres

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation Restoration Enhancement ___ Preservation Mitigation Area: **2,980 Acres**
SWIM project? Aquatic Plant Control project? Exotic Plant Control Project?
Mitigation Bank? Drainage Basin: Upper Coastal, Hillsborough River Water Body(s): None SWIM water body?

Project Description

- A. Overall project goal:** The Conner Preserve (2,980 acres) was acquired by the SWFWMD for public ownership in 2003. The property represents diverse habitats within a high priority public lands acquisition area since it is located within a core of surrounding public lands in central Pasco County (Figure A). The overall project goal includes enhancement of wetland and upland habitat. There are also several improved pasture islands surrounded by wetlands being restored into appropriate upland habitat communities. Implementation of the enhancement and restoration plan will provide inter-related ecosystem habitat improvements resulting in beneficial opportunities for wildlife use.
- B. Brief description of current condition:** The Preserve consists of a mosaic of pine flatwoods, improved pasture, oak hammocks, sandhill, and wetlands (Figure B). Over half of the Preserve is composed of wetlands (1,630 acres). The non-forested wetlands (total 1,014 acres) include a range of habitat and hydrologic conditions varying from wet prairie (290 acres), shallow marshes (675 acres), and deeper emergent systems (49 acres). The forested component (616 acres) is primarily composed of cypress-dominated systems (521 acres) and the remaining forested wetlands are predominantly mixed cypress & hardwood communities. Many of the forested wetlands have generated along the outer perimeters surrounding marsh habitat, as well as cypress strands and domes within the interior of many marshes. The wetlands are in moderate to high quality condition, and have adapted to varying hydrologic conditions. Hydroperiod fluctuations have varied due to rainfall conditions and groundwater influence from wellfields in the vicinity (Cross Bar, Cypress Creek). The only area where wetland functions have resulted in noticeable herbaceous vegetative shifts is within the most eastern portion of the site. As a result of a reduced hydroperiod, many of the emergent marshes within this area have transitioned to more ephemeral and wet prairie systems. From a landscape perspective, conversion of upland habitat to improved pastures and minimal land management practices of remaining native upland habitats have fragmented ecosystem conditions and the inter-relationship with adjacent wetland systems. The pasture conditions and previous cattle grazing practices have allowed non-native and exotic species to encroach into the wetlands and uplands; particularly pasture grasses, soda apple, skunk vine, camphor trees, and Chinese tallow. Changes in fire intensity and fire intervals have also resulted in inappropriate density and diversity of vegetative species within the upland buffers adjacent to the wetlands. Particularly hardwoods and wax myrtles that have minimized appropriate ground cover vegetation, hindered wildlife access, limited foraging and nesting opportunities between the wetland and upland habitats, and impeded fire movement. Several wildlife species have been reported on the Preserve; the most notable listed species observations include Florida scrub jay, bald eagle, Southeastern American kestrel, gopher frog, gopher tortoise, Sherman's fox squirrel, and several wading birds. Documentation of habitat and wildlife conditions is included in the attachment - Conner Preserve Restoration Plan.

C. Brief description of proposed work: Primary wetland enhancement is achieved through eradication of exotic and nuisance species, some mechanical thinning and control of dense vegetative within the outer wetland fringes and adjacent upland buffers, and implementation of a prescribed burn program. The inappropriate density of hardwoods and myrtles within the wetland fringes and upland buffers include an initial combination of mechanical thinning (hydro-ax) and implementation of the prescribed burn management program (3-5 year cycle), allowing regeneration of appropriate species. Prescribed fire applications at suitable intervals within the marshes reduce and prevent encroachment of woody shrubs and trees (particularly exotic and nuisance species such as camphor and Chinese tallow), remove detritus, recycle nutrients, and stimulate the regeneration and recruitment of appropriate hydrophytic herbs. Secondary wetland enhancement is conducted through enhancement and restoration of adjacent upland habitats. Monitor wells have been installed in wetlands to monitor hydrologic and hydroperiod conditions. This information is used to coordinate with pumping rates of adjacent well-field operators to ensure appropriate wetland hydrology is maintained at the Preserve. For upland habitat enhancement (1,046 acres), herbicide eradication of exotic and nuisance vegetation is necessary; particularly for weedy and/or exotic species such as bahia, persimmon, Chinese tallow, laurel oak, and wax myrtle that have encroached upon the pine flatwoods and sandhill communities. Additional habitat enhancement is achieved by implementing a prescribed burn program that will minimize the regeneration and recruitment of these undesirable species. There are five upland island pastures (total, 304 acres) being restored to their historic habitat conditions of pine flatwoods and sandhill (refer to Figures 3B, 6-10). Restoration of these upland areas include a series of initial burns, herbicide application and mechanical disking to eradicate the pasture grasses, direct seeding from WMD-donor sites, and supplemental planting of appropriate desirable species such as longleaf pine, oaks, tarflower, rusty lyonia, staggerbush, and ericaceous shrubs. Due to the availability of donor seed source material and time lag necessary to implement each phase of the restoration activities associated with the upland habitats, each of the five restored uplands have different schedules of when implementation will be conducted (refer to Table 1). The restored uplands will be perpetually managed with a prescribed fire application. Additional details on the habitat enhancement and restoration activities are included in the attached Restoration Plan. The FDOT mitigation activities and associated maintenance and management funding will be implemented over a 10-year period after the initial implementation, followed by perpetual management by the SWFWMD. Adjacent to the Conner Preserve there are two tracts totaling 560-acres of proposed wetland and upland habitat improvements (Figure B). These improvements are being conducted for mitigation credit associated with construction-related wetland and upland habitat impacts proposed from the residential development (Connerton) located south of the Conner Preserve. After these two mitigation tracts achieve success criteria stipulated in their permits, these mitigation areas will be transferred and perpetually maintained and managed by the SWFWMD.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The Preserve has land within the Hillsborough River Basin (876-acres) and the Upper Coastal Basin (2,104-acres). As of the 2008 mitigation plan, there are 15 roadway projects with a conservative estimate of 43-acres of wetland impacts within the Upper Coastal basin designated for mitigation at the Preserve. These are very conservative impact estimates that are anticipated to decrease as the roadway projects proceed into the design and permitting phase. The majority of these impacts are associated with roadway projects within a 5-mile radius of the Preserve, and the project with the highest anticipated impact (US 41-Tower to Ridge Road, 145 impact acres) is located along the west side of the Preserve. The majority of the proposed impacts are associated with marsh and cypress-dominated wetland systems, which resemble the wetland ecosystems within the Conner Preserve. It may be

possible that a portion of the designated long-range roadway projects' impacts in the Upper Coastal basin may be proposed to transfer to another mitigation option other than the Preserve if such option(s) are deemed more ecologically beneficial. As noted on Figure 2, there are several proposed critical corridors of wildlife habitat being evaluated and pursued for acquisition and enhancement by a few land acquisition agencies and potentially private mitigation bankers. If such option(s) become available for potential nomination and are within adequate project schedules for FDOT, the WMD may provide the transfer nomination request to the multi-agency mitigation review group for evaluation and approval prior to official adoption.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection, there were no existing or proposed mitigation banks in the Upper Coastal or Hillsborough River Basins.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time of selection, there were no SWIM sponsored projects proposed in the Upper Coastal or Hillsborough Basins that were appropriate for mitigation credit.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD- LAND Dept. or designee

Contact Name: Mary Barnwell, Senior Land Management Specialist Phone Number: (352) 796-7211, ext. 4475

Entity responsible for monitoring and maintenance: SWFWMD LAND Resources will be responsible for maintenance & management, a private contractor selected by the WMD for monitoring.

Proposed timeframe for implementation: Commence: Acquisition – end of 2003, Restoration Design – 2004, Restoration Activities, 2005-2012, Maintenance & Monitoring to achieve success criteria for the entire site 2005-2015, followed by perpetual land management activities by the WMD.

Complete: Maintenance & monitoring complete by 2015 or until success criteria is met for all the sites, followed by perpetual maintenance & management activities

Project cost: TOTAL \$ 2,000,000

Habitat Restoration & Maintenance Activities - \$1,700,000 (refer to Restoration Plan)

Administrative Costs (Management Activities, Salaries, Equipment, etc.—FY2005 to FY2015) - \$300,000

Attachments

X 1. Detailed description of existing site and proposed work. Refer to previous text; additional habitat and wildlife information, and proposed work activities included in the attached Conner Preserve Restoration Plan.

X 2. Recent aerial photograph with date and scale. Figure 3B - 1999 infrared aerial, Restoration Plan.

X 3. Location map and design drawings of existing and proposed conditions. Figures 1 & 2 – Location & Corridor Maps, Figures 3 & 3B - Existing Conditions & Restoration Plan, Figure 4- Land Cover Map, Figure 5 – Soils Map, Figures 6-10 – Upland Restoration Sites.

X 4. Detailed schedule for work implementation, including any and all phases. Refer to previous discussion and the Restoration Plan, including Tables 1-3 – Projected & Detailed Task Schedules & Activities. The project's restoration plan was conducted in 2004 (attached), and implementation commenced in FY2005. Since the upland restoration areas have to be gradually implemented, final field activities are scheduled for completion in 2012 with success criteria expected to be achieved gradually for the entire site by 2015. After the mitigation has been deemed to meet success criteria, the tract will be rotated within the normal SWFWMD land management program funds for perpetual management.

X 5. Proposed success criteria and associated monitoring plan. Refer to the Restoration Plan for the success criteria and monitoring plan. The monitoring plan includes qualitative and quantitative evaluation of wildlife, vegetative, and habitat conditions. Monitoring will be conducted semi-annually with annual monitoring reports. Success criteria will include (1) achieving and maintaining bahiagrass cover to below 20% cover, (2) obtain greater than 80% cover by desirable sandhill and flatwood species within 4 years after initial eradication, (3) to successfully implement prescribed fires through the site within 5 years, (4) and to achieve and maintain less than 2% cover of exotic and nuisance species coverage in the wetlands.

X 6. Long term maintenance plan. Refer to the Restoration Plan for the maintenance plan. After initial eradication of exotic and nuisance species, the maintenance and land management activities will be implemented as necessary to achieve and maintain success criteria.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

Conner Preserve Restoration Plan



**Southwest Florida Water Management District
Land Management Section
August 2004**

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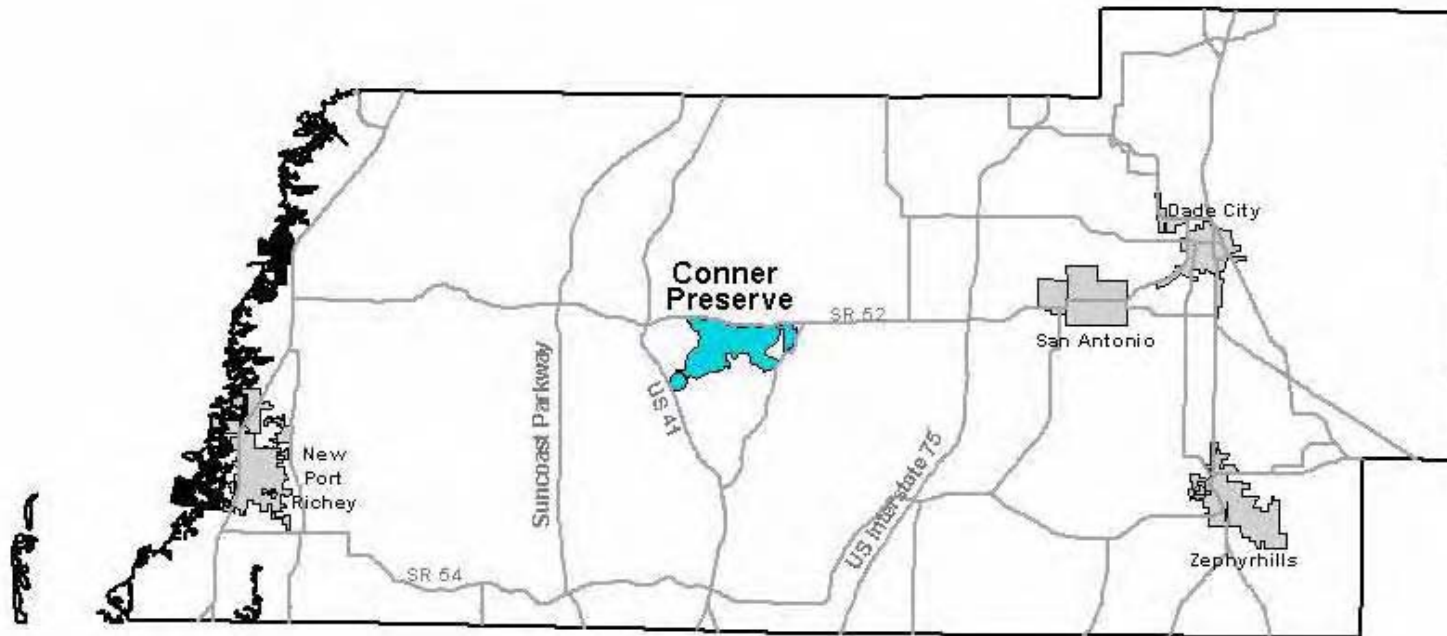
INTRODUCTION

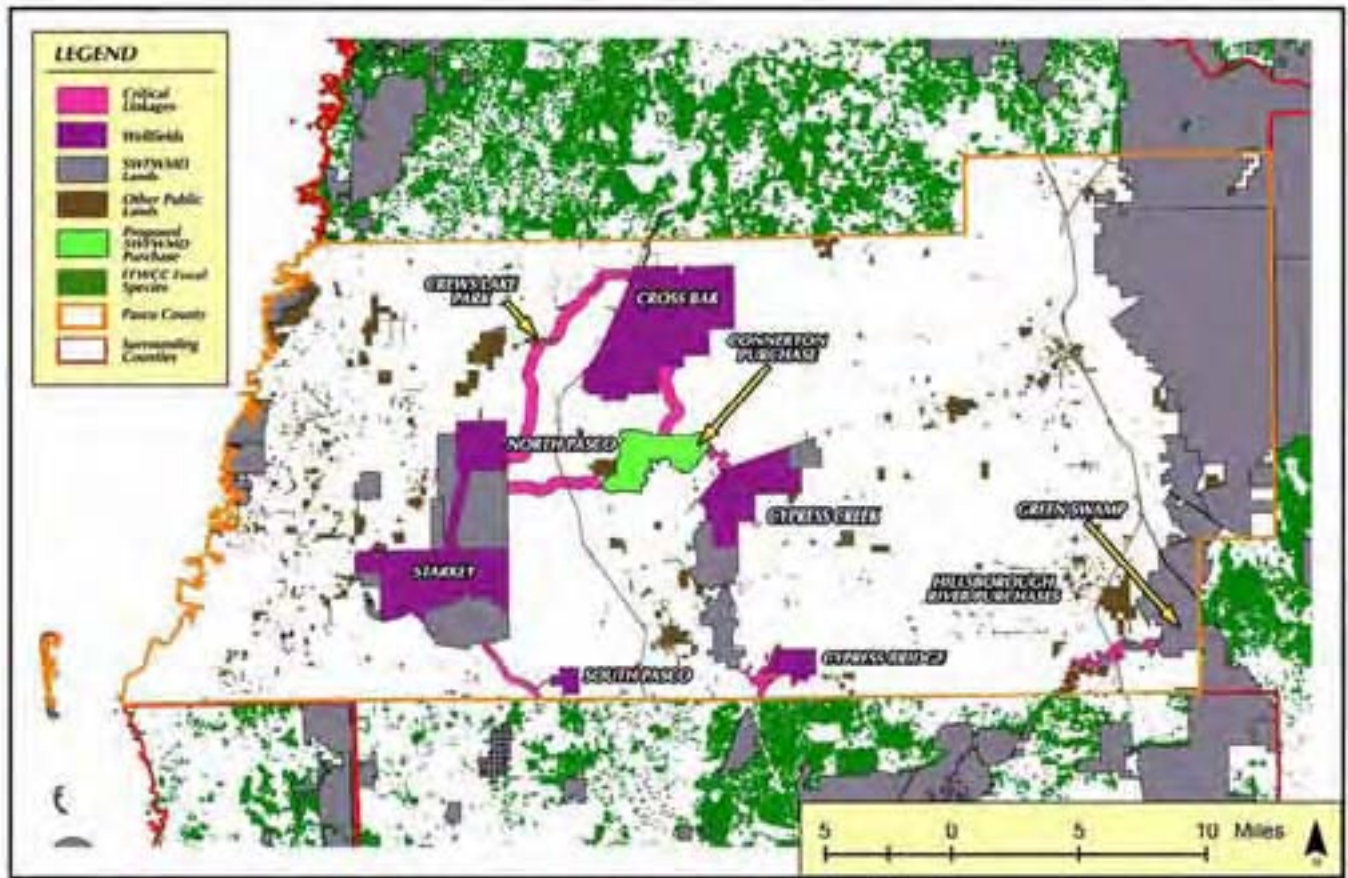
The District purchased the 2,980 Conner Preserve (Preserve), a key parcel in the Pasco I Save Our Rivers/Forever Florida project, in 2003. It is located in central Pasco County approximately 7 miles north of Land O' Lakes, Florida, and is bordered by U.S. Highway 41 to the west, and State Road 52 to the north (Figure 1). The Preserve is a key link in a proposed wildlife habitat corridor connecting the 18,240-acre Starkey Wilderness Park to the west and the 7,460-acre Cypress Creek Wellfield to the east (Figures 2). Natural systems restoration and land management activities proposed in this plan will increase the value and functionality of the Preserve as both core habitat and as a potential linkage between Starkey Wilderness Park and the Cypress Creek Wellfield. This will be accomplished through enhancement of existing wetland habitat and restoration and enhancement of upland habitat adjacent to the wetlands.

Restoration of SWFWMD lands is guided by Board Procedure 61-10 Natural Systems Restoration. This document states that the restoration and maintenance of the natural state and function of all communities making up an ecosystem is the goal of the District's management efforts. The natural successional process and reinstatement of dynamic disturbance processes is recognized as the most environmentally acceptable means of restoration of an altered community. However, when warranted, active intervention shall be employed within the District's management approach as a means of restoration; active intervention may be undertaken to either reestablish an important natural element, function or process which has been removed from the system, or to remove an element, function or process which is not a natural part of the system. When active intervention is considered warranted, only the most cost-effective methods available that will achieve the project goals will be utilized. Priority for allocation of restoration funds and resources shall be given to those communities where intervention will achieve the greatest ecological benefits.

The altered sites on the Preserve have been evaluated pursuant to Board Procedure 61-10 and due to the extent and location of alterations, natural communities and species involved, and the extent of exotics species infestation, the project sites are ranked as high priorities for restoration.

Figure 1. Conner Preserve Location Map





Source: Glatting Jackson and Pasco County



Pasco County, Florida

Figure 7
Critical Linkages (Corridors) of Wildlife Habitat
Between Existing Public Lands

Figure 2. Conner Preserve. Wildlife corridor link between Starkey Wilderness Park and Cypress Creek.

Excerpted from: **Glatting Jackson. 2002. Pasco County Assessment of Measures to Protect Wildlife Habitat in Pasco County. Submitted to Pasco County.

The Conner Preserve consists of a mosaic of pine flatwoods, improved pasture, oak hammock, longleaf pine/turkey oak sandhill, marshes and wet prairies, and cypress ponds. From a landscape perspective, pasture conversion resulted in fragmentation of the forest and the loss of pine flatwoods and globally imperiled longleaf pine/turkey oak sandhill vegetation and associated fauna. The removal of the forest vegetation also impacted the on-site wetlands, exposing them to detrimental edge effects which may include soil erosion and soil moisture loss, exotic plant encroachment, increased predation rates, changes in fire intensity and fire intervals, and species composition changes.

Restoration and enhancement activities proposed for the Preserve have been nominated for designated mitigation credit to compensate for future wetland impacts associated with proposed

Florida Department of Transportation (FDOT) roadway improvement projects. This mitigation nomination will be further reviewed for multi-agency approval during Summer 2004 and for District Governing Board approval in October 2004.

To date, there are approximately 20-30 individual FDOT projects proposed for mitigation at the Preserve, with a total of 30-50 acres of anticipated wetland impacts associated with these projects. The majority of these wetland impacts will include cypress and marsh systems associated with widening SR 52 and US 41 within close proximity to the Preserve. The anticipated FDOT impacts will be revised as roadway projects proceed to design and permitting phases. Based on functional assessment of the wetland impacts and associated mitigation credit designated from activities proposed at Conner Preserve and other future FDOT mitigation opportunities in the Upper Coastal and Hillsborough Basins, there may be additional future roadway projects and wetland impacts proposed to be mitigated at Conner Preserve.

Restoration and enhancement anticipated at the Preserve for FDOT mitigation credit include wetland enhancement (1,630 acres), upland habitat enhancement (1,046 acres), and upland habitat restoration (304 acres) (Figure 3). These improvements will include eradicating exotic and nuisance vegetative species within the wetlands and uplands, restoring upland native habitat on the improved pastures, and implementing land management activities to restore, enhance and maintain appropriate ecosystem composition, function and biological diversity on the Preserve.

SITE DESCRIPTION

Land Uses – Past & Future

Former land uses on the Preserve include cattle grazing, logging, and hunting. The general condition of the property is good. Though nearly 22% of native upland communities were converted to bahia pasture, most of the wetlands were only minimally altered and most of the adjacent uplands were left intact. Relative to surrounding agricultural lands, the Preserve is structurally diverse and compositionally complex. It is anticipated that revenue-generating uses such as cattle grazing and silviculture will not be continued on the Preserve. Tree removal will only be conducted for restoration purposes (hardwood reduction), and for conversion of planted pine stands back to natural species and densities. Hunting is not proposed on the property at this time, but the District may explore opportunities for low intensity special hunts to control feral hog populations. Passive recreational uses such as including hiking, horseback riding, bird watching, fishing, and picnicking will also be allowed on the Preserve. Other compatible uses may be evaluated and implemented during the development of a management plan for the property.

Vegetation Communities

Dominant natural communities present on the Conner Preserve include pine flatwoods, longleaf pine/turkey-oak sandhill, freshwater marsh, wet prairie, and cypress ponds (Figure 4). Bahia pasture was created mostly on the larger contiguous uplands within a matrix of natural communities. Bahia grass was inter-seeded in some of these communities, but the native vegetation was left intact. Wetland communities are in generally good condition, with only minor physical alterations observed. Each of these communities is described below.

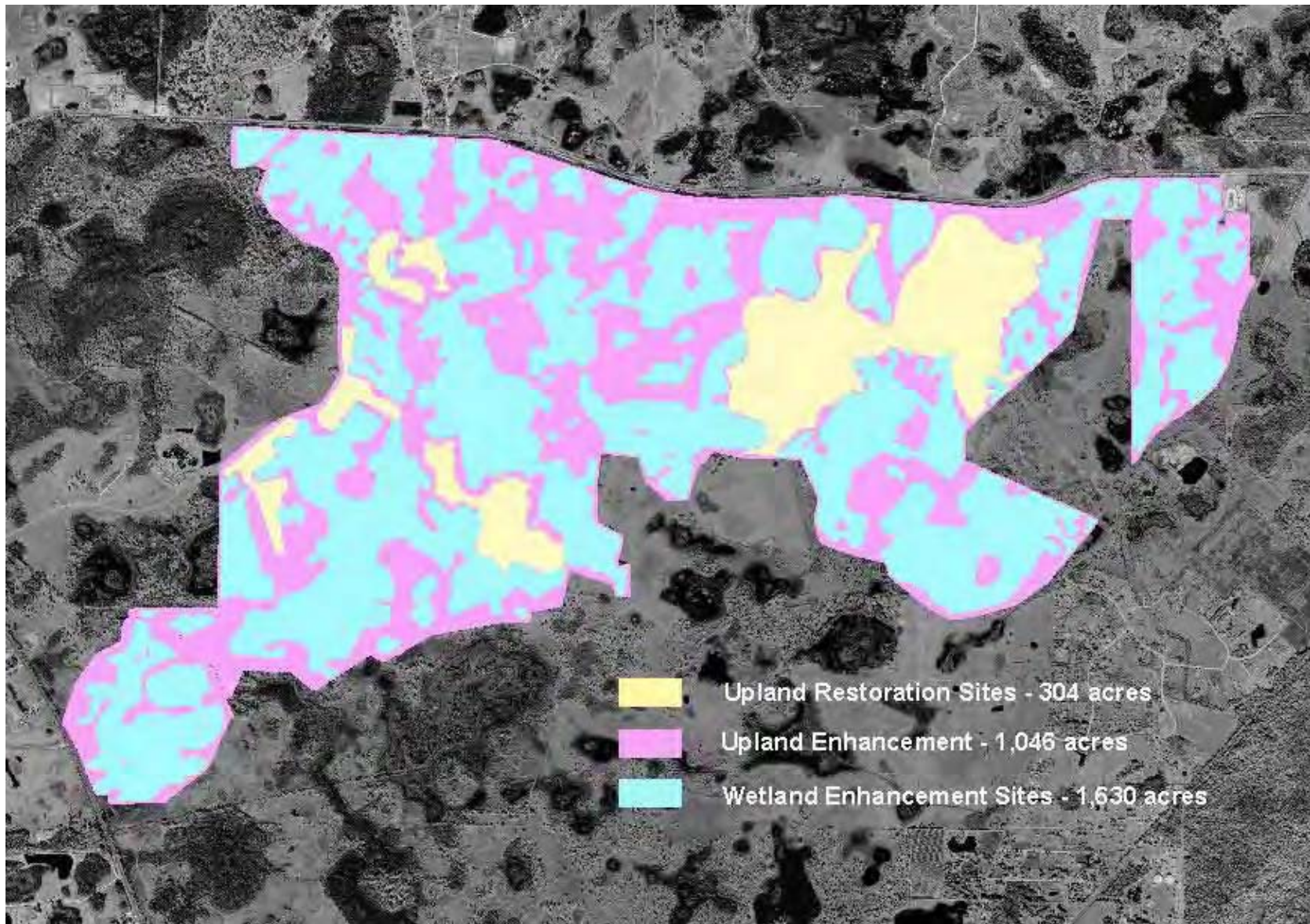
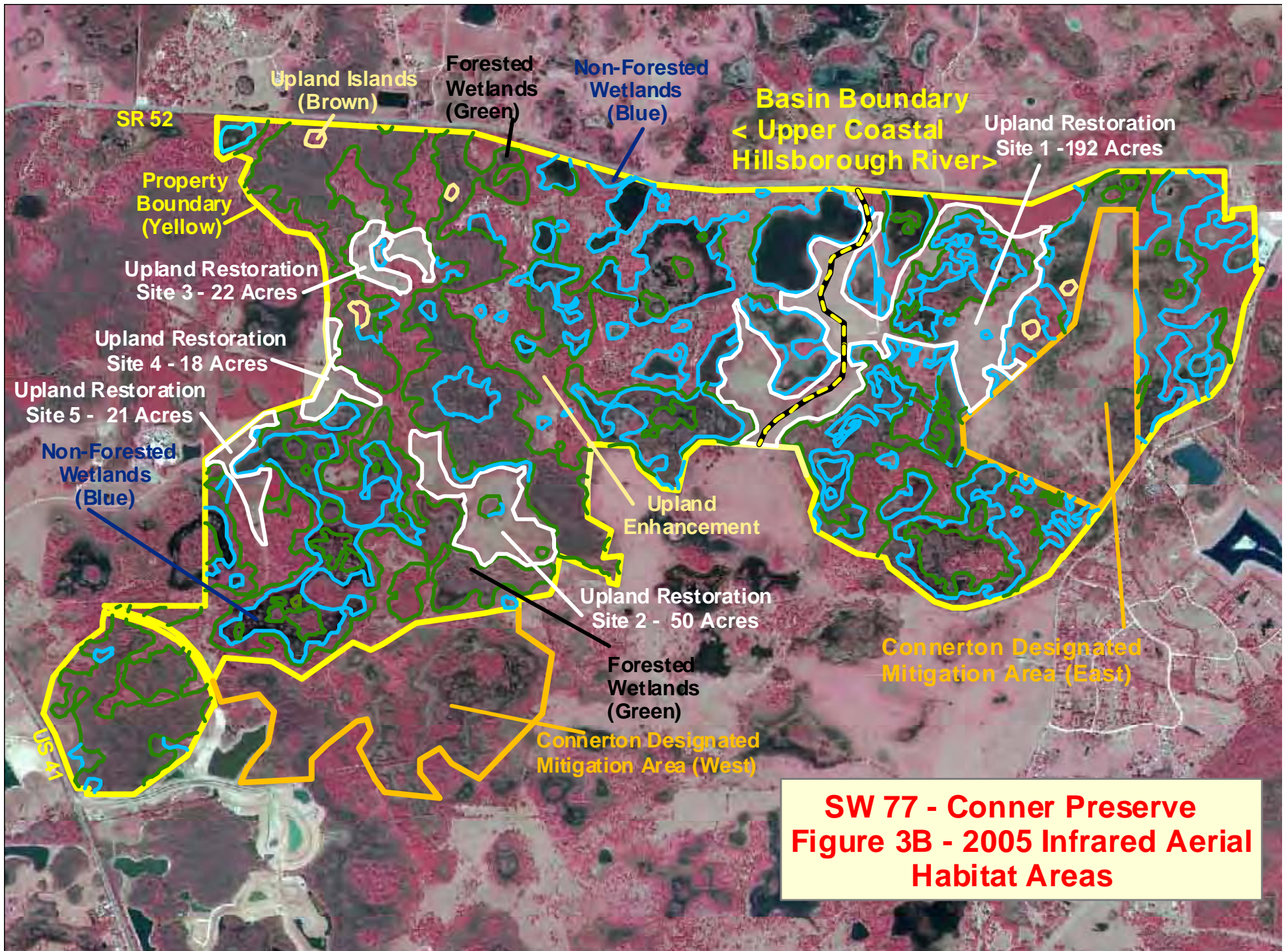


Figure 3. Conner Preserve. Upland restoration and enhancement sites.



Pine flatwoods – The intact pine flatwoods generally occur along the transitional zones between wetlands and bahia pasture. These systems are in fair condition, with uneven aged pine stands and a midstory of saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), staggerbush (*Lyonia fruticosa*), highbush blueberry (*Vaccinium corymbosum*), and St. John's wort (*Hypericum fasciculatum*). In the drier scrubby flatwoods, saw palmetto, sand live oak (*Quercus geminata*) and runner oak (*Quercus pumila*) are more prevalent than gallberry. The understory has been suppressed to varying degrees by fire exclusion. The re-introduction of regular growing season burns should reduce the woody shrubs and increase the abundance of herbaceous groundcover.

Longleaf-pine/turkey-oak sandhill – The longleaf pine/turkey-oak sandhills occur along the high ridges on the Preserve. Turkey oaks (*Quercus laevis*), sand live oaks (*Quercus geminata*) and laurel oaks (*Quercus hemisphaerica*) have obtained heights of 30-60 feet, and the characteristic groundcover has declined due to low fire intensities (or fire suppression) and shading from the hardwood understory. Although bahia grass was inter-seeded within the sandhill vegetation, a diversity of sandhill species are still present, including wiregrass (*Aristida beyrichiana*), beaked panicum (*Panicum anceps*), Florida paspalum (*Paspalum floridanum*), low panicums (*Dicanthelium* spp.), splitbeard bluestem (*Andropogon ternarius*), tread-softly (*Cnidoscolus stimulosus*), elephant's-foot (*Elephantopus elatus*), reticulate pawpaw (*Asimina reticulata*), narrow-leaf pawpaw (*Asimina augustifolia*) and bracken fern (*Pteridium aquilinum*). The re-introduction of growing season fire and mechanical treatments to reduce hardwoods should increase the herbaceous component of the sandhill communities. Bahia grass may be selectively treated with herbicide in these areas.

Freshwater marshes and sloughs – There are several large freshwater marshes interspersed among the uplands. These systems exhibit dominance by maidencane (*Panicum hemitomon*) in the larger marshes, and soft rush (*Juncus effusus*) in the smaller isolated wetlands. Cypress trees (*Taxodium distichum*) rim many of these systems. In wetlands that have burned recently, as evidenced by fireplow scars and dead cypress trees, the species diversity appears higher, with more open water habitat, and the presence of species such as pickerelweed (*Pontederia cordata*), arrowhead (*Sagittaria* sp.), pond flag (*Thalia geniculata*), and water lilies (*Nymphaea* sp.). The re-introduction of fire will benefit the marshes by removing detritus, recycling nutrients, and stimulating the re-growth of wetland plants. Many of the herbaceous wetlands are sloughs, providing flow ways between the cypress ponds for water during periods of prolonged rainfall. Chinese tallow tree (*Sapium sebiferum*), a Category I species on the Florida Exotic Pest Plant Council's list, is present in some of these wetlands (Florida EPPC 2004).

Wet prairies – Wet prairies occur in association with the marshes, either along the fringes of the wetlands or as extensions off of them, sometimes functioning as sloughs. Characteristic vegetation in the wet prairie ecosystems on the Preserve include maidencane (*Panicum hemitomon*), blue maidencane (*Amphicarpum muhlenbergia*), meadow beauty (*Rhexia mariana*), white-topped sedge (*Dichromena* sp.), spikerush (*Eleocharis* sp.), bog batchelor's button (*Polygala lutea*), yellow-eyed grass (*Xyris* spp.), sundews (*Drosera rotundifolia*), bog buttons (*Lachnocaulon* spp.) and St. John's-wort (*Hypericum fasciculatum*). There are no apparent physical alterations that contribute to any significant degradation of these systems. Feral hogs have been maintained at low population levels, probably due to hunting pressure, and no ditching or draining of wetlands was conducted. Prescribed fire applications at suitable intervals will prevent encroachment of woody shrubs and trees, and stimulate flowering and proliferation of herbaceous species.

Forested Wetlands – Cypress ponds are the most dominant forested wetlands on the property, closely associated with the marshes and wet prairies. Additionally, there are a few swamps

dominated by sweet bays (*Magnolia virginiana*) and a few characterized as mixed hardwood-cypress, supporting cypress (*Taxodium distichum*), red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), blackgum (*Nyssa sylvatica*), sweetbay (*Magnolia virginica*), and various oak species (*Quercus* spp.). All these wetlands are in relatively good shape, although the old-growth cypress was harvested and there are some indications of reduced hydroperiods and minor dredging and backfilling evident in a few systems.

Soils

Figure 5 illustrates the soils found on the Preserve. The dominant soils include Sellers mucky loamy fine sands and Samsula muck in the wetlands, and Basinger fine sands and Paola fine sands in the uplands (National Cooperative Soil Survey 1982). More detail is provided on soils specific to restoration sites in the *Restoration Plan* section.

Wildlife

The Florida Fish and Wildlife Conservation Commission designated undeveloped northwest Pasco County as potentially important habitat for wildlife associated with pineland, dry prairie, wetlands, and rangeland (Cox et al. 1994). This region is designated as a Strategic Habitat Conservation Area for rare wading birds, short-tailed hawk (*Buteo brachyurus*), and Florida sandhill crane (*Grus Canadensis pratensis*) (Cox et al. 1994). Wildlife species documented in the area, as reported by field notes of District staff and by the Connerton ERP permit application documents, are included in Appendix A (Biological Research Associates 2004).

The assemblage of fauna that characterizes healthy, intact pine flatwood, sandhill and xeric oak scrub communities has undoubtedly declined. Due to the loss of significant forest habitat, populations of red-cockaded woodpeckers (*Picoides borealis*), red-headed woodpeckers (*Melanerpes erythrocephalus*), Florida scrub-jay (*Aphelocoma coerulescens*), Sherman's fox squirrel (*Sciurus niger*), brown-headed nuthatch (*Sitta pusilla*) and other habitat-specific species appear to have been extirpated or have declined significantly throughout the region.

Three Florida scrub-jay groups were documented on the Conner Ranch (which includes the Preserve, proposed Connerton development, and the two Habitat Mitigation Areas) by Biological Research Associates (BRA) in 2001. One of the groups was within the area proposed for development (south of the Preserve), one was located in Habitat Mitigation Area I (directly east of the preserve lands), and one was located on the area now designated the Conner Preserve. A follow-up survey conducted by BRA in 2002 detected only the jays on the District's Conner Preserve property.

To ensure compliance with state and federal laws and regulations, Terrabrook Development Inc. set-aside approximately 515 acres in two sites for mitigation. Habitat Management Area I (236 acres) was set aside to mitigate for incidental take of two protected species - the Florida scrub-jay and the gopher tortoise. Habitat Management Area II (279 acres) is mitigation for wetland impacts associated with the development. Terrabrook will convey a conservation easement to the District for the two mitigation areas until mitigation requirements are met, and then will either sell or donate them to the District to be appended to the Conner Preserve. Within Habitat Management Area 1, the USFWS required Terrabrook to install 12,000 scrub oaks to compensate for habitat loss to scrub-jays due to proposed development. According to BRA personnel, planting has been completed, but survival rates for these plantings are unknown (Denton pers. comm.). Additionally, TerraBrook has indicated that two small parcels totaling 41-acres may be set aside for additional mitigation requirements.

Gopher tortoises (*Gopherus polyphemus*), a state-listed species of special concern, also occur on the tract, and their burrows may continue to provide habitat for several commensal species, including gopher frog (*Rana capito*), eastern coachwhip (*Masticophis flagellum flagellum*), eastern diamondback rattlesnake (*Crotalus adamanteus*), and eastern indigo snake (*Drymarchon corais couperi*).

The numerous wetlands on the Preserve continue to provide high quality habitat for a variety of wading birds. Species documented utilizing these wetlands include great egret (*Casmerodius albus*), great blue heron (*Ardea herodias*), wood stork (*Mycteria americana*), white ibis (*Eudocimus albus*), and sandhill crane (*Grus canadensis pratensis*). Other species expected to occur are little blue heron (*Egretta caerulea*), green-backed heron (*Butorides virescens*), snowy egret (*Egretta thula*), glossy ibis (*Plegadis falcinellus*), and least bittern (*Ixobrychus exilis*). Many of the herbaceous wetlands provide both suitable nesting and foraging habitat for Florida sandhill cranes. The *Florida Atlas of Breeding Sites for Herons and their Allies: 1986-1989 Update* (FGFWFC 1991) documents 9 rookeries located within 10 miles of the property. Restoration and enhancement activities will substantially improve habitat quality for the suite of wildlife species that occur on the Preserve or on adjacent land proposed for development.

Exotic Species

Control of invasive exotic vegetation is currently, and will continue to be, an ongoing maintenance activity on the Preserve. Exotic plant species observed on the property include skunk vine (*Paderia foetida*), cogongrass (*Imperata cylindrica*), Chinese tallow (*Sapium sebiferum*), camphor tree (*Cinnamomum camphora*) and tropical soda apple (*Solanum viarum*). The most problematic plant at this time is Chinese tallow, which is well-established in the marshes and forested swamps, and occurs as landscape specimens at private residences adjoining the Preserve. A monoculture of bahia grass (*Paspalum notatum*) has replaced the groundcover vegetation typically associated with flatwoods and sandhill. As a component of the upland restoration activities, aggressive management actions will be undertaken to eradicate bahia grass and to maintain it at levels below 10% or less of the total cover. Several other exotic plants are found on the property, including smutgrass (*Sporobolus indicus*), torpedo grass (*Panicum repens*), and natalgrass (*Rhynchrlytrum repens*), and treatment of these species will vary depending on their impact to natural systems and restoration efforts.

Exotic and non-endemic wildlife also occur on the Preserve, but control practices for most of these species have not yet been adopted by land managers due to scarcity of information about their impacts and effective eradication techniques, logistical complexities, and associated costs. Feral hogs and armadillos are present on the property, but physical damage due to these species appear to be minimal at this time, possibly due to hunting pressure imposed on them by the previous landowner. District Land Management staff routinely assesses damage due to feral hogs, and dispatches trappers to capture and remove hogs when damage becomes unacceptable. Coyotes (*Canis latrans*) are known to occur throughout the area; in fact, in some regions of Pasco County this canine has become a nuisance for both cattle ranchers and pet owners. Both the cattle egret (*Bubulcus ibis*) and the greenhouse frog (*Eleutherodactylus planirostris*) have been confirmed on the property (BRA 2004). Other non-endemic wildlife species that potentially occur on the property include the following: marine toad (*Bufo marinus*), Cuban treefrog (*Osteopilus septentrionalis*), and Cuban brown anole (*Anolis segei segei*).

Fire Management

The restoration and long-term maintenance of historic fire patterns – both seasonality and fire return intervals - will be an integral component of the restoration effort on the Conner Preserve.

Prescribed fire is one of the primary tools utilized by public land managers in Florida to maintain the health and character of natural systems. Fire, a naturally occurring process in the Florida landscape, maintains the unique structure and composition of vegetation communities; improves wildlife habitat; induces flowering, seeding, and germination of native plants; contributes to the recovery of threatened and endangered species; and prevents the accumulation of heavy fuel loads and subsequent catastrophic wildfires (US Forest Service 1978). Historically, range managers and forestry personnel have burned during the dormant season (winter) in order to safely and economically generate tender forage for cattle and to reduce competition for pine trees, respectively. However, it is in the spring and summer when fires naturally occurred, and duplication of seasonal fire patterns is now the preferred management strategy by most agencies. Although growing season fire will be utilized whenever feasible to promote maintenance and recovery of natural communities, dormant season burns may also be conducted to achieve management objectives.

There are approximately 460 acres of pine flatwoods and scrubby pine flatwoods occurring on the Conner Preserve. These communities are characterized by a slash pine/longleaf pine canopy exceeding 1 tree per acre, and a shrub component consisting of saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), and wiregrass (*Aristida beyrichiana*) for the former, and scrubby oaks for the latter. Flatwoods burn frequently, with fire return intervals of 3 – 7 years (FNAI 1997; Myers 1986). Pines are fire-adapted species whose seeds require fire disturbance to germinate, and are characterized by long needles that protect the buds and thick insulating bark that protects the cambium tissue (Robbins and Myers 1992). Saw palmetto, which is important as a source of food and cover for wildlife, has thick scaly rhizomes that protect the meristemic tissues from fire and re-sprouts vigorously almost immediately after fire (Robbins and Myers 1992). Wiregrass, which is one of the most important fire fuels in the flatwoods community (along with muhley grass (*Muhlenbergia capillaris*) and pinewoods dropseed (*Sporobulus junceus*)), must experience growing season fire in order to flower and produce viable seed (Robbins and Myers 1992; Bissett 1998; FNAI 1998).

There are approximately 110 acres of historic longleaf pine/turkey oak sandhill on the Conner Preserve, and most of this acreage has suffered from either clearing or exclusion of growing season fire. Sandhill fires occur frequently as low intensity ground fires, with fire return intervals ranging from 1 – 7 years (FNAI 1997; Myers 1986). This community type can best be described as a grassland dominated by species such as wiregrass (*Aristida beyrichiana*), pinewoods dropseed (*Sporobulus junceus*), native crabgrass (*Digitaria* spp.), little bluestem (*Schizachyrium scoparium*) and broomsedge (*Andropogon* spp.), with a sparse canopy of longleaf pine (Myers 1986). As previously discussed, wiregrass requires growing season burns in order to produce viable seeds. Longleaf pine (*Pinus palustris*) is also fire-dependent – it remains in a grass stage, with its terminal bud protected by a thick sheath of longleaf needles up to 18 inches long - until exposed to fire (Robbins and Myers 1992). Once exposed to fire, the pine tree rapidly gains height, sometimes several feet per year, to protect it from the next fire event (Robbins and Myers 1992).

There are approximately 960 acres of depression marsh and wet prairie on the Preserve; these wetland systems provide foraging habitat for wading birds and breeding habitat for amphibians. Average fire return intervals for marshes range from 2-25 years, with fire maintaining the emergent vegetation which characterizes these systems, such as pickerelweed (*Pontederia cordata*), arrowhead (*Sagittaria* sp.), fire flag (*Thalia geniculata*), and sawgrass (*Cladium jamaicense*) (FNAI 1997; Myers and Ewell 1990). Spring burns, conducted when water levels are below the ground surface or have receded significantly into the interior of the wetland, are usually required to reduce hardwood encroachment and burn out organic deposits, although sawgrass is susceptible to drought season burns and also rapid flooding after a burn. Colonization of the marshes and prairies

by trees and shrubs, such as willows (*Salix* sp.), wax myrtle (*Myrica cerifera*), and red maple (*Acer rubrum*), is prevented by frequent fire application (Robbins and Myers 1992).

Florida's vegetation communities have evolved with fire, and similarly, many of the wildlife species that co-evolved in these landscapes require fire for their continued existence and maintenance of healthy populations. The Conner Preserve provides habitat for a suite of rare and/or declining species that are dependent on regular disturbance by fire. These species include gopher tortoise, Florida gopher frog, several woodpecker species, bobwhite quail, southeastern American kestrel, Florida sandhill crane, Florida scrub-jay, and Sherman's fox squirrel. Fire improves forage quality of grasses and herbs, increasing the nutrient value of these food sources, promotes the production of mast and berries, and cleans out thick dense undergrowth to facilitate wildlife movement (Robbins and Myers 1992). It facilitates the seeding and germination of southern yellow pine species, and controls forest diseases (Robbins and Myers 1992). Fire also generates snags and stump holes, therefore providing structural habitat for a variety of species. Over 25 bird species that potentially inhabit the Preserve utilize cavities created in dead trees. So do mammals such as the eastern flying squirrel and weasels. Once the tree decays and falls, the deadwood on the ground is utilized as cover by various snakes, lizards, treefrogs, and mammals. Burned out stump holes are important components of eastern indigo snake habitat. Wading birds benefit from early growing season fire, which reduces encroachment of woody species into the marsh, maintains healthy ecotones between the uplands and wetlands, and recycles nutrients, increasing productivity of the wetland ecosystem (Robbins and Myers 1992)

All natural communities will be managed primarily with growing season fire, as feasible. The uplands targeted to be restored will be integrated into the burn cycles of the surrounding landscape when native species are dominant and bahia grass cover is minimal.

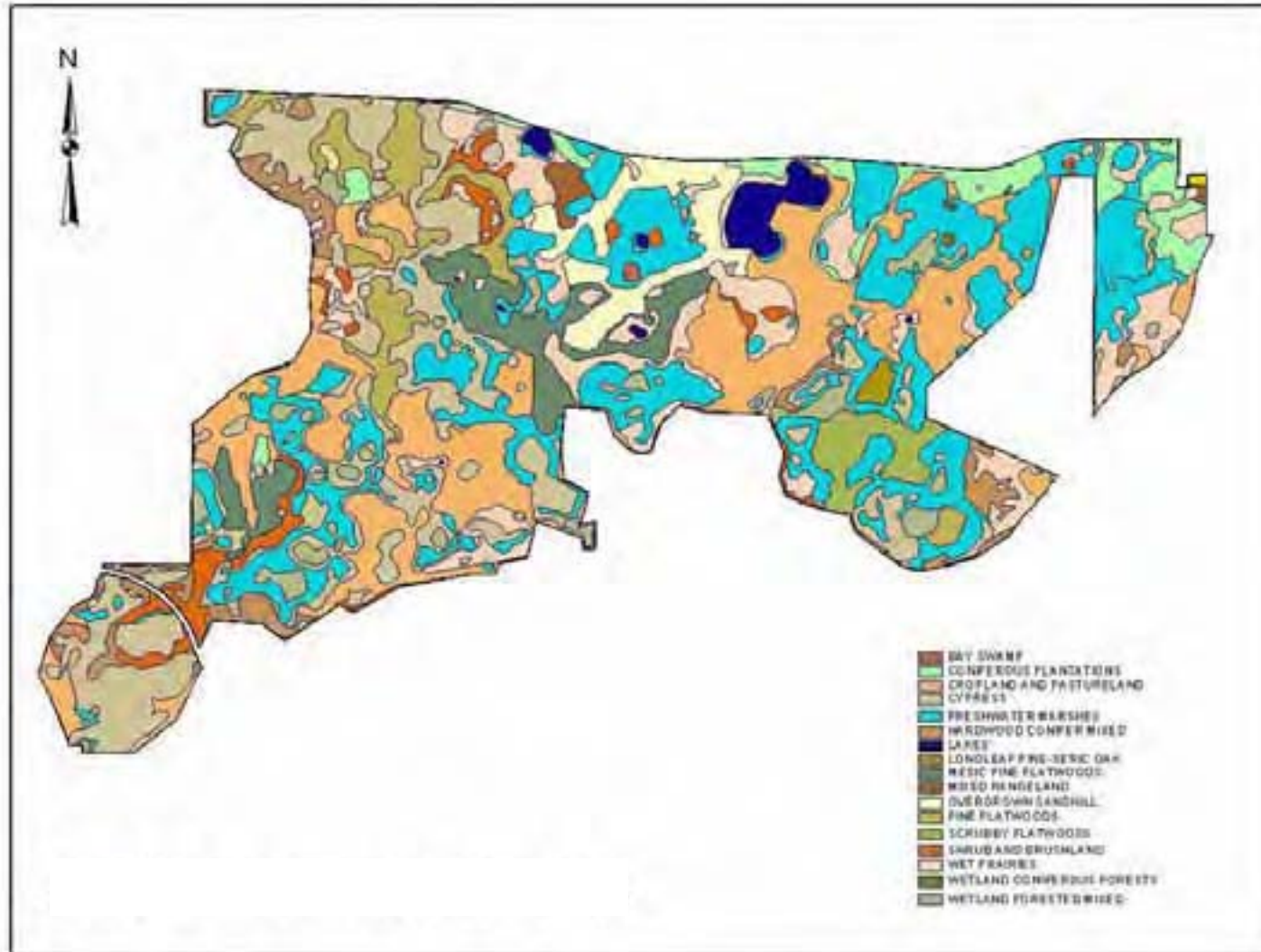


Figure 4. Conner Preserve Land Cover Map.

Figure 4 (Cont.). Conner Preserve Land Cover Classification Acreage By ERP Watershed Basin			
DRNBASIN	FLUCCSCODE	FLUCSDISC	Sum_Acres
HILLSBOROUGH RIVER BASIN	1800	RECREATIONAL	1.55
HILLSBOROUGH RIVER BASIN	2100	CROPLAND AND PASTURELAND	149.02
HILLSBOROUGH RIVER BASIN	2600	OTHER OPEN LANDS <RURAL>	1.70
HILLSBOROUGH RIVER BASIN	3200	SHRUB AND BRUSHLAND	4.27
HILLSBOROUGH RIVER BASIN	4110	PINE FLATWOODS	9.33
HILLSBOROUGH RIVER BASIN	4112	SCRUBBY FLATWOODS	58.65
HILLSBOROUGH RIVER BASIN	4120	LONGLEAF PINE-XERIC OAK	9.96
HILLSBOROUGH RIVER BASIN	4340	HARDWOOD CONIFER MIXED	31.71
HILLSBOROUGH RIVER BASIN	4400	TREE PLANTATIONS	30.53
HILLSBOROUGH RIVER BASIN	4410	CONIFEROUS PLANTATIONS	39.07
HILLSBOROUGH RIVER BASIN	4410	CONIFEROUS PLANTATIONS	14.23
HILLSBOROUGH RIVER BASIN	5200	LAKES	0.25
HILLSBOROUGH RIVER BASIN	6200	WETLAND CONIFEROUS FORESTS	2.05
HILLSBOROUGH RIVER BASIN	6210	CYPRESS	57.13
HILLSBOROUGH RIVER BASIN	6300	WETLAND FORESTED MIXED	38.33
HILLSBOROUGH RIVER BASIN	6410	FRESHWATER MARSHES	330.38
HILLSBOROUGH RIVER BASIN	6430	WET PRAIRIES	98.27
		TOTAL	876.43
UPPER COASTAL AREAS	1100	RESIDENTIAL LOW DENSITY < 2 DWELLING UNITS	0.05
UPPER COASTAL AREAS	2100	CROPLAND AND PASTURELAND	403.46
UPPER COASTAL AREAS	2300	FEEDING OPERATIONS	2.84
UPPER COASTAL AREAS	3200	SHRUB AND BRUSHLAND	80.55
UPPER COASTAL AREAS	3300	MIXED RANGELAND	14.16
UPPER COASTAL AREAS	4110	PINE FLATWOODS	144.28
UPPER COASTAL AREAS	4111	MESIC PINE FLATWOODS	143.78
UPPER COASTAL AREAS	4121	OVERGROWN SANDHILL	110.57
UPPER COASTAL AREAS	4340	HARDWOOD CONIFER MIXED	71.89
UPPER COASTAL AREAS	4400	TREE PLANTATIONS	21.42
UPPER COASTAL AREAS	4410	CONIFEROUS PLANTATIONS	3.20
UPPER COASTAL AREAS	4410	CONIFEROUS PLANTATIONS	6.97
UPPER COASTAL AREAS	5200	LAKES	47.82
UPPER COASTAL AREAS	5300	RESERVOIRS	0.70
UPPER COASTAL AREAS	6110	BAY SWAMP	2.18
UPPER COASTAL AREAS	6210	CYPRESS	462.29
UPPER COASTAL AREAS	6300	WETLAND FORESTED MIXED	54.32
UPPER COASTAL AREAS	6410	FRESHWATER MARSHES	341.74
UPPER COASTAL AREAS	6430	WET PRAIRIES	190.58
UPPER COASTAL AREAS	6440	EMERGENT AQUATIC VEGETATION	1.07
		TOTAL	2,103.89

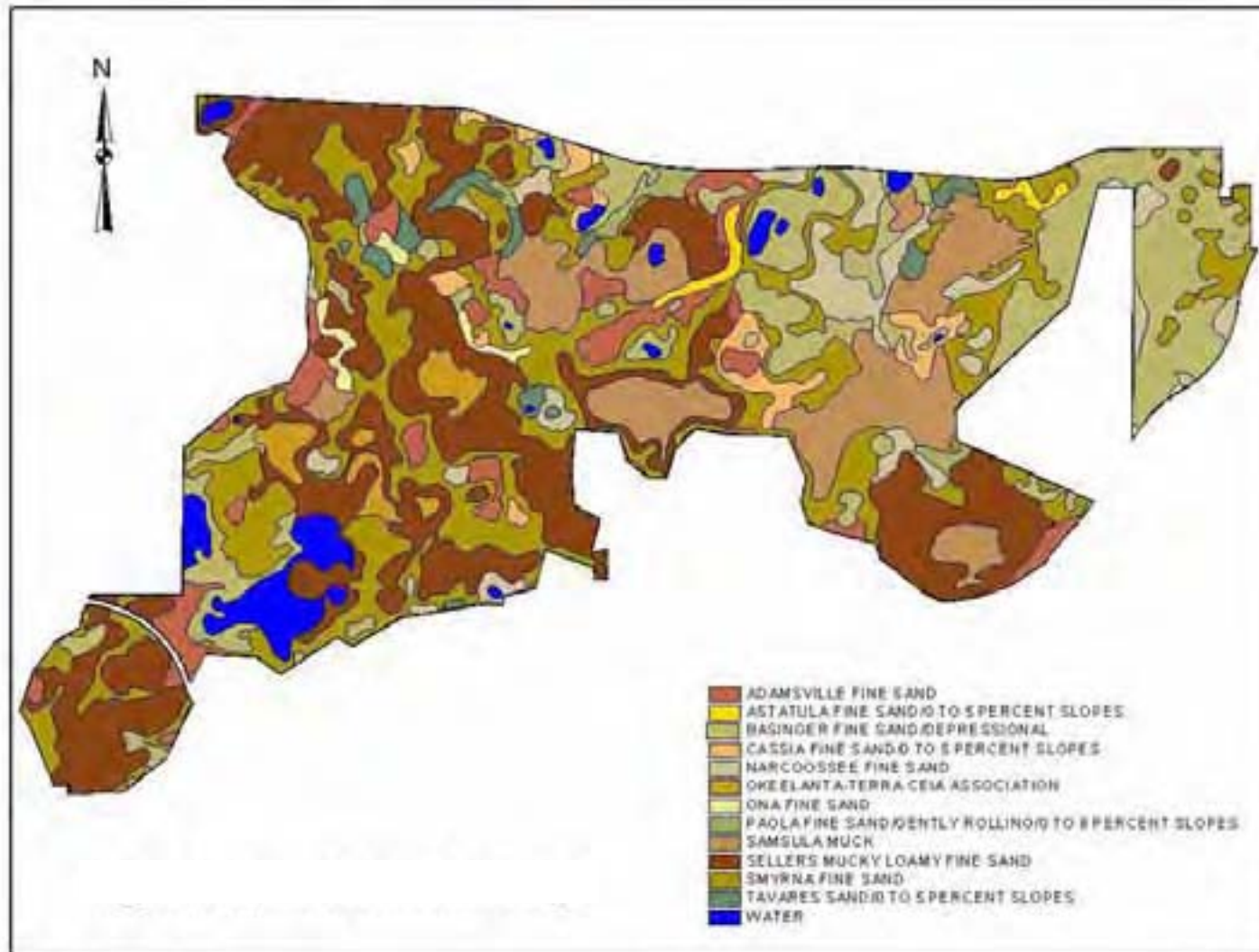


Figure 5. Conner Preserve Soils Map.

RESTORATION PLAN

Restoration Methods

Due to the dominance of bahia grass on the restoration sites, the only feasible method to restore the rich diversity and structural complexity characteristic of sandhill and flatwoods communities is to eradicate the bahia grass using a combination of herbicide treatments, prescribed fire application, and disking, and then to re-vegetate using a combination of seeding and planting with containerized material. Restoration of the groundcover will be completed and deemed successful prior to introducing other components of the community, such as longleaf pine (*Pinus palustris*), oaks (*Quercus* spp.), tarflower (*Beferia racemosa*), rusty lyonia (*Lyonia ferruginea*), staggerbush (*Lyonia fruiticosa*), and ericaceous shrubs (Family Ericicacae - blueberries, huckleberries). This tactic will allow maintenance activities to proceed without any undue constraints. Appendix B includes a detailed discussion of the overall restoration strategy.

Restoration Site Prescriptions

Five altered upland sites totaling 304-acres are being proposed for restoration; all are former pine flatwoods or sandhill communities that were converted to bahia pasture. Site characterizations and implementation plans are outlined below. Appendix C includes a more detailed discussion of upland restoration methodologies that will be utilized on the sites.

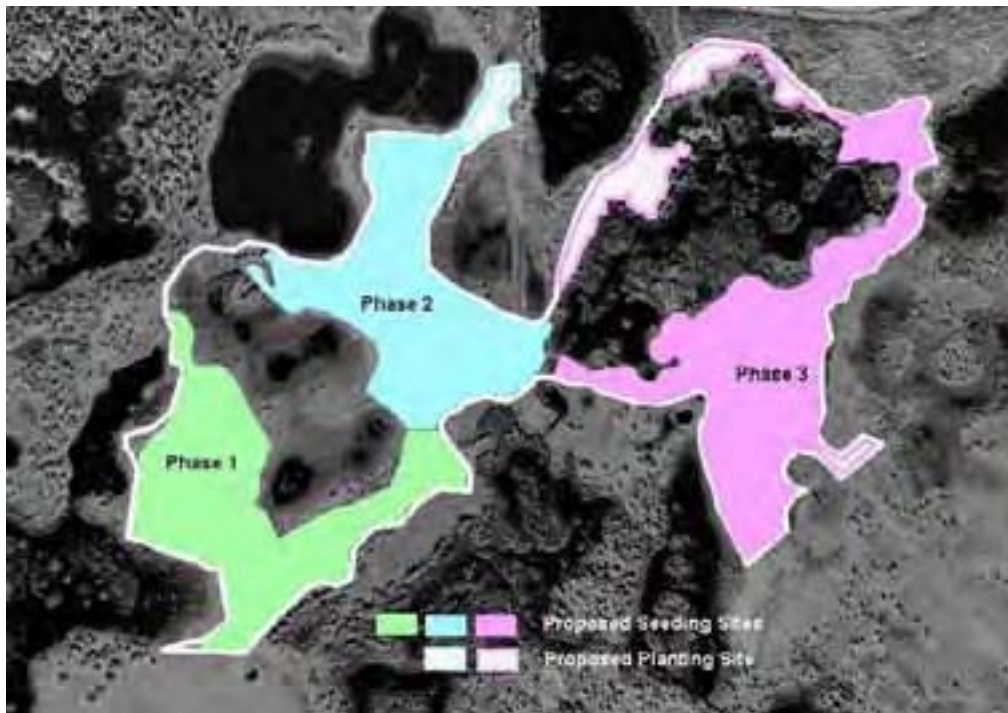


Figure 6. Conner Preserve Upland Restoration Site 1.

Site 1

Consists of 192-acres centrally located on the tract in sections 7, 8, 17, & 18 Township 25 Range 19 (Figure 6). The native upland vegetation has been cleared and replaced with bahia grass, but linear strips of pine flatwoods are still present around the perimeters of the wetlands.

Several soil types are represented on this site. Remnant sandhill vegetation still occurs on the high ridges, characterized by Tarvares, Narcoosee, and Paola fine sands (National

Cooperative Soil Survey 1982). The former flatwoods, which have been entirely converted to improved pasture, occurred in those areas mapped as Cassia and Adamsville soils (National Cooperative Soil Survey 1982). The large forested wetland in the eastern portion of the site is dominated by Samsula muck (National Cooperative Soil Survey 1982). Site 1 will be restored to scrubby flatwoods and sandhill in three phases in 2006-2008 via direct seeding methods and plant installation.

Site preparation will start in February 2005. The entire site (all three phases) will be burned in late winter to early spring 2005, after it has been hit by a hard frost. Following fire application, several herbicide applications will be conducted as necessary to remove exotic vegetation from the Phase I unit. Due to the interspersed wetlands within and adjacent to the restoration unit, the herbicide AquaStar will be used. AquaStar is equivalent to Rodeo in labeling (can be used in aquatic environments) and similar in pounds of active ingredient. If fuels are continuous enough to facilitate the spread of fire, another prescribed burn may be conducted. Finally, if deemed necessary, the Phase I unit will be disked and rolled in late summer, and a final herbicide application will be conducted in September or October. The 57-acre Phase I unit will be seeded in November/December 2005. Seeding of Phase 2 (60-acres) and Phase 3 (54-acres) will be conducted in 2006 and 2007 respectively, following a similar sequence of site preparation events. However, herbicide application may be extended 1-2 years in advance of seeding on Phase II and Phase III if deemed necessary to effectively eradicate bahia grass. An aerial application of Plateau, applied at a rate of 12 ounces per acre, will be conducted 4-5 months after seeding, in April or May, to eradicate bahia grass seedlings. A total of 15-acres will be planted during Phase 2 and Phase 3. Installation of longleaf pine will be conducted on all sites after success criteria are achieved.



Figure 7. Conner Preserve Upland Restoration Site 2.

Site 2

Consists of 50-acres located in the south-central region of the tract almost exclusively in Section 13 Township 25 Range 18. The dominant soils are Adamsville and Smyrna fine sands, with smaller pockets of Sellers mucky loamy fine sand, Cassia fine sands, and Narcossee fine sands (National Cooperative Soil Survey 1982).

Site 2 will be restored in 2008 using a combination of direct seeding and plant installation (Figure 7). Site preparation will begin 1-2 years in advance of seeding with 2-3 aerial herbicide applications per year to effectively reduce bahia grass, accompanied by one or two disking treatments. If introduced grasses (bahia, Bermuda, cogon, natal) are sufficiently eradicated, the site may be allowed to lie fallow the summer prior to seeding to provide a firmly packed seedbed, facilitate full recharge of soil moisture profile, enhance nutrient availability, and to reduce recruitment of undesirable weeds. The site will be burned in February 2008, followed by several aerial applications of either Roundup or AquaStar herbicide, and another burn, if feasible. Disking and rolling requirements will be based on the results of the 2006 and 2007 seeding events and site conditions. In November 2008, seeding will be conducted on the entire 50-acres, followed by installation of primarily wiregrass on approximately 8-acres around the perimeter and westernmost portion of the site. An aerial application of Plateau may be applied at a rate of 12 ounces per acre 4-5 months after seeding to reduce survival of bahia grass seedlings. Installation of longleaf pine will be conducted on the site after success criteria are achieved.

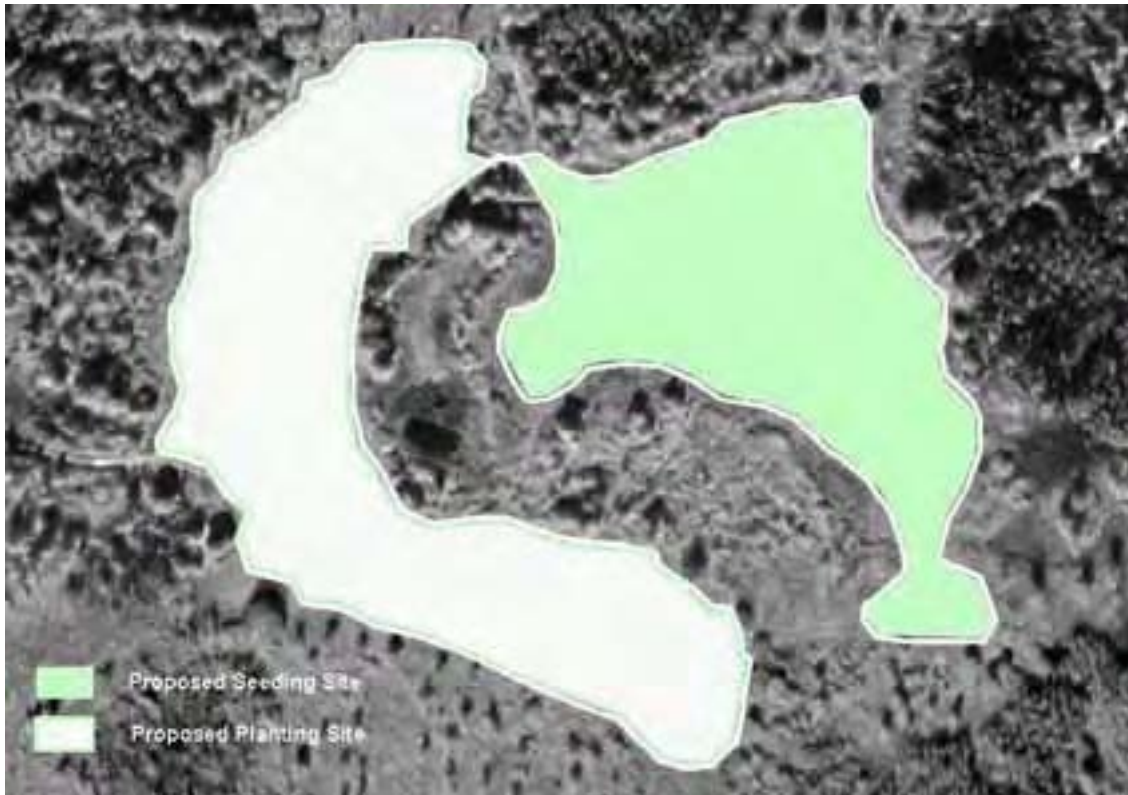


Figure 8. Conner Preserve Upland Restoration Site 3.

Site 3

This site is 22-acres in size and located in the northwest portion of the tract at the junction of Sections 11, 12, 13, & 14 in Township 25 Range 18. The dry upland ridges are characterized by Tavares and Adamsville fine sand (National Cooperative Soil Survey 1982). These will be targeted for restoration of sandhill vegetation. The lower elevations, which will be re-vegetated to pine flatwoods groundcover, are comprised primarily of Smyrna fine sands.

Site 3 will be restored in 2006 using a combination of direct seeding and plant installation (Figure 8). Site preparation for Site 3 will start in February 2005, when the site will be burned. Herbicide applications will then be conducted throughout 2005. In 2006, the site will continue to be treated with herbicide to remove nuisance and exotic vegetation, and burned periodically as fuel loads allow. Disking will be conducted in mid- to late-summer, followed by one more herbicide treatments and potentially shallow disturbance with a chain drag immediately before seeding. Site preparation on Sites 3, 4, and 5 may be more intensive than on Sites 1 and 2 because the former sites will be treated with a Grasslander seeder instead of the modified sod sprigger. In November 2006, seed will be distributed on the eastern lobe of the site, and in the interior of the western lobe, and then plants will be installed on 8-acres in the western lobe in July or August 2007. Installation of longleaf pine will be conducted after success criteria are achieved.



Figure 9. Conner Preserve Upland Restoration Site 4.

Site 4

This site is 18-acres located centrally along the west boundary of the tract in Section 14 Township 25 Range 18. The higher elevations are comprised of Adamsville soils and the lower

elevations, which once supported pine flatwoods, are comprised of Ona fine sands (National Cooperative Soil Survey 1982).

Site 4 will be restored in 2007 using a combination of direct seeding and plant installation (Figure 9). The site will be burned in February/March 2006, and herbicide treatments will commence through 2006 and 2007, with burns conducted as necessary to reduce biomass. The site will be seeded in November 2007, and plants will be installed on 6-acres in the narrow, unseeded portions of the site in July/August 2008. Aerial applications of Plateau may be applied at a rate of 12 ounces per acre to reduce competition and establishment of bahia grass. A long period of herbicide treatment prior to seeding the site is anticipated to reduce the post-construction herbicide needs on the site. Installation of longleaf pine will be conducted on the site after success criteria are achieved.



Figure 10. Conner Preserve Upland Restoration Site 5.

Site 5

Site 5 is comprised of 21-acres, is located directly south of Site 4 in Section 14 Township 25 Range 18. Smyrna and Adamsville are the primary soils on this site (National Cooperative Soil Survey 1982).

Site 5 will be restored in 2009 using a combination of direct seeding and plant installation (Figure 10). The site will be burned in February 2008. Herbicide treatments will then be conducted throughout 2008 and early 2009, with fire applied as necessary to reduce above-ground biomass. Seeding will be conducted in November/December 2009, followed by plant

installation on 6 acres in July/August 2009. A long period of herbicide treatment prior to seeding the site is anticipated to reduce the post-construction herbicide needs on the site. Installation of longleaf pine will be conducted after success criteria are achieved.

Post-Restoration Maintenance

Plateau, a grass-specific American Cyanamid BASF product that contains the active ingredient Imazapic, will be utilized at the rate of 10-12 ounces per acre for bahia maintenance treatments on all five sites. This product was developed for use on tall-grass prairie restoration sites and it selectively controls for weedy species, leaving most of the native species undamaged (Kurtz 2001). Several surfactants may be utilized with this product including Sunwest, Silnet, Induce, and Dynamic. Both aerial applications with a helicopter or terrestrial applications with a Terrigator (liquid fertilizer spreader), backpack sprayers and ATV's may be utilized, depending on site conditions, selected herbicide, time of year, and treatment objectives. Plateau will be applied only in Spring or Fall, but not during the summer months. Spot applications of glyphosate herbicides such as Roundup or AquaStar may be used to ensure that label rates (12 ounces per acre per year) for Plateau are not surpassed if additional treatments are still required.

Mowing may also be used to control some weedy species that may be shielding the bahia grass from the herbicide or preventing establishment of seeded species. Since several of the undesirable exotic species seed over a wide temporal period, manual removal of individual plants and seed heads may be required. Optimally mowing should be conducted before seeds from targeted species are formed.

Seed Donor Site – Site Preparation and Seed Collection

Six seed donor sites are proposed to be utilized for seed collection. Five of the proposed seed donor sites are located on the Starkey Wilderness Park in Pasco County (Figure 11). Approximately 1,200 acres of pine flatwoods are suitable and available for harvesting on this property. Starkey is about 10 miles west of the Conner Preserve, and travel distance between the two properties is approximately 18 miles. The pine flatwoods that characterize the donor sites have been managed with growing season fire at 3-4 year intervals for approximately 30 years. The soils characterizing these flatwoods include Pomona, Myakka, Immokalee, Smyrna, and Candler fine sands (National Cooperative Soil Survey 1982). Predominant species on these seed donor sites include wiregrass (*Aristida beyrichiana*), bottlebrush three-awn (*Aristida spiciformis*), toothachegrass (*Ctenium aromaticum*), panic grasses (*Dicanthelium* spp.), splitbeard bluestem (*Andropogon ternarius*), broomsedge (*Andropogon virginicus*), roserush (*Lygodesmia aphylla*), bog button (*Lachnocaulon anceps*), narrow-leaved sabatia (*Sabatia brevifolia*), blackroot (*Pterocaulon pycnostachyum*), false hoarhound (*Eupatorium rotundifolium*), saw palmetto (*Serenoa minor*), gallberry (*Ilex glabra*), sand live oak (*Quercus geminata*), and longleaf pine (*Pinus palustris*).



Figure 11. Starkey Wilderness Park. Five seed donor sites are available.



JB Starkey Wilderness Park seed donor site.



Figure 12. Green Swamp West seed donor site.

The sixth donor site is located in the Green Swamp West Wildlife Management Area, also in Pasco County (Figure 12). There are approximately 900 – 1,100 acres available for harvesting on this property, although the majority is sandhill vegetation. Green Swamp West is located approximately 22 miles to the east of the Conner Preserve. The travel distance between this seed donor site and the Conner Preserve is about 35 miles. The dominant soils include Tavares, Millhopper and Astatula fine sands (National Cooperative Soil Survey 1982).



Green Swamp West seed donor site.

All of the seed donor sites will be matched to the appropriate restoration site based on vegetation, soil type and elevation characteristics. See Appendix C for a detailed discussion of proposed donor site preparation and harvesting techniques.

Proposed Upland Enhancement

Upland enhancement is proposed on 1,046 acres of upland communities that were not converted to pasture. The primary targets of enhancement will be pine flatwoods and sandhill. Generally, enhancement actions will consist of re-introduction of natural fire and disturbance regimes, and long-term control and/or eradication of invasive exotic species.

Sandhill – Approximately 120 acres of sandhill will be enhanced. The longleaf pine/turkey-oak ecosystem located primarily on one centrally located ridge on the property has suffered from fire suppression, introduction of exotics, and logging. Longleaf pines occur at reduced densities and turkey oaks have formed thickets and hammocks. The encroachment of bahia grass and hardwoods have resulted in a greatly diminished groundcover. Enhancement of the sandhill community will consist of longleaf pine planting, mechanical reduction (hydroaxing) of turkey oak thickets, the manual removal of large mature turkey oaks, and prescribed fire application. Sandhill sites will be burned on a 3 to 5 year rotation. In addition, some sites will be hydro-axed and then burned. There will also be hand removal of some native trees that have become problematic due to lack of fire or reduced fire intensity, such as persimmon, laurel oak, and wax myrtle. Long-term fire management will be perpetuated utilizing funds from the Water Management Lands Trust Fund.

Flatwoods – Several hundred acres of flatwoods and scrubby flatwoods will be enhanced by re-introducing natural fire cycles, including fire seasonality and fire return intervals, to the extent practicable. A combination of fire exclusion and long-term winter burning has facilitated the development of a hardwood canopy, resulting in the suppression of the rich and diverse understory that characterizes these two communities in their natural state. Additionally, the introduction of bahia grass has reduced the structural and compositional diversity of the project site, and also greatly reduced fire intensities. Upland enhancement of flatwoods will include the application of at least 2 growing season fire cycles at 3-5 year intervals, treatment of any Category 1 and/or Category 2 exotics, and potentially mechanical work or manual labor to reduce hardwoods. Long-term fire management will be perpetuated utilizing funds from the Water Management Lands Trust Fund.

Proposed Wetland Enhancement

Wetland enhancement is proposed to include the 1,630 acres of wetlands existing within the Conner Preserve. Generally, enhancement actions will consist of control of invasive exotic species in the wetlands and enhancement and restoration of the upland buffers surrounding the wetlands. The species targeted initially for eradication is Chinese tallow. It is typically treated with Garlon – foliar and basal treatments of Garlon 4 are effective on saplings and seedlings, and stem injections of Garlon 3A are often used on large trees.

Monitoring

Permanent photo plot locations have been established on all restoration and enhancement sites, and a map showing the location of all photo plots and the baseline photographs are provided in Appendix D. Photos will be re-taken annually, and filed with monitoring data. Quantitative monitoring will be conducted on all upland restoration sites in accordance with standard procedures for such. A simple random stratified sampling design will be utilized identify and measure cover of all species encountered within randomly established quadrats. The site will be stratified by elevation, with higher elevations assigned to sandhill community and lower elevations to the flatwoods community. Cover for each species will be estimated utilizing 2m x 2m quadrats; the number of sampling quadrats required will be determined using Stein's two-stage sampling. Coordinates for quadrat placement will be selected from a random

number generation table generated in Microsoft Excel Analysis Tool Pak or a similar software package using the uniform distribution format. Using ArcMap 8.3, a digital infrared photograph of the site will be divided into 1 meter interval grids, the set of random numbers inserted into the grid system, and then a shape file will be created and downloaded as a background file into a Trimble GeoExplorer 3 GPS unit with real time differential correction and submeter accuracy. Using the navigate feature, each quadrat will be located and permanently marked with 1 6-foot rebar at the southeast corner, and 3 6-inch survey spikes on the subsequent corners to facilitate permanent long-term monitoring. Both the x- and y-axis will be offset 3-meters inward from the perimeter fire lanes in order to minimize edge effects that may result in sampling error (for example, deposition of nuisance and exotic seeds by vehicles treads; physical disturbance of soils adjacent to road). A species inventory on the site, with vegetation nomenclature following Wunderlin (1982), will be completed; each species will then be assigned to one of three groups – desirable native, nuisance native, and exotic. Additionally, a coefficient of conservatism between 1-10 will be assigned to each species (0= pioneer or early successional weedy species and 10=difficult species to establish that is rare and typically only found in well-managed, relatively undisturbed system) to determine site quality relative to selected reference sites (Appendix E). A mean coefficient will be determined for the site using the following equation:

Mean C = sum of coefficients of conservatism/number of species

and then a Floristic Quality Index will be determined using the following equation:

Floristic Quality Index = Mean C x square root of number of species

Data collection and analysis will be conducted to obtain the following: complete species list, absolute and relative cover of each species, classification of each species as to native, nuisance or exotic status; and absolute and relative percent cover for each status classification. The analysis will include the combined cover central tendency (mean) and variability (standard deviation) for each cover classification (native, nuisance, exotic, bare ground & litter), and the 95% percent confidence intervals, the interquartile range and the median value for each status. The central tendency of the data, as determined by the estimated mean value, and the variability, as determined by the standard deviation, for each cover classification will be reported. The following success criteria are proposed:

1. To maintain bahiagrass cover below 20%;
2. To obtain greater than 80% cover by desirable sandhill and flatwoods species within 4 years.
3. To be able to successfully run a growing season (June-September) fire through the site within 5 years.
4. To achieve and maintain less than 2% cover of exotic and nuisance species coverage in the wetlands.

TIMELINE AND BUDGET

This project will start in FY-05 and it is anticipated all sites will achieve success criteria by 2015, which will include construction and post-construction monitoring and maintenance requirements. The conceptual plan described above may be modified as necessary based on unanticipated site conditions or alterations, revisions to currently accepted techniques, results of ongoing projects, including successes and failures, and new findings in the scientific literature. The anticipated timeline and budget for the project is provided in this section.

Timeline

Project construction is scheduled to start in FY2005 and continue until completion in FY2012. Success criteria are not expected to be achieved for all sites until FY2015. Table 1 provides the general schedule, with specific task completion dates and a timeline provided in Appendix F.

Table 1. Projected Schedule.

Restoration Site	Year	Seed (acres)	Seed Donor Site	Plant Installation (acres)	Total Acres to be Restored
Site 1-Phase 1	2005	57	Starkey	0	57
Site 1- Phase 2	2006	60	Starkey	5	65
Site 1- Phase 3	2007	54	Starkey	10	64
Site 2	2008	50	Starkey	8 (3-acres in seeded matrix)	55
Site 3	2006	7	Green Swamp West	12	19
Site 4	2007	16	Green Swamp West	6	22
Site 5	2009	16	Starkey	6	22
Total Acres Proposed for Restoration					304

Budget

The estimated cost to complete the project as described is \$1,701,887 (Table 3). Generally, this cost includes, for each restoration site, 4-6 pre-restoration herbicide treatments, 4-5 post-restoration herbicide treatments (2 aerial broadcast events and 2-3 spot treatments with backpack sprayers), 4 prescribed fires, 2 pre-restoration disking events, 4 post-restoration mowing events in selected areas, re-vegetation (seeding and planting events, including final reforestation with longleaf pine seedlings), soil and seed viability testing lab fees, and monitoring. It also includes, for the upland enhancement areas, hydroax treatments on 250 acres and 4 prescribed fires. Additionally, costs to prepare seed donor sites for harvesting have been added into the budget. Some site preparation is anticipated, particularly on the Green Swamp West site, but it is difficult to propose degree of preparation that may be required. It also includes treatment of exotic vegetation (excluding treatment of pasture grasses) such as tropical soda apple and Chinese tallow for a period of 15 years.

However, this budget is general, and the tasks itemized are not uniformly applied to each site. Sites scheduled to be restored early in the cycle (2005-2006) may not receive the full complement of herbicide and disking treatments as sites scheduled for subsequent years. Additionally, the current restoration schedule provides the minimum treatments necessary on all sites, but the budget provides for contingencies. These contingencies include unscheduled pre- and post-construction herbicide treatments which are sure to be required, but for which scheduling is difficult to predict. At least one disking treatment will be required on all sites prior to seeding, but two treatments are proposed on most of the sites. On Sites 3, 4, and 5, proposed seeding methods may require shallow harrowing immediately prior to seeding; these sites will be seeded using a Grasslander seeder instead of the modified seed sprigger proposed for use on Sites 1 and 2. However, recent research conducted in the Midwest suggest that it may be beneficial to let well-prepared sites lie fallow the summer prior to seeding, so the second disking treatment currently proposed on some sites may be eliminated. Also, prescribed fire application may be conducted whenever possible in order to reduce organic debris, volatilize excess nutrients, and expose bare mineral soil. Fuel load build-up may vary depending on soil type, elevation, nutrient levels, rainfall, seedbank deposits, prevailing winds, and prior land use activities, thereby affecting how many fire cycles may be feasible. This budget reflects the amount of funding necessary to ensure successful completion of all components of the project, including the restoration of altered uplands, and the enhancement of both degraded uplands and wetlands.

Table 3. Projected Project Costs.

Management Activity	Unit	Cost per Unit	# of Units	Total Cost
Prescribed fire on Restoration Areas	Acre	\$15	1,216	\$18,240
Plateau herbicide applications	Acre	\$105	2,432	\$255,360
Roundup/Aqua Star herbicide applications	Acre	\$95	1,216	\$115,520
Disking	Acre	\$100	608	\$60,800
Seeding (Harvest, transport, & broadcasting)	Acre	\$1,400	304	\$425,600
Groundcover plants	Acre	\$7,000	49	\$343,000
Longleaf trees	Acre	\$333	304	\$101,232
Mechanical tree installation	Acre	\$75	304	\$22,800
Mowing (Maintenance)	Acre	\$25	200	\$5,000
Mowing (Seed donor site preparation)	Acre	\$25	600	\$15,000
Exotic plant treatments	Year	\$5,000	15	\$75,000
Monitoring	Event	\$4,620	30	\$138,600
Soil pH testing	Sample	\$5	12	\$60
Seed viability testing	Sample	\$20	20	\$400
Hydroax (Enhancement)	Acre	\$125	250	\$31,250
Hydroax (Seed donor site preparation)	Acre	\$125	100	\$12,500
Prescribed Fire (Enhancement)	Acre	\$15	5,435	\$81,525
TOTAL				\$1,701,887

Literature Referenced

- Biological Research Associates. 2004. Connerton Environmental Management Plan. Prepared for Connerton LLC, Terrabrook. 72 pp.
- Bissett, Nancy J. 1998. Mechanical, direct-seeding of wiregrass and associated species (Florida) In Restoration & Management Notes 16(1): 98-99.
- Cox, James, Randy Kautz, Maureen MacLaughlin, and Terry Gilbert. 1994. Closing the Gaps in Florida's Wildlife Habitat Conservation System: Recommendations to meet minimum conservation goals for declining wildlife species and rare plant and animal communities. Florida Game and Freshwater Fish Commission, Office of Environmental Services. 239 pp.
- Denton, Shirley. BRA. Pers. comm..
- Egan, Dave and Evelyn A. Howell (Eds). 2001. The historical ecology handbook: a restorationist's guide to reference ecosystems. Society for Ecological Restoration. Island Press. 457 pp.
- Fitzpatrick, J. W., G.E. Woolfenden, and M.T. Kopeny. 1991. Ecology and development-related habitat requirements of the Florida scrub-jay (*Aphelocoma coerulescens coerulescens*). Nongame Wildlife Program Technical Report No. 8. Office of Environmental Services.
- Florida Exotic Pest Plant Council. 2003 Invasive Plant List. World-wide-web site <http://www.fleppc.org/Plantlist/03list.htm>. Accessed 07-29-2004.
- Florida Game and Freshwater Fish Commission. 1991. Florida Atlas of Breeding Sites for Herons and their Allies: Update 1986-1989. Nongame Wildlife Program. Technical Report #10. September 1991. 147 pp.
- Florida Natural Areas Inventory. 1997. Fire management in Florida workshop. Archbold Biological Station.
- Glattig Jackson. 2002. Pasco County Assessment of Measures to Protect Wildlife Habitat in Pasco County. Submitted to Pasco County.
- Gordon, Doria. 1997. Ecological Effects of Invasive Plant Species in Florida: a review of the literature. Florida Native Plant Society Annual Conference.
- Kurtz, Carl. 2001. A practical guide to prairie reconstruction. University of Iowa Press. 57 pp.
- Langeland, K.A. and K. Craddock Burks (Eds.). 1998. Identification and biology of non-native plants in Florida's natural areas. University of Florida. 165 pp.
- Myers, Ronald L. 1986. Scrub and high pine. Pages 150-193 *in* Ronald L. Myers and John J. Ewel (eds.). Ecosystems of Florida. University of Central Florida Press, Orlando.
- Myers, Ronald L. and John J. Ewell. (Eds.). 1990. Ecosystems of Florida. University of Central Florida Press. 765 pp.
- National Cooperative Soil Survey. 1982. Soil Survey of PascoCounty, Florida. United States Department of Agriculture Soil Conservation Service and University of Florida Institute of Food and Agricultural Services. 231 pp.

- Norby, Monica Manton. Weed-beating herbicide treatment bolsters prairies planting success. world-wide-web site <http://ard.unl.edu/rn/0998/flowers.html>. Accessed 06-14-2001.
- Packard, Stephen and Cornelia F. Mutel (Eds.). 1997. The tallgrass prairie restoration handbook for prairies, savannas, and woodlands. Society for Ecological Restoration. 463 pp.
- Payne, Neil F. and Fred C. Bryant. Techniques for wildlife habitat management of uplands. Biological Resource Management Series. McGraw-Hill, Inc. 840 pp.
- Payne, Neil F. 1992. Techniques for wildlife habitat management of wetlands. McGraw-Hill Biological Resource Management Series. 549 pp.
- Pfaff, Sharon and Mary Ann Gonter. 1996. Florida native plant collection, production and direct seeding techniques: interim report. Prepared by U.S. Department of Agriculture – Natural Resources Conservation Service for Florida Institute of Phosphate Research. 61 pp.
- Robbins, E. Louise and Ronald L. Myers. 1992. Seasonal effects of prescribed burning in Florida: a review. Tall Timbers Research, Inc. Miscellaneous Publication No. 8. 93 pp.
- Simberloff, Daniel, Don C. Schnitz, and Tom C. Brown (Eds.). Strangers in paradise: impact and management of non-indigenous species in Florida.
- Southwest Florida Water Management District. 1998. Pasco One Resource Evaluation. 37 pp.
- Uridel, Keith Walker. 1994. Restoration of native herbs in abandoned *Paspalum notatum* (bahiagrass) pastures. University of Florida. M.S. Thesis. 61 pp.
- US Forest Service. 1978. Mobley, Hugh E., Robert S. Jackson, William E. Balmer, Wayne E. Ruziska and Walter A. Hough. A guide for prescribed fire in southern forests. 40 pp.
- Williams, E. Darrell. Improving upland native plant re-vegetation potential. USDA – Soil Conservation Service. Unpaginated.
- Wood, D. A. 1996. Florida's endangered species, threatened species and species of special concern: Official lists. 29 April 1996. Florida Game and Fresh Water Fish Commission., Tallahassee, Florida. 14 pp.
- Young, James A. and Cheryl G. Young. 1986. Collecting, processing, and germinating seeds of wildland plants. Timber Press, Inc. Portland, Oregon. 236 pp.

Appendix A – Wildlife Observations and Protected Species Checklist

Table A. Wildlife Species Documented Occurrence List.

Cottonmouth Moccasin (*Agkistodon piscivorus*)

American Alligator (*Alligator mississippiensis*)

Green Anole (*Anolis carolinensis*)

Six-lined Racerunner (*Cnemidophorus sexlineatus*)

Southern Black Racer (*Coluber constrictor priapus*)

Eastern Diamondback Rattlesnake (*Crotalus adamanteus*)

Southern Ringneck Snake (*Diadophis punctatus punctatus*)

Southeastern Five-lined Skink (*Eumeces inexpectatus*)

Gopher Tortoise (*Gopherus polyphemus*)

Eastern Mud Turtle (*Kinosternon subrubrum*)

Brown water snake (*Nerodia taxispilota*)

River cooter (*Psuedemys floridana*)

Eastern fence lizard (*Sceloporus undulatus*)

Ground Skink (*Scincella lateralis*)

Dusky Pygmy Rattlesnake (*Sistrurus miliarius*)

Stinkpot Turtle (*Sternotherus odoratus*)

Florida Box Turtle (*Terrepenne carolina bauri*)

Southern Cricket Frog (*Acris gryllus gryllus*)

Southern Toad (*Bufo terrestris*)

Greenhouse Frog (*Eleuthrodactylus planirostis*)

Eastern Narrowmouth Toad (*Gastrophyne carolinensis*)

Green Tree Frog (*Hyla cinerea*)

Squirrel Treefrog (*Hyla squirella*)

Southern Chorus Frog (*Pseudacris nigrita*)

Gopher Frog (*Rana aerolata*)

Pig Frog (*Rana grylio*)

Southern Leopard Frog (*Rana sphenoccephala*)

Cooper's hawk (*Accipiter cooperii*)

Red-winged blackbird (*Agelaius phoeniceus*)

Roseate spoonbill (*Ajaia ajaja*)

Anhinga (*Anhinga anhinga*)

Florida scrub-jay (*Aphelocoma coerulescens*)

Great blue heron (*Ardea herodias*)

Red-tailed hawk (*Buteo jamaicensis*)

Red-shouldered hawk (*Buteo lineatus*)

Cattle egret (*Bubulcus ibis*)

Turkey vulture (*Cathartes aura*)

Great egret (*Casmerodius albus*)

Killdeer (*Charadrius vociferus*)

Common nighthawk (*Chordeiles minor*)

Northern harrier (*Circus cyaneus*)

Northern bobwhite (*Colinus virginianus*)

Common ground-dove (*Columbina passerina*)

Black vulture (*Coragyps atratus*)

Little blue heron (*Egretta caerulea*)

Snowy egret (*Egretta thula*)

Tri-colored heron (*Egretta tricolor*)

American swallow-tailed kite (*Elanoides forficatus*)

White ibis (*Eudocimus albus*)

American kestrel (*Falco sparverius*)

Southeastern American kestrel (*Falco sparverius paulus*)

Greater Sandhill crane (*Grus canadensis*)

Florida sandhill crane (*Grus canadensis pratensis*)

Southern bald eagle (*Haliaeetus leucocephalus leucocephalus*)

Wild turkey (*Meleagris gallopavo*)

Woodstork (*Mycteria Americana*)

Osprey (*Pandion haliaetus*)

Rufous-sided towhee (*Pipilo erythrophthalmus*)

Boat-tailed grackle (*Quiscalus major*)

Field sparrow (*Spizella pusilla*)

Barred owl (*Strix varia*)

Eastern meadowlark (*Sturnella magna*)

Greater yellowlegs (*Tringa melanoleuca*)

Mourning dove (*Zenaida macroura*)

Coyote (*Canis latrans*)

Nine-banded armadillo (*Dasybus novemcinctus*)

Virginia opossum (*Didelphis marsupialis*)

Southeastern Pocket Gopher (*Geomys pinetis*)

Southern flying squirrel (*Glaucomys volans*)

Whitetail deer (*Odocoileus virginianus*)

Raccoon (*Procyon lotor*)

Gray squirrel (*Sciurus caroliniana*)

Sherman's fox squirrel (*Sciurus niger*)

Hispid cotton rat (*Sigmodon hispidus*)

Feral hog (*Sus scrofa*)

Eastern cottontail (*Sylvilagus floridanus*)

Gray fox (*Urocyon cinereoargenteus*)

Table B. Conner Preserve FDOT Mitigation Project Listed Wildlife Species Occurrence Checklist

COMMON NAME	SCIENTIFIC NAME	STATUS*		OCCURRENCE			
		GFC	USFWS	Observed	Probable	Possible	Unusual
BIRDS							
S.E. American Kestrel	<i>Falco sparverius paulus</i>	T		X			
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	T	X			
Burrowing Owl	<i>Speotyto cunicularia</i>	SSC				X	
Florida Sandhill Crane	<i>Grus canadensis pratensis</i>	T		X			
Florida scrub-jay	<i>Aphelocoma coerulescens</i>	T	T	X			
Limpkin	<i>Aramus guarauna</i>	SSC			X		
Little Blue Heron	<i>Egretta caerulea</i>	SSC		X			
Red-Cockaded Woodpecker	<i>Picoides borealis</i>	T	E				X
Snowy Egret	<i>Egretta thula</i>	SSC			X		
Tricolored Heron	<i>Egretta tricolor</i>	SSC		X			
White Ibis	<i>Eudocimus albus</i>	SSC		X			
Wood Stork	<i>Mycteria americana</i>	E	E	X			
Roseate Spoonbill	<i>Ajaia ajaja</i>	SSC					
REPTILES/AMPHIBIANS							
American Alligator	<i>Alligator mississippiensis</i>	SSC	T (S/A)		X		
Eastern Indigo Snake	<i>Drymarchon corais couperi</i>	T	T		X		
Florida Pine Snake	<i>Pituophis melanoleucus mugitus</i>	SSC			X		
Gopher Frog	<i>Rana capito</i>	SSC		X			
Gopher Tortoise	<i>Gopherus polyphemus</i>	SSC		X			
Short-tailed Snake	<i>Stilosoma extenuatum</i>	T				X	
MAMMALS							
Florida Black Bear	<i>Ursus americanus floridanus</i>	T					X
Florida Mouse	<i>Podomys floridanus</i>	SSC				X	
Sherman's Fox Squirrel	<i>Sciurus niger shermani</i>	SSC	X				
Round-tailed muskrat	<i>Neofiber alleni</i>			X			

USFWS = United States Fish and Wildlife Service; GFC = Florida Fish and Wildlife Conservation Commission; E = Endangered; T = Threatened; T(S/A) = Threatened/Similarity if Appearance; SSC = Species of Special Concern Based on Florida's Endangered Species, Threatened Species and Species of Special Concern - Official Lists', Florida Game and Fresh Water Fish Commission (April 1997).

APPENDIX B – PROPOSED RESTORATION TECHNIQUES

Proposed Restoration Techniques – The restoration sites must be prepared in advance of seeding to ensure exotic vegetation (pasture grasses) are eradicated and soil is aerated. Site preparation may begin 1-2 years prior to re-vegetating in order to ensure a weed-free substrate. Prior to any treatments, the soil pH will be tested to ensure pH is between the optimal levels of about 6 – 7; a slightly acidic pH value is preferred over an alkaline one. A late winter burn will be conducted in late January to early March to reduce biomass of bahia grass and other exotic forage species. The sites will then be treated with a 2-5% percent solution of RoundupPro or AquaStar as soon as above-ground biomass of bahiagrass is sufficient. Application methods will depend on size of site, the existing vegetation on the site, and the presence of wetlands interspersed within the site or adjacent to it. Another burn may be conducted 2-4 weeks following herbicide treatment depending on fuel continuity and loads. A second herbicide application will be conducted in early summer. The sites may also be disked to break up bahia rhizomes and also to expose seed remaining in soil bank. Following disking, the site may be rolled to put any remaining weed seeds in contact with the soil, thus promoting their germination. Finally, at least one additional application of RoundupPro or AquaStar, at a rate of 2 - 5%, will be conducted in September/early October. This sequence can be repeated for a second year if weed species are still present on the site. The site may be harrowed with a disk or a chain drag just prior to seeding if deemed necessary and also based on results of similar treatments at GSW8 restoration site. Species that will be problematic if still present on the site (pre- or post-seeding) include the following: bahia grass (*Paspalum notatum*), Bermudagrass (*Cynodon dactylon*), natal grass (*Rhynchelytrum repens*), purple nutsedge (*Cyperus rotundus*), cogongrass (*Imperata cylindrica*), tropical soda apple (*Solanum viarum*), smutgrass (*Sporobolus indicus*). Species that initially may appear to be problematic will probably not be after 2-3 years – these may include: dog fennel (*Eupatorium* spp.), common ragweed (*Ambrosia artemisiifolia*), Brazil pusley (*Richardia brasiliensis*), Florida pusley (*Richardia scabra*), hairy indigo (*Indigofera hirsuta*). Seeds will be transported to the site from the Starkey and/or Green Swamp West seed donor site, and either distributed immediately or allowed to dry for 24-hours. Modified sod spriggers and/or the Grasslander seeder will be utilized to broadcast the seed at a rate of 40-60 seeds per square foot on to the prepared site. Both of these seed dispensers are designed to scarify the soil slightly, dispense the seed, and then roll the seed into the soil. After restoration is complete, continued maintenance to control undesirable vegetation will be conducted utilizing a combination of herbicide treatments, mowing, and prescribed fire. In addition to direct seeding, plant installation will also be utilized, either alone or in combination with seeding, to re-vegetate the restoration sites. The primary focus will be to restore fine flashy fire fuels to the site to facilitate required intensity and seasonality of burns, and also to provide competition against weedy species that might otherwise invade. Wiregrass plugs will be ordered in advance from the Florida Division of Forestry. Appropriate grasses, sedges, and wildflowers may also be planted, depending on availability and site conditions. Plants will be contract-grown in advance and planted during the rainy season. Additionally, seeds of species not represented in the seed mix may be hand-collected and added.

APPENDIX C – SEED DONOR SITE PREPARATION TECHNIQUES

Proposed Donor Site Preparation and Harvesting Techniques – Native seed will be collected from intact pine flatwoods and longleaf pine-turkey oak sandhills. The optimal seed donor site has an abundance of grasses and wildflowers, with low to moderate density of large pines and oaks. A combination of mowing and/or hydroaxing overgrown turkey oaks, scrub oaks, and other shrubs may be utilized to prepare the seed donor site prior to prescribed fire application. To stimulate the flowering and production of maximum viable seeds for most of the native grasses and asters, a late spring to early summer burn will be conducted, as conditions allow (mid-April through mid-July). The optimal seed collection period is from late November through late December, and the precise window will be determined based on presence of ripe seed on wiregrass stems. This is determined by bending the floret – if floret snaps it is full, if it does not, the floret is empty (Bissett, 1998). Other native species have a higher seed viability and germination rate, exhibit after-ripening following cutting, and have a long period of seeding, so the collection window is not a critical. During the time period specified above, the abundance and overall viability of native seed in general is highest. Species collected via mechanical equipment will include wiregrass (*Aristida beyrichiana*), bluestem sedges (*Andropogon* spp.), creeping bluestem (*Schizachyrium stoloniferum*), dalea (*Dalea* spp.) deer's tongue (*Carphephorus* spp.), blazing star (*Liatris* spp.), and other members of the Asteraceae. Two methods will be utilized for large-scale collection of seed – the flail-vac and the green silage cutter. The District owns a 12-foot wide Woodward flail-vac seed stripper that attaches to a tractor's front-end loader. A hydraulically powered brush sweeps the ripe seed off of the vegetation, and then deposits it in a bin. The flail-vac is more flexible and can operate in somewhat rougher conditions than the green silage cutter. It will be utilized to collect seed for the smaller sites proposed for restoration (Sites 3, 4, and 5). The green silage cutter can collect more seed than the flail-vac. This machine cuts the seed stalk, so both ripe and unripe seed is collected, and the cut material is then blown into a large trailer that is pulled behind the tractor. The green silage cutter requires a wide turning radius and wide-open areas with few trees. The flail-vac will be utilized to collect from the smaller and more heavily forested sites, and the green silage cutter will be utilized in larger, lightly forested areas. Hand-collection of seeds may be conducted to supplement the seed mix; targeted species may include saw palmetto (*Serenoa repens*), scrub oaks (*Quercus* spp.), pinewoods dropseed (*Sporobolus junceus*), beaked panicum (*Panicum anceps*), lop-sided Indiangrass (*Sorghastrum secundum*), gopher apple (*Licania michauxii*), winged sumac (*Rhus copallinum*), blue curls (*Trichostema dichotomum*), green eyes (*Berlandiera subacaulis*), beard tongue (*Penstemon multiflorus*), butterfly pea (*Centrosema virginianum*), dollarweed (*Rhynchosia reniformis*), sandspur (*Krameria lanceolata*), , pawpaw (*Asimina reticulata*), gallberry (*Ilex glabra*), tarflower (*Befaria racemosa*), and beautyberry (*Callicarpa americana*). Since the seed donor site is diverse and an entire suite of species will be represented in the seed mix, seeds will be collected to provide a ratio of 2-5 acres collected to 1 acre seeded, depending on the collection method. When utilizing the green silage cutter, seed will be collected at rate of approximately 2:1 of donor site to recipient site. When collecting with a flail-vac, the rate of seed collected will be increased to approximately 3-5 acres for every acre to be seeded. Testing of seed viability is not proposed at this time, since multiple species will be collected and distributed. However, if testing is deemed necessary, seeds will be sent to Oregon State University Agricultural Lab or Sterling Seed Testing in Oklahoma. Seeds will be transported from the seed donor sites at Starkey and Green Swamp West directly to the restoration sites via large dump trucks. They will then be dumped in regularly spaced mounds on the restoration site, spread with a front-end loader, and allowed to dry for 24-hours prior to being distributed on the site.

APPENDIX D – – REPRESENTATIVE PHOTOGRAPHS





Photograph 1



Photograph 2



Photograph 3



Photograph 4



Photograph 5



Photograph 7



Photograph 8



Photograph 9



Photograph 10



Photograph 11



Photograph 12



Photograph 13



Photograph 14



Photograph 15



Photograph 16



Photograph 17



Photograph 18



Photograph 19



Photograph 20



Photograph 21



Photograph 22



Photograph 23



Photograph 24



Photograph 25



Photograph 26



Photograph 27



Photograph 28



Photograph 29



Photograph 30



Photograph 31



Photograph 32



Photograph 33

APPENDIX E – FLORISTIC QUALITY INDEX (EXAMPLE)

APPENDIX F - PROJECT CONSTRUCTION TASK SCHEDULE & TIMELINE

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District
 Mitigation Project Name: Bahia Beach
 Project Manager: Bob Stetler, Hillsborough County (EPC)
 County: Hillsborough

Project Number: SW 78
 Phone No: (813) 985-7481
 Location: Sec. 1, T32S, R18E

IMPACT INFORMATION (Proposed Construction Date)

(1)Tampa International Airport, 36R Runway Protection Zone (2004)	ERP #: <u>49008387.026</u>	COE #: <u>SAJ-2001-12399</u>
(2)Tampa International Airport, Taxiway "V & W" (2007)	ERP #: <u>49008387.028</u>	COE #: _____
(3)Tampa International Airport, Drew Park Improvements (2008-2025)	ERP #: _____	COE #: _____
(4)Tampa International Airport, North Terminal Site Develop. (2011)	ERP #: _____	COE #: _____
(5)Tampa International Airport, Runway 17-35 System (2016)	ERP #: _____	COE #: _____
(6)Tampa International Airport, North Terminal Airside 2 (2025)	ERP #: _____	COE #: _____
(7)Tampa International Airport, North Terminal Airside 3 (Post 2025)	ERP #: _____	COE #: _____
(8)Tampa International Airport, North Terminal Airside 4 (Post 2025)	ERP #: _____	COE #: _____
(9)Tampa International Airport, Runway 18L Extension (Post 2025)	ERP #: _____	COE #: _____
(10)Tampa International Airport, Taxiway "A" Extension (Post 2025)	ERP #: _____	COE #: _____
(11)Tampa International Airport, Rental Car Area (Unknown)	ERP #: _____	COE #: _____

Drainage Basin: Tampa Bay Water Body(s):Sweetwater Creek, Tampa Bay, Fish Creek SWIM water body? Yes
Impact Acres / Habitat Types (FLUCFCS):

(1) 7.940 ac. 617	(6) 1.047 ac. 630	(11) 0.797 ac. 610
	3.223 ac. 617	0.118 ac. 618
(2) 0.038 ac. 630	1.032 ac. 621	0.607 ac. 621
0.028 ac. 617	TOTAL 5.302 acres	2.407 ac. 640
TOTAL 0.066 acres		TOTAL 3.929 acres
	(7) 4.210 ac. 630	
(3) 0.634 ac. 619	0.078 ac. 610	TOTAL: 35.040 acres
	TOTAL 4.288 acres	
(4) 0.528 ac. 617	(8) 0.005 ac. 617	
0.770 ac. 621	0.728 ac. 619	
0.592 ac. 630	2.933 ac. 630	
TOTAL 1.89 acres	TOTAL 3.666 acres	
(5) 0.700 ac. 651	(9) 0.002 ac. 617	
2.813 ac. 619		
0.325 ac. 621	(10) 1.269 ac. 610	
0.577 ac. 630		
1.639 ac. 640		
TOTAL 6.054 acres		

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation X Restoration X Enhancement ___ Preservation Mitigation Area: 120 ac.
 SWIM project? Y Aquatic Plant Control project? N Exotic Plant Control Project? Y
 Mitigation Bank? N Drainage Basin: Tampa Bay Drainage Water Body(s): Tampa Bay SWIM water body? Y

Project Description

A. Overall project goal: The Bahia Beach project site (120 acres) was acquired in 2001 by Hillsborough County through their Environmental Lands Acquisition and Protection Program (ELAPP), one of several contiguous habitat tracts owned and managed by the County west of Ruskin (Fig. B). Hillsborough County Environmental Protection Commission (EPC) manages the project with cooperative assistance from the WMD-SWIM Dept. and Hillsborough County Parks Dept. to conduct a variety of habitat improvements including wetland creation with buffers of upland habitat restoration within existing upland fallow fields, as well as enhancement of coastal wetland hammock habitat, restoration of salt-marsh habitat, and enhancement of salt-marsh/mangrove habitat.

- B. Brief description of current condition:** As part of the acquisition agreement, the previous landowner removed the citrus trees and the uplands are fallow fields dominated by invasive and nuisance species (refer to Figure C and site photos). The field is bordered by a coastal wetland hammock dominated by an overstory of cabbage palm with scattered red juniper, live and laurel oaks, and slash pine. The subcanopy of the hammock includes minor to moderate coverage of Brazilian pepper, cabbage palm, salt-bush, wax myrtle, and saw palmetto. Small pockets of black needle rush, cordgrass, and sawgrass are located in the interior of the hammock. A large mosaic of salt-marsh and mangrove habitat is located west of the hammock. Vegetation in the marsh portion is dominated by saltwort, glasswort, and salt-grass. The mangrove portion is dominated by white mangrove with scattered black mangrove and buttonwood. Shrub-size mangroves transition into the marsh component. This saltwater habitat has interconnecting mosquito ditches with adjacent spoil piles covered with Brazilian pepper. In part due to the altered hydrology from the ditching, the transition between the hammock and saltwater habitat has become a very dense stand of Brazilian pepper. Additional site information is provided in Attachment A.
- C. Brief description of proposed work:** The fallow fields will be converted to an inter-related mosaic of created wetlands and upland habitat restoration of primarily oak hammocks and pine flatwoods. The created wetlands (estimated 40-50 of the total 61 field acres) will include a dominance of freshwater wetland creation, with the potential of transitioning to oligohaline wetland creation closer to the hammock. Piezometers have been installed in the uplands to monitor and evaluate the surficial groundwater conditions. For wetland creation design, this information will be important to determine appropriate hydroperiods and proximity of saltwater influence. The created wetlands (forested and non-forested) will be buffered by restored upland habitat, and the combination of wetland and upland habitats will provide corridors for wildlife utilizing the adjacent native ecosystems. The coastal hammock will be enhanced with the eradication of Brazilian pepper. For forested wetland mitigation credit, this hammock may be expanded with similar habitat creation within the adjacent field. Additional forested wetland creation is anticipated to concentrate along the perimeter of constructed marshes. The mosquito and drainage ditches within the coastal hammock and saltwater wetland habitat will be evaluated to determine the most appropriate locations for backfilling spoil material into the ditches. Additional site monitoring, evaluations and subsequent design plans will be updated into the annual FDOT mitigation plans. Depending on the contributing ground and surface water characteristics, the plan may be revised to include more wetland creation in the fallow fields and less upland habitat restoration.
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** All the anticipated wetland impacts proposed for mitigation at the Bahia Beach project include wetlands associated with long-range expansion activities at Tampa International Airport (TIA). Due to the close proximity to Tampa Bay and high quantity of ditched wetlands, the majority of the proposed wetland impact areas at TIA are low quality systems. The combination of various wetland creation, restoration, and enhancement; in addition to buffers of upland habitat restoration activities can be implemented at the Bahia Beach project. Due to the major habitat improvements and anticipated ecological lift, Bahia Beach will provide appropriate mitigation options to compensate for impacts associated with both freshwater and saltwater wetland impacts.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** At the time of mitigation selection, the only existing or proposed mitigation bank within the Tampa Bay Drainage Basin is the Tampa Bay Mitigation Bank (TBMB). TBMB was not under construction nor credits available during the period of mitigation selection for the referenced TIA projects.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: The Bahia Beach project is a SWIM-sponsored project adjacent to a SWIM water body (Tampa Bay), to be constructed on property owned and managed by the Hillsborough County Parks, Recreation & Conservation Dept.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD – Operations Dept. and/or a selected private contractor
Contact: Bob Stetler, Hills. Co. Environmental Protection Commission Phone Number: (813) 272-5955, ext. 1088

Entity responsible for monitoring and maintenance: Minimum 5 years post construction maintenance & monitoring under contract with SWFWMD, perpetual management conducted by Hills. County Parks.

Proposed timeframe for implementation: Commence: Design and Permitting 2005-2008, Construction 2009-2010, followed by minimum 5 years maintenance & monitoring

Project cost: \$2,800,000 (estimate total);
Design & Permitting \$150,000
Construction & Planting \$2,500,000
Maintenance & Monitoring \$150,000

Attachments

- X 1. Detailed description of existing site and proposed work. Refer to Attachment A.
- X 2. Recent aerial photograph with date and scale. Refer to Figures B and D, 1999 infra-red aerials.
- X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (Location Map) and Figure C of existing and conceptual mitigation plan.
- X 4. Detailed schedule for work implementation, including any and all phases. Refer to Attachment B – Schedule.
- X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment C – Maintenance & Monitoring Plan, Success Criteria.
- X 6. Long term maintenance plan. Refer to Attachment C – Maintenance & Monitoring Plan, Success Criteria.
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous text.

Attachment A – Existing Site & Proposed Work

The proposed Bahia Beach project is one of a series of public land acquisitions along Tampa Bay west of Ruskin (Figure B). The property was acquired in the summer, 2001 through the Hillsborough County ELAP program, with partial reimbursement by the FDEP and USFWS. Coordination between the Hillsborough County EPC (project manager), Hillsborough Parks, SWFWMD-SWIM Dept., and a design consultant is being contracted to prepare a plan to include creation, restoration, and enhancement of habitat conditions on the site. FDOT mitigation funds will be utilized for design, construction, planting, and short-term maintenance & monitoring activities. The following information describes the site conditions and possible scenarios of habitat improvements that are being further evaluated with various alternatives. This information is being adopted in a design plan that will be annually updated in the FDOT mitigation plan.

Fallow Field Conversion to Wetland Creation and Upland Habitat Restoration (Approx. 61 Acres)

The existing site conditions for the Bahia Beach tract includes 120 acres of upland fallow fields and various wetland habitats. The upland area was historically pine flatwoods that were converted to a citrus grove. The grove was removed as part of the agreement of public acquisition. Subsequently, the former grove

converted to fallow field conditions with a variety of nuisance and exotic vegetation. The dominant cover is provided by bahiagrass (*Paspalum notatum*), natalgrass (*Rhynchelytrum repens*), and dog fennel (*Eupatorium capillifolium*). Other species include smutgrass (*Sporobolus poiretii*), chickweed (*Richardia scabra*), beggar's-tick (*Bidens alba*), nutsedge (*Cyperus esculentus*), ragweed (*Ambrosian artemisiifolia*), and lantana (*Lantana* spp.).

According to soil borings and the NRCS Soil Survey (Figure D), the soils underlying the fallow field are poorly drained with seasonal high water tables within one foot of the surface grades. Large east-west ditches drain on-site and off-site contributing flow toward the adjacent hammock. For drainage purposes, the grove had shallow swales between the citrus beds. Positive drainage flow from the swales are no longer maintained to the east-west ditches, which has allowed nuisance hydrophytic species to invade with a dominance of torpedograss (*Panicum repens*), sedges (*Cyperus* spp.), frog fruit (*Phylum nodiflora*), bacopa (*Bacopa monnieri*) and scattered pockets of primrose willow (*Ludwigia octovalis*), para grass (*Brachiaria mutica*), sesbania (*Sesbania exaltata*), foxtail (*Setaria* spp.), and cattails (*Typha* sp.). Saplings of Brazilian pepper (*Schinus terebinthifolius*) are generating within the fallow field.

The conceptual design for the upland fallow fields will include the creation of wetland habitats. After minimal earthwork, the surficial groundwater conditions can support wetland habitat conditions. However with adjacent land use changes from agricultural to residential, on- and off-site contributing watershed conditions have been monitored and evaluated to determine the adequacy and appropriateness of hydroperiods and water budgets for the constructed wetlands. For instance, in 2005-2006, a residential subdivision and associated drainage facilities was constructed to the east of Bahia Beach. Therefore, the contributing surficial and ground water flow conditions have been altered so piezometers were installed to measure groundwater conditions in terms of both elevations and potential salinity levels. This information is being incorporated in the surface water modeling for the design plans. The majority of the created wetlands will be freshwater and oligohaline systems since these are unique and substantially lost habitat ecosystems in the Tampa Bay watershed. There are also east-west ditches that convey off-site contributing water flow through the fallow fields and into the large ditches along the western perimeter of the coastal hammock. These off-site contributing flows will be evaluated (quantity and quality) to determine if and where the flow can be directed into created wetlands. The created wetlands will include a dominance of common species found within similar systems in the basin.

The mosaic and inter-relationship with upland habitat will provide corridor opportunities for wildlife utilizing the adjacent hammock and salt-water wetland areas. These corridors will surround the constructed wetlands and include a variety of oak hammock and pine flatwood restoration opportunities. Some of the dredged material from the constructed wetlands may remain on site, and configured to create slightly elevated mounds suitable for drier oak hammock creation opportunities. Common oak and pine flatwood species will be planted within the upland corridor areas. The created wetland and upland corridor areas and configuration depicted on Figure C are conceptual; this design will be revised based on additional site evaluations, mitigation criteria, and annually updated in the FDOT mitigation plan. As previously noted, groundwater conditions may provide the opportunity to conduct more wetland creation and less upland habitat restoration.

Coastal Wetland Hammock Enhancement (Approx. 17 Acres)

The coastal hardwood hammock has dominant canopy coverage of cabbage palm (*Sabal palmetto*), with scattered slash pine (*Pinus elliottii*), red cedar (*Juniperus virginiana*), and oaks (*Quercus virginiana*, *Q. laurifolia*). Depending on the competition from the surrounding vegetation, the B. pepper provides minor to moderate canopy and sub-canopy cover within the hammock. Other sub-canopy species include cabbage palm, salt-bush (*Baccharis halmifolia*), wax myrtle (*Myrica cerifera*), and saw palmetto (*Serenoa repens*). Ground cover varies depending on the shade factor, but includes sawgrass (*Caladium jamaicense*), broomsedge (*Andropopon glomoratus*), swamp fern (*Blechnum serrulatum*), fleabane (*Pluchea odorata*), and various other sedges. Where the canopy has slightly opened, there are also a few pockets of sawgrass, black needle rush (*Juncus roemerianus*), and cordgrass (*Spartina patens*) within the hammock.

The boundary between the fallow field and the hammock has two large parallel drainage ditches with spoil ridges covered with Brazilian pepper (refer to Figure C and photo). These ditches connect with the mosquito ditches dredged through the salt-marsh and mangroves, allowing saltwater intrusion to occur further inland

than historic conditions. Enhancement opportunities will be evaluated to determine if and which ditches can be backfilled without off-site hydrologic impacts. As one alternative, if the ditches cannot be totally backfilled due to potential hydraulic conveyance problems, the ditches may be graded to form shallow swales that would at least minimize salt-water intrusion and allow for establishment of appropriate species. If left in their current condition, the dense B. pepper and deep ditches would substantially limit wildlife movement between the hammock and the upland restoration and wetland creation areas. Ditch filling or constructing shallow swales will minimize the current wildlife restriction for corridor connections.

High Salt-Marsh Restoration (Approx. 15 Acres)

As the hammock transitions to the adjacent saltwater wetland habitat, there is an extensive area of dense Brazilian pepper with very minimal coverage of other species, primarily scattered cabbage palm, salt-bush and leather fern (*Acrostichum danaeifolium*). This area was historically within a high salt-marsh landscape position. With some hydrologic changes of contributing tidal conditions due to the mosquito ditches, this altered the depth and duration of inundation. Subsequently, the condition provided the opportunity for the Brazilian pepper to generate and substantially dominate this area. The Brazilian pepper is essentially a dense thicket that decreases within the hammock where it has to compete with the native vegetation (refer to Figure B and photos). But without eradication, the Brazilian pepper will continue to recruit and increase in the hammock.

Enhancement opportunities will include Brazilian pepper eradication and determination of which mosquito ditches can be backfilled to historic grade elevations. Once the B. pepper is removed, supplemental planting of herbs and shrubs will probably be necessary. Based on preliminary topography, the grade elevations in this area range from 2.5 to 2.7 feet so examples of anticipated plantings include cordgrass (*S. patens*, *S. bakeri*), knotgrass (*Paspalum distichum*), seashore dropseed (*Sporobolus virginus*), seaside oxeye (*Borrichia frutescens*), hairawn muhly (*Muhlenbergia capillaries*), and salt-grass (*Distichlis spicata*). With the B. pepper eradication, mangrove and other desirable herb species will have the opportunity to recruit from the adjacent salt-marsh habitat.

Mangrove and Salt-Marsh (Approx. 27 Acres)

There is a mosaic of mangroves surrounding salt-marsh habitat. White mangrove (*Laguncularia racemosa*) is dominant, with additional coverage provided by black mangrove (*Avicennia germinans*) and buttonwood (*Conocarpus erectus*). Some red mangrove (*Rhizophora mangle*) is present along the lower slopes of a few larger and deeper mosquito ditches. The mangroves transition into a salt-marsh interior, with dominant species including saltwort (*Batis maritima*), glasswort (*Salicornia* spp.), and salt-grass (*Distichlis spicata*). Scattered mangrove saplings are present in the marsh.

The mosquito ditches will be evaluated for determining if and where backfilling activities can be conducted to remove spoil material. For the large ditches between the fallow field and coastal hammock, it is envisioned that traditional construction equipment such as bulldozers can be utilized to backfill the spoil material with appropriate erosion control measures in place. However, in more environmentally sensitive areas such as within the salt-marsh or mangrove habitat, SWIM has successfully incorporated a hydro-blast method within another restoration project designated for FDOT mitigation (SW 45 - Gateway, construction 2004). This method utilizes high pressure water sprayed from fire hoses to displace spoil material from beneath Brazilian pepper. Compared to traditional earthwork construction methods with heavy equipment, this alternative method minimizes the potential of damage to surrounding mangroves. By achieving appropriate grade elevations below high tide elevations, this method also removes the continuous problem of Brazilian pepper regeneration. This restoration technique will be evaluated for possible adoption at the Bahia Beach project. A couple large perimeter ditches are the primary source of providing tidal flow to the saltwater wetlands, so unless additional evaluation determines otherwise, it's unlikely these larger ditches can be modified much if any. Overall, the design plan for Bahia Beach will include an inter-related mosaic of upland and wetland habitat, as well as freshwater and saltwater wetland habitat conditions. In turn, providing this many habitats allow for more species diversity and use by a variety of wildlife species.

Attachment B – Schedule

The proposed schedule included contracting the services of a consulting firm to obtain additional site information and commence a design plan. A design and permitting plan is anticipated in 2008. Pending permit approval, construction and planting should commence in 2009 and continue into 2010. After planting, a minimum of 5 years maintenance and monitoring will be funded through the FDOT program.

Attachment C – Maintenance & Monitoring, Success Criteria

The following information relates to potential maintenance, monitoring, and success criteria that are anticipated to be implemented, this information will be updated with the design plans.

After construction and planting, there will be a minimum five years of maintenance to guarantee mitigation success criteria. Maintenance will be a more intensive effort during the first year after planting to allow for establishment of plant species, and less frequent maintenance as the habitat matures. The primary maintenance activity will include herbicide treatment of exotics & nuisance vegetation on an as needed basis based on periodic inspections. Treatments are expected to be every two months for the first two years after construction and quarterly thereafter. Based on the conditions of the various habitats and status of selected species proposed for planting, supplemental planting will be conducted where necessary to fulfill desired results of each habitat area and success criteria. After a minimum five years and the desired habitat conditions and mitigation success has been achieved, perpetual management will be conducted by the Hillsborough County Parks, Recreation & Conservation Department to maintain the same success criteria. This Department employs a full-time crew that conducts herbicide eradication of the exotic and nuisance species. Based on the progress of the habitat conditions, inspections and any necessary herbicide treatments will be expected on a minimum semi-annual basis to eradicate exotics and nuisance species.

Monitoring will be conducted by a consulting firm on contract with SWFWMD, semi-annually for a minimum of five years and until meeting success criteria. Monitoring will include a comprehensive qualitative assessment of each habitat area on the site, including but not limited to plant health & survivorship, recruited plant species, cumulative plant coverage, exotic & nuisance species coverage, wildlife use & opportunities, and recommended & proposed actions necessary to ensure and further enhance success. The first monitoring report will include qualitative and photo documentation of pre-construction habitat conditions, construction activities, and habitat conditions at the monitoring station locations that will be documented on the permitted design plans and utilized for the entire monitoring period. However, site conditions will be annually documented for the entire site, not just for the monitoring stations. Annual monitoring reports will be prepared and submitted to the SWFWMD-Regulation Dept. and USACOE Enforcement Branch to document habitat conditions, any problems and solutions, and anticipated activities for the following year.

Success criteria will be determined as part of the design process but is expected to include a minimum 90% survivorship of planted material for a minimum of one year from the selected nursery contractor. Any plant mortality will be replaced with appropriate species to be agreed upon with the WMD and Hillsborough County. Plant coverage for the created wetlands and restored upland habitat is expected to include a minimum 80% coverage of planted and recruited desirable species. Exotic and nuisance vegetative eradication will be conducted to as little coverage as possible for all the various habitat areas, with no more than 5% to achieve success criteria.



**FDOT – District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**BAHIA BEACH
(SW 78)**

**FIGURE A – Location Map
Scale 2 in. = 1 mile, ^North**



**FDOT – District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**BAHIA BEACH
(SW 78)**

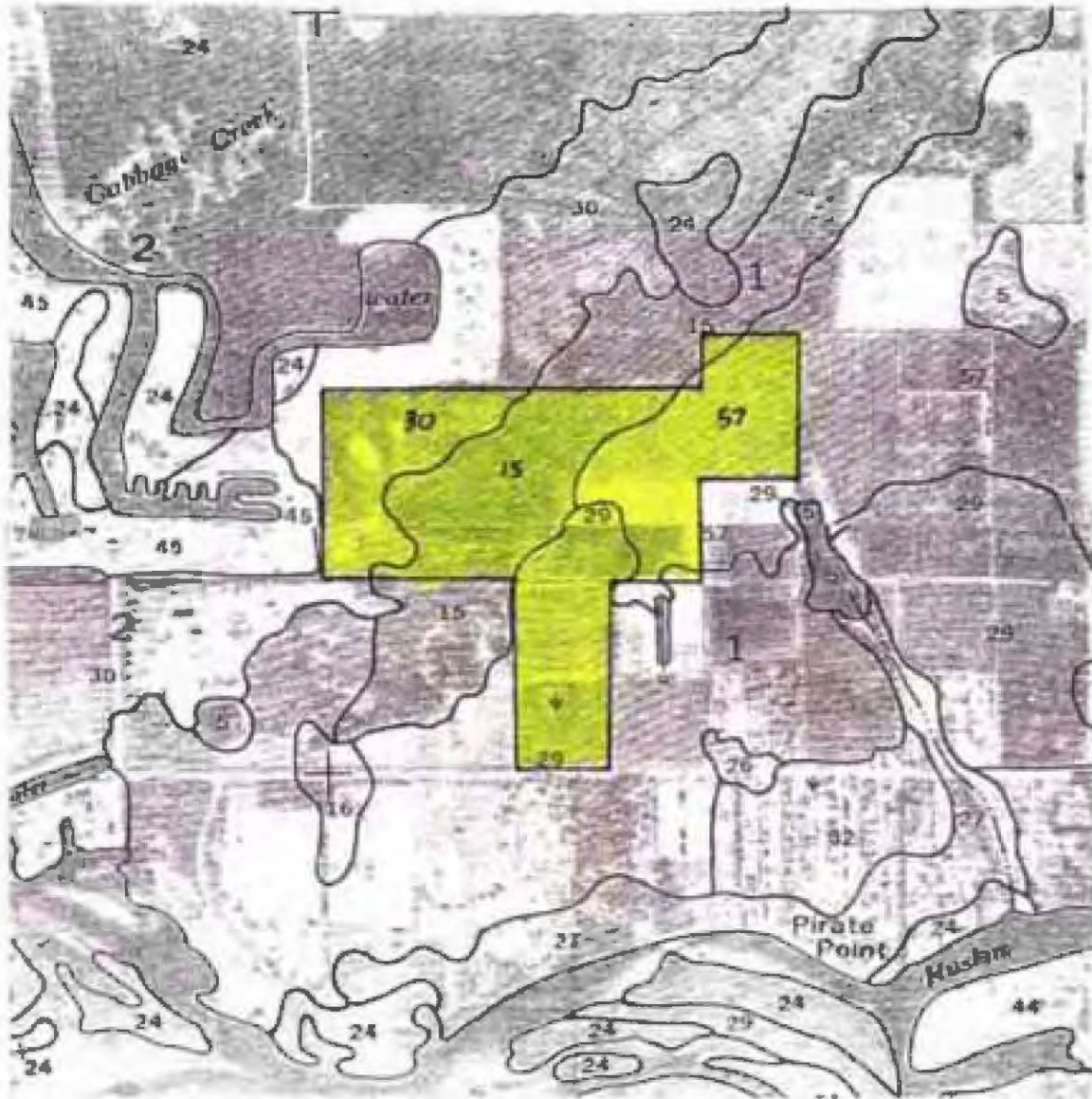
FIGURE B
Adjacent Public Lands
Scale 2.3 in. = 1 mile, ^North



FDOT – District 7
 MITIGATION SITE
 (Tampa Bay Drainage Basin)

BAHIA BEACH
 (SW 78)

FIGURE C
 Existing Conditions & Conceptual Plan
 Scale 1 in. = approx. 530 ft. ^North



LEGEND

- #15 - Felda fine sand**
- #29 - Myakka fine sand
- #30 - Myakka fine sand, frequently flooded**
- #57 - Wabasso fine sand
- ** - Hydric soils

**FDOT – District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**BAHIA BEACH
(SW 78)**

**FIGURE D
NRCS Hills. Co. Soil Survey
Scale 4.2 in. = 1 mile ^North**



The citrus groves were removed from the uplands, allowing the generation of nuisance vegetation such as natalgrass, bahiagrass, dog fennel, ragweed, smutgrass, chickweed, beggar'-tick, and nutsedge.



Upland-cut swales (left and right) were used to provide grove drainage to collector ditches. Two large ditches were constructed along the perimeter between the grove and coastal hammock. The associated spoil ridges are covered with a dense stand of Brazilian pepper (background).

**FDOT – District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**BAHIA BEACH
(SW 78)**



The coastal wetland hammock has a dominant cover of cabbage palm with scattered oaks and slash pine. The Brazilian pepper provides minor to moderate coverage. Other common species include salt-bush, saw palmetto, broomsedge, and swamp fern.



The hammock has a few marsh pockets, dominant species include sawgrass, cordgrass, and for this particular marsh, a dominance of black needle rush and marsh fleabane.

**FDOT – District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**BAHIA BEACH
(SW 78)**



The transition between the coastal hammock and the mangrove & salt-marsh area is a dense stand of Brazilian pepper with very minimal coverage of other species; scattered small cabbage palm, salt-bush, and leather fern.



View from within the core of the mangrove & salt-marsh area, looking east toward the B. pepper transition and coastal hammock. The salt-marsh has dominant cover of glasswort, saltwall, and salt-grass. Shrub-size white and black mangroves transition to larger mangroves along the northwestern and western portions of this ecosystem.

**FDOT – District 7
MITIGATION SITE
(Tampa Bay Drainage Basin)**

**BAHIA BEACH
(SW 78)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Fox Creek Regional Mitigation Area (ROMA)**

Project Number: **SW 79**

Project Manager: Kris Fehlberg, Environmental Scientist
Sarasota County Natural Resources

Phone No: 941-861-0764

County: Sarasota County

Location: Sec. 20, 29, T38S, R19E

IMPACT INFORMATION (Proposed Construction)

(1) FM: <u>4063143, I-75 – North River Rd. (CR 577) to SR 681 (2010)*</u>	ERP #: _____	COE #: _____
(2) FM: <u>1980104, US 301 – 29th Street to DeSoto (2011)</u>	ERP #: _____	COE #: _____
(3) FM: <u>1980172, US 41- Center Rd. to US Bus. 41 North (2011)</u>	ERP #: _____	COE #: _____

Drainage Basin: Lower Coastal Water Body(s): Fox Creek, Salt Creek, Curry Creek, Cow Pen Slough, Myakka River
SWIM water body? N

Impact Acres /Types (FLUCFCS):

(1) FM 4063143	(2) FM 1980104	(3) FM 1980172	
<u>7.4 ac. 641</u>	<u>0.03 ac. 510</u>	<u>0.2 ac. 642x</u>	
TOTAL 7.4 acres	<u>0.01 ac. 610</u>	TOTAL 0.2 acre	
	<u>0.03 ac. 631</u>		
	<u>0.05 ac. 641</u>		
	TOTAL 0.12 acre		TOTAL 7.72 acres

*Note – this segment of I-75 also proposes impacts to mangrove habitat, with mitigation proposed by purchasing appropriate credits at Sarasota County's Curry Creek ROMA (SW 88). Additional wetland impacts potentially occurring in the Myakka River basin have been designated for mitigation at the Myakka Mitigation Bank (SW 89).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration Enhancement Preservation Mitigation: **estim. 3-5 credits**

* Note – the total parcel covers 140-acres, the credits designated for FDOT mitigation will be determined based on the final acreage and habitat value of the proposed wetland impacts. The UMAM assessment method will be used to evaluate the proposed wetland impacts and associated mitigation.

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? Y Mitigation Bank? N
ROMA? Y WMD ERP# 43027077 ACOE # SAJ-2004-5757-MEP Drainage Basin: Lower Coastal Water Body(s): Fox Creek, Cow Pen Slough SWIM? N

Project Description

A. Overall project goal: Sarasota County acquired the 140-acre Fox Creek parcel in 2004 with the goal of preserving, enhancing, and creating a variety of diverse native habitats on the tract. In addition, these activities have been proposed to provide mitigation to compensation for unavoidable wetland and upland habitat impacts associated with public infrastructure projects; including County and FDOT roadway improvements in the Lower Coastal basin. The mitigation project objectives include a combination of freshwater wetland creation (forested and herbaceous), freshwater wetland enhancement (forested), estuarine wetland creation, upland scrub creation & enhancement, mesic hammock restoration & enhancement, and pine flatwood habitat enhancement and preservation. Details are provided in Attachment A and within the permits issued to Sarasota County.

B. Brief description of current condition: The parcel includes the lower reaches of Fox Creek, mesic hammocks, improved pasture, semi-improved pasture, pine flatwoods of various quality and coverage, and a large borrow pit (refer to Figure B, 1999 infrared aerial). Site description information is provided in Attachment A.

C. Brief description of proposed work: The Fox Creek parcel has been delineated into 16 mitigation areas with a variety of proposed habitat improvement activities based on the existing conditions and overall objectives of creating a mosaic of inter-related habitat conditions. Many of the improved and semi-improved pastures will be graded to create wetland habitat, with the northwestern pasture enhanced and restored into appropriate scrub habitat conditions (Figures B & C). The dredged material from constructing wetlands will be used to partially fill the 15-acre borrow pit to create appropriate littoral zone habitat transitioning to the open water component. The pine flatwood and mesic hammock habitats have variable coverage of exotic and nuisance species (e.g. Brazilian pepper, bahiagrass) that will be eradicated as well as supplemented with planted native species. The County will perpetually manage the mosaic of habitats with appropriate activities (e.g. herbicide exotics/nuisance vegetation, prescribed burns, supplemental plantings, etc.). Additional information of proposed activities is provided in Attachment A.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority of anticipated FDOT roadway wetland impacts proposed for mitigation at Fox Creek include widening improvements of I-75 from SR 681 to North River Road. As exhibited on the location map (Figure A), this long segment of I-75 is partially located adjacent to the Fox Creek property so this tract can essentially provide an on-site mitigation opportunity. The majority of the proposed I-75 wetland impacts will include freshwater marsh habitat that will be adequately and appropriately compensated with the creation of freshwater marsh and improvements to other habitats at Fox Creek. Additional FDOT mitigation information is provided in Attachment C. The following information indicates the anticipated wetland impact, habitat type (FLUCFCS), and estimated mitigation habitats & credits proposed for mitigation at Fox Creek:

- (1) FM 4063143 – Impact 7.4 ac.(641) – Mit. 4-5 credits of freshwater marsh (estim. permits by fall, 2008)
- (2) FM 1980104 – Impact 0.12 ac.(510, 610, 630, 641) – Mit. 0.07 credit of freshwater marsh (est. permits in 2008)
- (3) FM 1980172 – Impact 0.2 ac.(642x) – Mit. 0.1 credit of saltwater marsh (estim. permits in 2008)

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: There are no existing or proposed mitigation banks in the Lower Coastal basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time of mitigation selection, there were not any current or proposed SWIM projects in the Lower Coastal basin that could provide appropriate mitigation for the proposed wetland impacts.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Sarasota County has contracted for construction activities

Contact Name: Kris Fehlberg, Environmental Scientist, Sarasota County Natural Resources

Phone Number: 941 – 861 - 0764

Entity responsible for monitoring and maintenance: Sarasota County or designee

Proposed timeframe for implementation: Commence: Acquisition, Design & Permitting, 2004, Construction & Planting, 2005-2007 Complete: Mitigation Maintenance & Monitoring (M&M), 2006-2011 (minimum 5 years), followed by perpetual management activities.

Anticipated cost for FDOT credits: \$829,246 – \$1,028,106 **

- (1) FM 4063143 – estimated 4-5 credits x \$198,860 = \$795,440 to \$994,300 (estimated purchase – fall, 2008)
- (2) FM 1980104 – estimated 0.07 credit x \$198,860 = \$13,920 (estimated purchase – 2008)
- (3) FM 1980172 – estimated 0.1 credit x \$198,860 = \$19,886 (estimated purchase – 2008)

** Note – these credits and associated costs are based on estimated UMAM ratings, and that all proposed wetlands are regulated and require mitigation by both the SWFWMD and USACOE. Anticipated purchase date based on anticipated issuance schedule of the ERP and Section 404 permits.

Attachments

X 1. Detailed description of existing site and proposed work. Refer to Attachment A – Existing & Proposed Site Conditions.

X 2. Recent aerial photograph with date and scale. Refer to Figure B (1999 Infrared Aerial).

X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (Location Map), Figures B & C (Proposed Design), Figure D (Planting Plan), and Figure E (Rendition of Future Habitat Conditions).

X 4. Detailed schedule for work implementation, including any and all phases. Refer to previous discussion of schedule.

X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B – Maintenance & Monitoring Plan.

X 6. Long term maintenance plan. Refer to Attachment B – Maintenance & Monitoring Plan.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion under category D and Attachment C – FDOT Wetland Mitigation.

Attachment A – Existing Site Conditions and Proposed Work

Existing Habitat Conditions

Located along the coastal areas of western Manatee, Sarasota, and Charlotte County; the Lower Coastal Basin (also referred to as the Southern Coastal Watershed) has one of highest concentrations of urban land uses in southwest Florida. In an effort to acquire and protect some of the remaining undeveloped and native habitat areas in the basin portion located within Sarasota County, the County contracted for an extensive evaluation of undeveloped parcels within the basin. In order to justify the substantial acquisition costs associated with purchasing any remaining undeveloped tracts in the basin, the County evaluated the possibility of utilizing the tracts to fulfill upland and wetland mitigation requirements. As a result, a total of 10 tracts were evaluated and ranked for their potential habitat value (protected species, wildlife corridor, water quality improvements, flood attenuation) relative to costs associated with acquisition and construction. Other factors that were considered included proximity to known future roadway projects, existing hydrology, landscape disturbance & potential for enhancement, hydric soils data, and existing habitat buffers. As a result of this evaluation, the highest ranked site was Fox Creek. This tract was actively pursued and acquired in 2004 to serve as an off-site regional mitigation area (ROMA) to compensate for wetland impacts associated with County and other public infrastructure projects.

The parcel includes the lower reaches of Fox Creek along the western border of the property (Figure B). The site has improved pasture, semi-improved pasture transitioning into pine flatwoods, mesic hammocks and a 15-acre borrow pit that was dredged by FDOT for fill material associated with constructing the adjacent I-75;

the same segment of I-75 proposed for widening with associated wetland impacts proposed for mitigation at Fox Creek.

Adjacent to Fox Creek, there is a mature mesic hammock buffer consisting of live oak (*Quercus virginiana*), cabbage palm (*Sabal palmetto*), and sand live oak (*Quercus geminata*) (Photo 1). The banks of Fox Creek are incised, which has precluded the establishment of riparian vegetation, though some leatherfern (*Acrostichum danaeifolium*) does exist near the toe-of-slope. The upland adjacent to the northern portion of the creek is an improved pasture covered with bahiagrass (*Paspalum notatum*) (Photo 2). Though few native groundcover species exist, native trees and shrubs are beginning to regenerate with the removal of cattle. Species include scattered seedlings of saw palmetto (*Serenova repens*) and sand live oak. The soils in the area are well drained and densely occupied by both active and inactive gopher tortoise (*Gopherus polyphemus*) burrows. Within the northern portion of the improved pasture, there are several large live oaks and a few pignut hickory (*Carya glabra*), which are providing habitat and food to a population of Sherman's fox squirrels (*Sciurus niger shermani*).

The interior of the tract has variable coverage of a pine flatwood community intermixed with semi-improved pasture conditions. The flatwood portion that still has moderate density of longleaf pine (*Pinus palustris*), saw palmetto, scattered wiregrass (*Aristida stricta*), and pawpaw (*Asimina reticulata*) is predominantly in the west-central portion of the tract, and will be preserved and enhanced within the project's plan. Beyond this core area, there are remnant pockets of scattered pine, palmetto and variable cover of semi-improved pasture with sedges and bahia (Photo 3). As depicted in the mitigation plan (Figures B and C), the design was prepared to protect and enhance many of these remnant flatwood stands as upland habitat peninsulas extended into proposed graded areas that will be converted to wetland creation areas. This will enhance the preserved flatwoods while concentrating minimal vegetative loss to scattered pines and palmetto. As a result, the mosaic of created wetland and enhanced upland habitat will be a substantial benefit to wildlife and there is very limited freshwater wetland habitat (marsh and forested systems) within the Lower Coastal basin. These wetland systems are important for various periods of the life cycle of many wildlife species, and the design plan for Fox Creek proposes substantial wetland creation while recognizing the benefits of protecting and enhancing the ecological value of the adjacent upland habitat (refer to Figure E for rendition of future habitat conditions). Within the preserved flatwood community, a bald eagle nest (SA009) exists that was last reported as active in 2002. Currently, the nest is occupied by great horned owls that have been observed in the nest during site inspections. A second bald eagle nest (no assigned number) exists in the flatwoods located just south of the Fox Creek parcel. The nest appears to be active as two eagles and at least two chicks have been recently observed (February, 2004).

There are a few mesic oak hammocks on the property, along the top-of-bank for Fox Creek, within the southwestern corner along Fox Creek, and along the southeastern border of the property. Live oak provides the dominant canopy cover, however Brazilian pepper (*Schinus terebinthifolius*) and carrotwood (*Cupaniopsis anacardiodes*) have encroached the hammock, particularly in the southeastern community.

Proposed Habitat Conditions

A combination of mitigation types is proposed that includes freshwater wetland creation (forested and herbaceous), freshwater wetland enhancement (forested), estuarine wetland creation, upland scrub creation & enhancement, mesic hammock enhancement, and upland enhancement and preservation. A total of 16 areas are proposed for mitigation credit; 15 of these areas are being requested for mitigation credit with the remaining upland enhancement area likely utilized to compensate for potential upland scrub impacts. The freshwater marsh creation areas will include interior obligate zones planted with spatterdock (*Nuphar luteum*) that transition to bulrush (*Scirpus californicus*), arrowhead (*Sagittaria lancifolia*), pickerelweed (*Pontederia cordata*), spikerush (*Eleocharis cellulose*), maidencane (*Panicum hemitomon*), soft rush (*Juncus effusus*), and sawgrass (*Cladium jamaicense*). The soil material scalped to create wetlands will be deposited in the borrow pit to create littoral zones that are not currently present (Photo 4). The lack of littoral features has precluded the growth of herbaceous vegetation that has reduced the habitat value for many species of birds, reptiles, amphibians, and fish. An open water core will still be present to create habitat diversity for many wildlife species including fish, waterfowl, and raptors such as osprey and bald eagles.

Forested wetland components will be strategically placed within the created marshes and will include species common to the forested wetlands in the area including dahoon holly (*Ilex cassine*), red maple (*Acer rubrum*), pop ash (*Fraxinus carolinana*), loblolly bay (*Gordonia lasianthus*) and sweet bay (*Magnolia virginiana*). The enhancement of the mesic hammocks will have the exotics eradicated (B. pepper dominant) and supplemented with plantings of live oak, sand live oak, cabbage palm, and laurel oak (*Quercus laurifolia*). The upland restoration area will have bahiagrass eradication and replaced with native groundcover such as wiregrass, as well as native shrubs and trees.

One of the most unique aspects of the design includes the creation of an estuarine marsh system by constructing channel connections to the tidal waters of Shakett Creek. The northern boundary of Shakett Creek occurs at the southernmost control structure of the freshwater flow of Cow Pen Slough (Figures B and C). This control structure defines the saltwater/freshwater interface and is located just east of the project area. Currently, freshwater levels are maintained in Cow Pen Slough at elevation 11 ft. NGVD during the months of November through June; then dropped to 7 ft. NGVD through the summer to alleviate the potential of upstream flooding. During the dry season, freshwater flow will be diverted from Cow Pen Slough into created freshwater wetlands on Fox Creek. The freshwater overflows into the estuarine marsh constructed in the southeast corner of the property. This will result in a salinity gradient, diverse vegetative species, variable habitat conditions, and water quality treatment before the flow discharges into Shakett Creek. The created low salt-marsh will be planted with needle rush (*Juncus roemerianus*) and saltmarsh cordgrass (*Spartina alterniflora*). The high salt-marsh will be planted with a mixture of leatherfern, saltbush (*Baccharis halimifolia*), buttonwood (*Conocarpus erectus*), and Atlantic white cedar (*Chamaecyparis thyoides*).

Attachment B – Maintenance & Monitoring Plan

Sarasota County proposes to implement an adaptive management and monitoring program to ensure the success of this regional mitigation project. A management plan will be developed after the project is permitted which will include a detailed habitat management plan (maintenance activities, schedules, etc.), maps of existing and proposed habitat types, access points, and allowable site uses (passive recreational). This management plan will incorporate data from the proposed monitoring plans described below, to provide for an adaptive management approach for the entire site. The adaptive management will be used to regularly measure site criteria and adjust treatments and activities, as necessary. The expected benefits of this approach will extend the values of multiple wetland functions, including wildlife use, appropriate hydroperiods, water quality opportunities, passive recreation, and aesthetics.

The monitoring program will involve both vegetative transect (semi-annually) and water level monitoring (monthly). Staff gages and piezometers will be installed in each wetland creation area. A description of the proposed monitoring program follows:

Herbaceous Wetland Monitoring Plan

1. A "time zero" monitoring report will be submitted, which will include the date the planting was completed, color photographs from fixed photo reference points and directions, and a table depicting the approximate numbers, spacing, and sizes of each planted species.
2. Mitigation monitoring reports shall be submitted annually for three years. Each monitoring report will include two monitoring events to occur once in the dry season and once in the wet season.
3. The mitigation monitoring reports will include color photographs from fixed photo stations, plant species, plant species compositions with estimates of the contributions of each species to percent cover, data documenting the hydrologic regime (seasonal high and normal pool), and a description of the pertinent climatological conditions preceding the monitoring event.
4. Planted herbaceous species will achieve an acceptable minimum percent cover and the total contribution of exotic species will be maintained below 10% of the total coverage.

Forested Wetland Monitoring Plan

1. A "time zero" monitoring report will be submitted, which will include the date the planting was completed, color photographs from fixed photo reference points and directions, and a table depicting the approximate numbers, spacing, and sizes of each planted species.
2. Mitigation monitoring reports shall be submitted annually for five years. Each monitoring report will include two monitoring events to occur once in the dry season and once in the wet season.
3. The mitigation monitoring reports will include color photographs from fixed photo stations, growth data including measurements of height, diameter at breast height (dbh), and mean annual growth rate to date, data documenting the hydrologic regime (seasonal high and normal pool), and a description of the pertinent climatological conditions preceding the monitoring event.
4. The total contribution of exotic species will be maintained below 10% of the total coverage.

A combination of the above criteria will be used for sites that include both herbaceous and forested components to demonstrate that the mitigation site meets the defined success criteria.

Upland Monitoring Plan (for enhanced sites)

1. A "time zero" monitoring report will be submitted, which will include the date the planting or exotic removal was completed, color photographs from fixed photo reference points and directions, and a table depicting the approximate numbers, spacing, and sizes of each planted species.
2. Mitigation monitoring reports shall be submitted annually for three years.
3. The mitigation monitoring reports will include color photographs from fixed photo stations, percent area cleared of exotic vegetation, growth data including measurements of height, diameter at breast height (dbh), and mean annual growth rate to date, and a description of the pertinent climatological conditions preceding the monitoring event.

The information gathered from the monthly water level and semi-annual vegetation monitoring will be used to manage and maintain adequate and appropriate hydroperiods for each of the constructed wetland areas. Water levels are expected to vary seasonally due to natural and localized rainfall conditions, and particularly in the constructed wetlands hydrologically connected to Cow Pen Slough and Shakett Creek. The facultative and obligate zones within the constructed wetlands have been designed to account for the potential changes in groundwater elevations caused by water level controls in Cow Pen Slough, however, minor modifications may be required to ensure adequate and appropriate hydroperiods (timing, duration, depth).

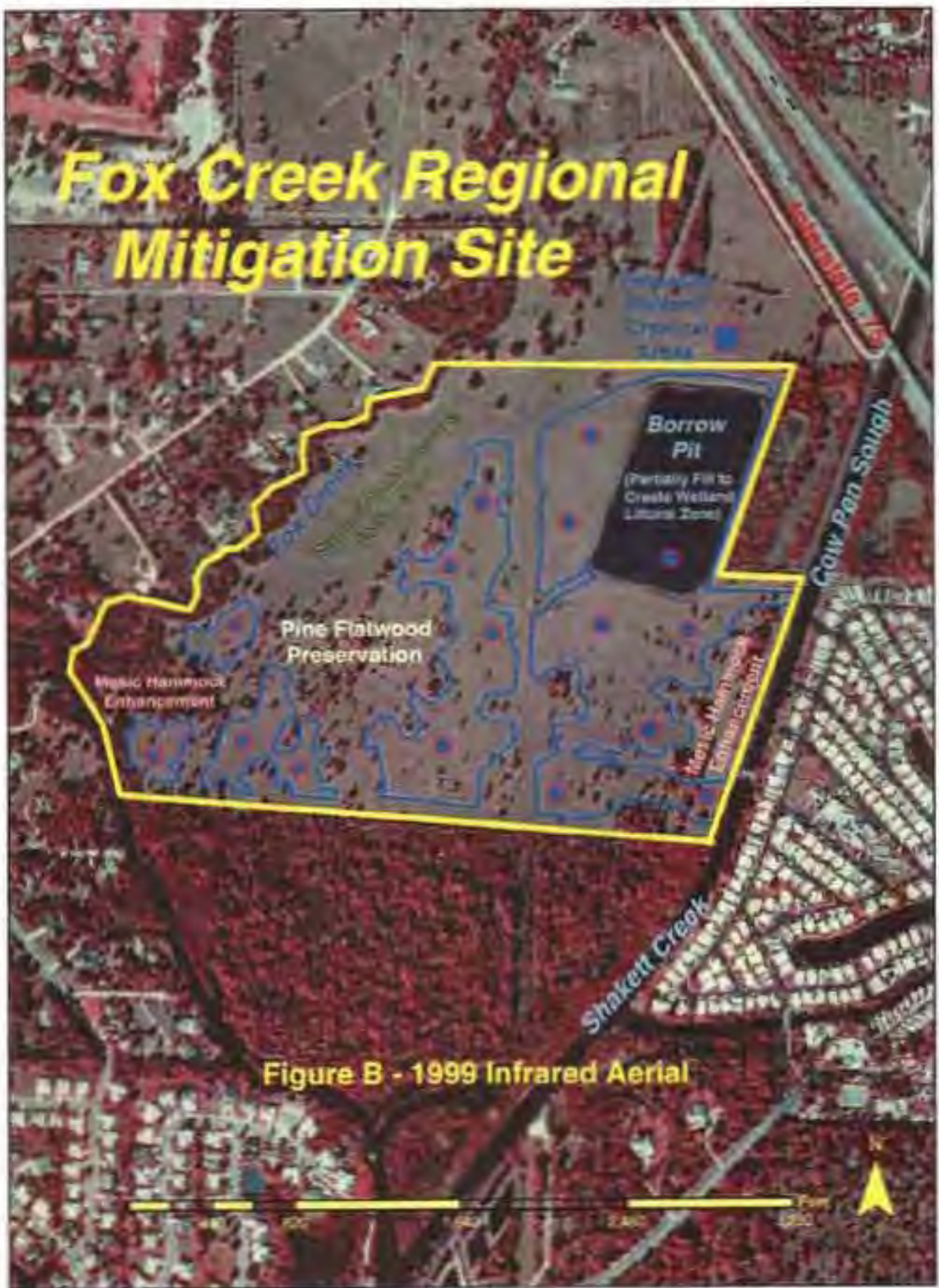
In addition, the data gathered during the annual monitoring reports will be used to re-evaluate each of the mitigation areas in the context of the Uniform Mitigation Assessment Method (UMAM). Since several areas within the Fox Creek Regional Mitigation Project will be either enhanced or constructed and planted prior to future infrastructure wetland impacts, ratings for time lag and risk will be re-evaluated and an updated UMAM credit table will be developed and submitted for agency review through permit modifications.

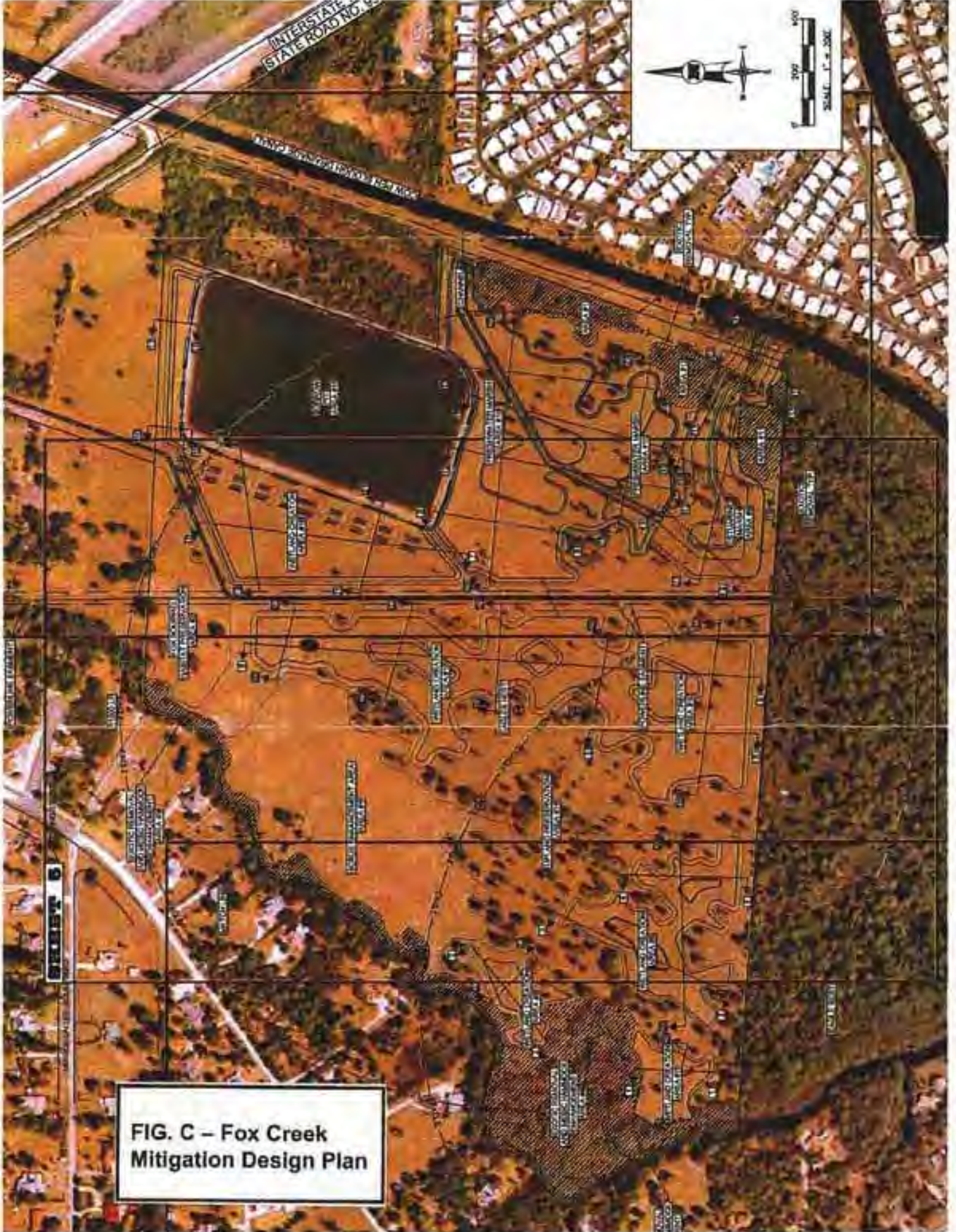
Attachment C – FDOT Mitigation Criteria

As previously noted, the majority of anticipated FDOT roadway wetland impacts proposed for mitigation at Fox Creek are associated with the proposed 6-lane expansion of the I-75 segment located adjacent to the tract. This expansion is scheduled to commence in the spring, 2010. This will provide the opportunity for the habitat improvements at Fox Creek to approach success criteria prior to when the anticipated wetland impacts will occur. The I-75 wetland impacts are conservative planning estimates and only for the maximum limits of roadway improvements. The final impacts (habitat and acreage) will decrease or increase based on the ability to minimize the roadway construction limits and limit wetland impacts associated with the construction of stormwater and floodplain compensation facilities. In addition, habitat evaluation of the proposed impacts may alter the quantity and type of mitigation areas and associated credits debited from the mitigation ledger for Fox Creek. Depending on the availability of mitigation credits, It's possible that

additional future FDOT wetland impacts may also be nominated for mitigation at Fox Creek, including the wetland impacts associated with the ultimate 8-lane expansion of I-75. As these wetland impacts are proposed by FDOT, coordination with Sarasota County will be conducted to determine if there will be appropriate and adequate mitigation credits available to compensate for these impacts. This effort will be followed with submittal and approval from regulatory and commenting agencies before adopting into the FDOT mitigation plan.

Fox Creek Regional Mitigation Site





**FIG. C – Fox Creek
Mitigation Design Plan**

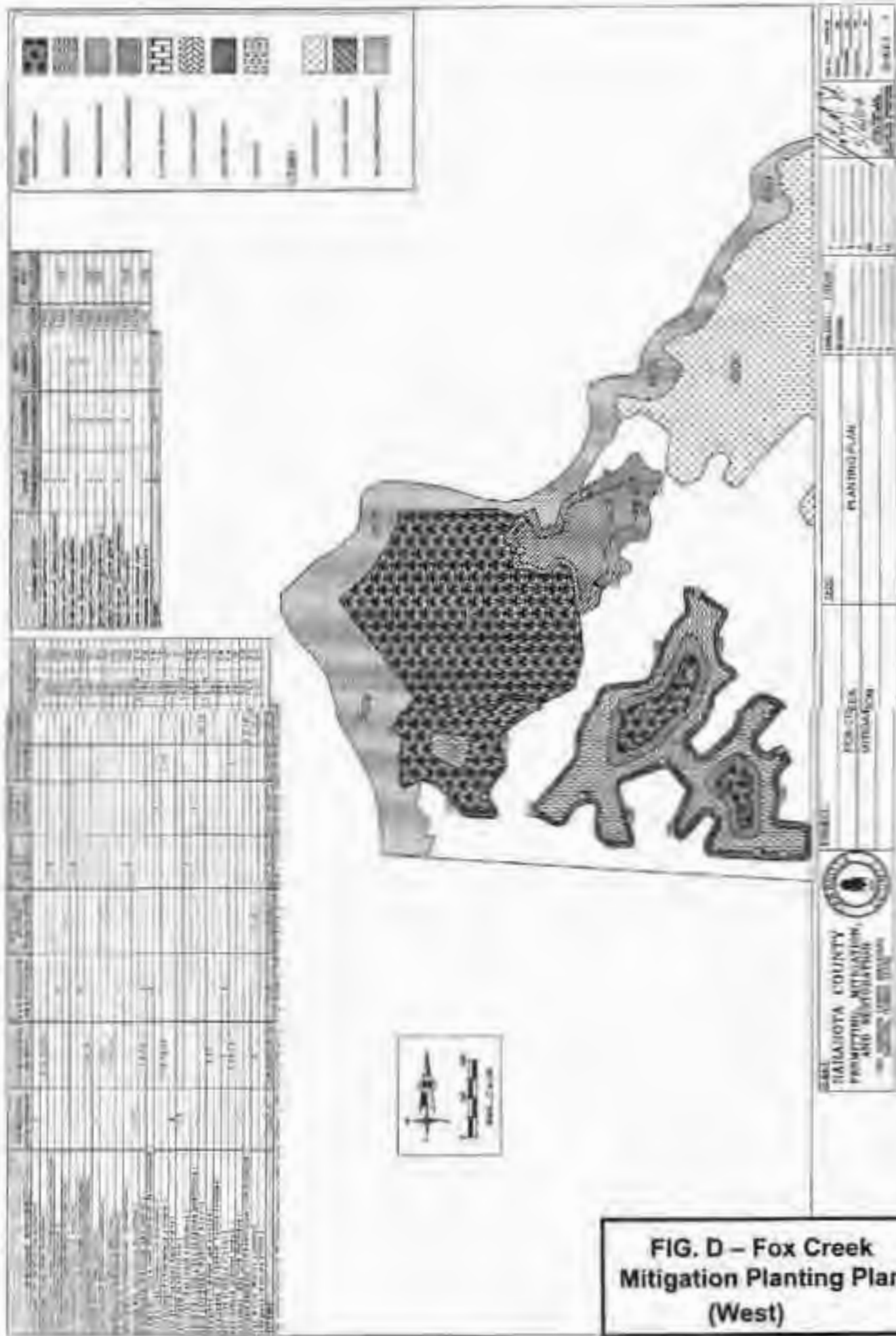


FIG. D – Fox Creek Mitigation Planting Plan (West)

**FIG. E – Fox Creek Mitigation
Proposed Post Construction
Habitat Plan**

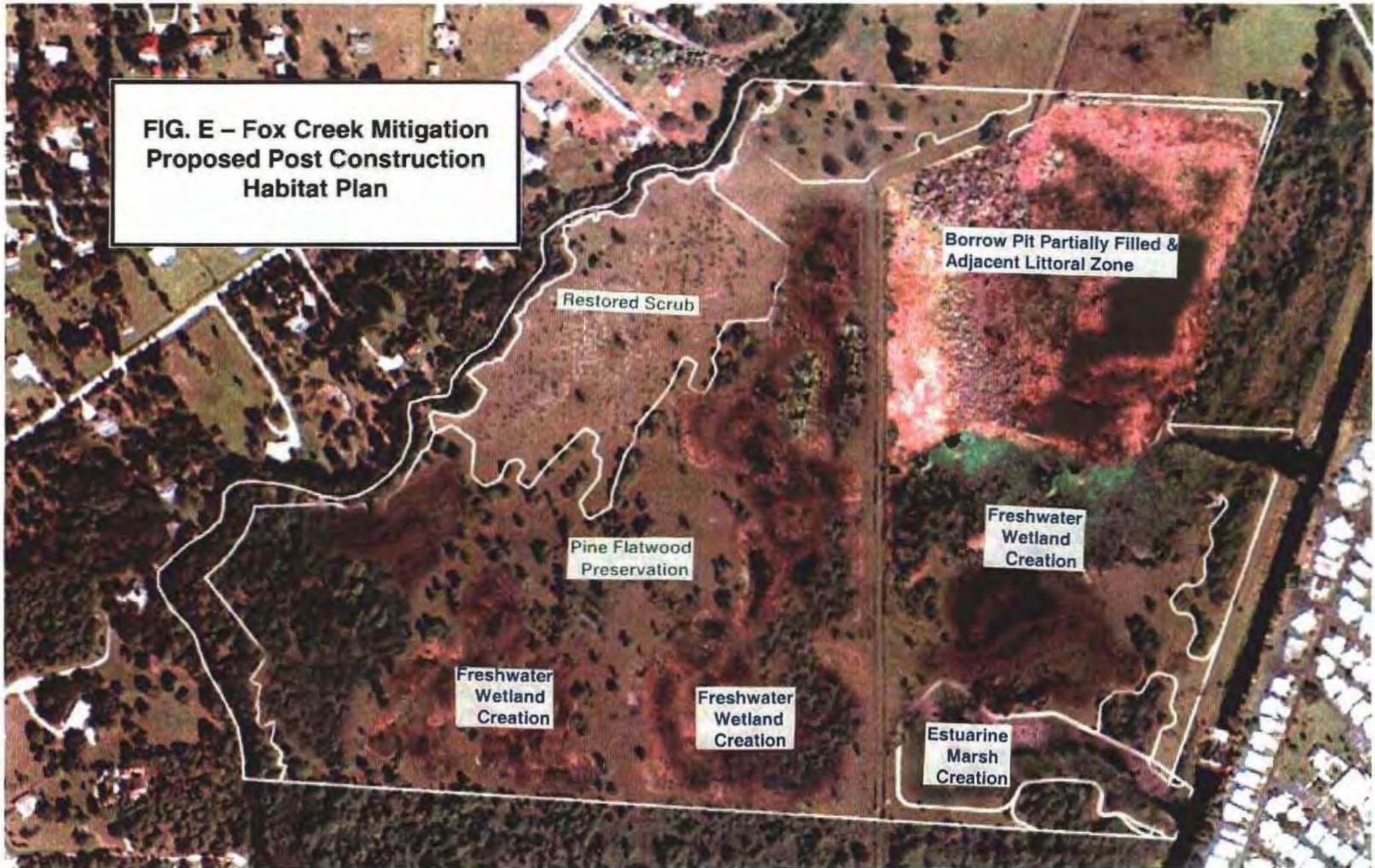




Photo 1 – Fox Creek meanders along the western boundary of the tract. Deeply incised, the creek is bordered by a mesic hammock dominated by live oak and cabbage palm.



Photo 2 – The northwest pasture is dominated by bahia and will be restored into a scrub habitat community.

FDOT - District 1 Mitigation Site
Lower Coastal Basin

FOX CREEK
REGIONAL MITIGATION PROJECT
(SW 79)



Photo 3 – Portions of the semi-improved pasture with scattered palmetto and sedges mixed with the bahia (foreground) will be graded to create wetlands. Remnant pine flatwoods (background) will be preserved and enhanced as part of the proposed mitigation plan.



Photo 4 – Improved pastures (foreground) will be graded and material placed into the borrow pit (background) to create extended marsh littoral zones.

**FDOT - District 1 Mitigation Site
Lower Coastal Basin**

**FOX CREEK
REGIONAL MITIGATION PROJECT
(SW 79)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District: Southwest Florida Water Management District

Mitigation Project Name: Hidden Harbour

Project Number: SW 80

Project Manager: Candie Pederson, Manatee Co. Parks Designer

941-742-5923, ext. 6047

County: Manatee

Location: Sec. 17, R19E, T34S

IMPACT INFORMATION (Proposed Construction Date)

1 – FM 1960224, SR 64 – Lakewood Ranch to Lorraine Rd. (Seg. 3) ERP #: 43025776.00 COE #: SAJ-2004-734-JPF
2 – FM 1996682, Upper Manatee River Rd. – SR 64 to US 301 (2012)* ERP #: _____ COE #: _____

Drainage Basin: Manatee Water Body(s): Manatee River SWIM water body? (Y/N) Yes

Impact Acres / Habitat Types (FLUCFCS)

1 – FM 1960224	3.5 ac. 630	2 – FM 1996682*	3.5 ac. 630	Impact Total: 10.6 Acres
	0.5 ac. 641		0.3 ac. 631	
<u>TOTAL</u>	<u>4.0 acres</u>		2.1 ac. 641	
			0.1 ac. 642	
			0.3 ac. 911 (shading)	
		<u>TOTAL</u>	<u>6.3 acres</u>	

* Note – The Upper Manatee River Road project is undergoing various environmental and economic evaluation. Pending the results of this evaluation, the project may be removed from the mitigation program.

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: x Creation x Restoration x Enhancement ___ Preservation **Mitigation Area: 101 Acres**

SWIM project? (Y/N) N Aquatic Plant Control project? (Y/N) N Exotic Plant Control Project? (Y/N) Y
Mitigation Bank? (Y/N) N Drainage Basin(s): Manatee River Water Body(s): Manatee River, Gamble Creek
SWIM water body? (Y/N) Y

Project Description

A. Overall project goal: The Hidden Harbour tract (229 acres) was acquired by Manatee County in late, 2004 and a portion of the property was nominated to the mitigation program in early, 2005. Within the southeastern portion of the property, there is the presence of a unique, inter-related mosaic of parallel, alluvial deposits that formed along the convergence of Gamble Creek and the Manatee River (refer to Figure B). The habitat on these deposits formed into mesic oak hammocks alternating with brackish marsh and inter-tidal creeks under state-owned sovereign submerged lands. These wetland hammocks are in need of habitat enhancement by eradication of Brazilian pepper. Additional mitigation activities will include freshwater marsh enhancement, upland habitat restoration and marsh creation will provide more habitat diversity and buffer from proposed school and recreational facilities on the remaining portion of the tract. The combination of these habitat improvement activities will also provide wetland and riverine buffers that will provide a great benefit for water quality treatment, floodwater attenuation, and a wildlife habitat corridor adjacent to the Manatee River and Gamble Creek. Due to the value this tract provides to the Manatee River and Gamble Creek, it was also within the SWFWMD's Florida Forever Plan for public land acquisition.

B. Brief description of current condition: The mesic oak hammocks (FWE 1-3, total 53.6 acres) have dominant tree cover of live oak, laurel oak, cabbage palm, with subdominant coverage of Brazilian pepper, red cedar, and slash pine. Sub-canopy and understory vegetation include the same species with additional cover provided by saw palmetto, wax myrtle, myrsine, greenbriar, swamp fern; with black rush and leather fern along the marsh/hammock transition. The freshwater marsh (ME 1, 1.5 acres) has shallow surface water seepage hydrology contributing downstream to the adjacent hammock and brackish marsh. Dominant vegetative cover of the marsh includes broomsedge, dog fennel, maidencane, and low panicums, The majority of the uplands within the property have been under row crop production and was proposed for residential development until the tract was acquired by the County. There is an upland area (UHR 2 – 17.3 acres) along the confluence of Gamble Creek and Manatee River that was historically flatwood habitat with scattered live oaks until the area was cleared in preparation of development. As depicted on Figure B, the majority of the upland habitats at Hidden Harbour were historically converted to row crop production. However for UHR 2, rather than converting to row crops, this cleared area was allowed to transition to fallow conditions and has dominant cover of low panicums (*Dichanthelium* spp.) with minor cover of muhly grass, broomsedge, flat-top goldenrod, winged sumac, ragweed, and scattered palmetto regeneration. An average 20 ft. wide linear remnant zone of palmetto and scattered live oak are still present along the steep sideslopes bordering the river (refer to photos). In spite of the agricultural use within the majority of the tract, wildlife activity is still present within the remaining native habitats. The hammocks provide roosting and safe buffer zones for wading birds foraging in the marshes. The majority of the hammocks only receive surface water inundation during major flood events, so the hammocks provide safe cover for roosting, nesting, foraging, denning and wildlife corridor connections. Wildlife observations and signs include deer, raccoon, rabbit, bobcat, opossum, and several bird species. There are indicators that wildlife also leave the safe cover of the hammocks and forage within the cleared upland area (UHR 2). The hammocks also provide short and easy access to the river by reptiles and amphibians, and opportunities for nesting (refer to alligator nest photo). Additional details of site conditions are provided in Attachment A and depicted in the site photographs.

C. Brief description of proposed work: The mesic hammocks provide moderate habitat condition with the primary limitation associated with the presence of Brazilian pepper. The B. pepper particularly provides moderate coverage along the transition interface of the marsh and hammock habitat that hinders wildlife movement for foraging, and minimizes the coverage of desirable vegetation. The initial habitat improvements include an extensive initial herbicide eradication of the B. pepper. Since equipment access into the hammock would be difficult without secondary impacts to habitat conditions, the dead B. pepper will be allowed to decay rather than attempting to cut or mulch. There is adequate coverage of adjacent desirable species that will naturally recruit to displace and minimize the regeneration of the B. pepper. However, annual herbicide treatments will be conducted to eradicate recruited and generated B. pepper. There are a few north-south ditches dredged within and along the perimeter of the forested wetland bordering the north property boundary (FWE 1 – 4.8 acres). In addition to the B. pepper eradication, the spoil material will be removed through backfilling ditches and/or complete fill removal from the wetland. Maple and laurel oak will be planted to restore the wetland habitat areas displaced by the ditches & spoil material. The upland habitat (UHR 2 – 17.3 acres) will be restored with a dense planting of appropriate species such as slash pine, scattered live oak, wax myrtle, gallberry, saw palmetto, and fetterbush. A created marsh (MC 1 – 3.3 acres) is proposed for construction within an isolated upland peninsula row crop area adjacent to forested wetland habitat (FWE 2 – 8.4 acres). The marsh will be have a hydraulic connection to Gamble Creek, and will include herb species that can endure oligohaline conditions when the creek and Manatee River achieve flood stages. The created marsh and adjacent forested wetland will also have a buffer of

restored upland habitat (UHR 1 – 18.8 acres). The forested wetlands (FWE 3) and associated sovereign land marshes will also be buffered with restored upland habitat (UHR 3 – 6.0 acres). The enhanced marsh, marsh creation, and restored upland habitats will also have herbicide maintenance to eradicate exotic and nuisance species. Additional details of the mitigation plan are included in Attachment B.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): Anticipated wetland impacts associated with at least two roadway projects are proposed for mitigation at Hidden Harbour (refer to Figure A). A Uniform Wetland Mitigation Assessment (UMAM) was conducted for the impacts and proposed mitigation activities at Hidden Harbour. The wetland impacts associated with the SR 64 segment include 3.52 acres of forested habitat and 0.52 acre of marsh habitat. The designated mitigation for these impacts includes 18.2 acres of forested wetland enhancement, 6.2 acres of upland habitat restoration, and 1.1 acres of marsh enhancement. This results in a total of 25.5 acres of habitat enhancement and restoration to compensate for 4.04 acres of proposed impact. The second roadway (Upper Manatee River Road) is in the project development phase with construction planned no sooner than 2012. This roadway facility has a proposed alignment that will cross through the western limits of Hidden Harbour, with many of the anticipated wetland impacts associated with areas near Hidden Harbour and the Manatee River (refer to Figures A, B). The conceptual roadway plan anticipates impacts to 3.5 acres of forested wetlands, 2.1 acres of non-forested wetland habitat, and a conservative estimate of potentially 0.3 acre of seagrass shading impacts associated with the proposed bridge construction over the Manatee River. Seagrass transects in 2000 determined there was less than 5% vegetative coverage within the seagrass bed, so additional evaluation of the bridge and habitat conditions will be required to estimate appropriate mitigation options. Preliminary estimates for mitigation of the Upper Manatee River Road wetland impacts will include 29.3 acres of forested wetland enhancement, 10.9 acres of upland habitat restoration, and the 3.3 acres of marsh creation. This will result in a total of 43.5 acres of habitat improvements to compensate for the conservative impact estimate of 6.3 acres of similar wetland habitat. After allocating appropriate and adequate mitigation for these two roadway projects, there could be approximately 33 acres of mitigation credit that can be potentially proposed to provide additional mitigation credit associated with unforeseen additional wetland impacts associated with the Upper Manatee River Road and/or other roadway wetland impacts that may be submitted to the program. If for some reason the Upper Manatee River Road is not constructed and/or not proposed for mitigation through the FDOT Mitigation Program, the proposed marsh creation activities may not be constructed for mitigation credit. As the proposed school and recreational facilities are finalized, the final mitigation boundaries, habitat types and associated acreage will also be updated in the annual FDOT mitigation plan.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection for the two roadway projects in 2005, the only proposed mitigation bank in the Manatee Basin (Braden River Mitigation Bank) was under state and federal permit review. The bank will be evaluated for possible selection for mitigation of other roadway wetland impacts in the future.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: This project is not specifically sponsored by the SWIM program. However, from the Manatee Reservoir downstream to Tampa Bay, the Manatee River is a designated SWIM water body and the proposed habitat improvements will provide ecological enhancement for the river and Tampa Bay.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Manatee County Parks & Recreation Department and/or contractors working for the County.

Contact Name: Candie Peterson, Manatee Co. Parks Designer

Phone Number: 941-742-5923, ext. 6047

Entity responsible for monitoring and maintenance: Maintenance activities will be conducted through Manatee County, monitoring activities will be conducted by private environmental consultants under contract for the SWFWMD.

Proposed timeframe for implementation:

Spring, 2008 - Commence initial herbicide treatments (Forested Wetland & Marsh Enhancement Areas).

Summer, 2008 – Commence annual monitoring activities.

Summer, 2009* - Conduct upland habitat restoration planting (UHR 2, UHR 3, some portion of UHR 1).

2011-2012**- Construction & Planting within the marsh creation (MC 1) and ditch/spoil removal area (FWE 1), upland habitat restoration (UHR 1).

2005 – 2015 – Herbicide treatment of all enhanced and created habitats.

*Note: The schedule of upland restoration activities will be evaluated relative to the proposed construction of recreational facilities.

**Note: These habitat improvements are providing mitigation for anticipated wetland impacts associated with the Upper Manatee River Road. Commencement of these activities is contingent on the need for mitigation credits for the roadway facility, or other roadway projects' wetland impacts that may be proposed for mitigation at the site. If mitigation earthwork activities are conducted, efforts will be made to coincide with construction activities associated with the proposed school and/or recreational areas.

Preliminary Project Cost Estimates: **\$600,000** (total);

Construction & Planting - \$450,000

Herbicide Maintenance & Monitoring – \$150,000

Attachments

1. Detailed description of existing site and proposed work. Refer to previous description and Attachment A.

2. Recent aerial photograph with date and scale. Refer to Figure B for the 1999 infrared aerial.

3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (Location Map), Attachment A for existing and proposed conditions, Figure B (Mitigation Plan), Figure D (Conceptual Site Plan – School & Recreation Area), and site photographs. Design drawings for earthwork activities will be prepared for the marsh creation when there is additional information of the proposed marsh impacts for the Upper Manatee River Road and site conditions for the creation area. Depending on the floodplain compensation requirements for the proposed facilities at Hidden Harbour, expanding this marsh and/or other potential wetland creation areas might be evaluated for potential use to provide additional mitigation credit.

4. Detailed schedule for work implementation, including any and all phases. Refer to previous discussion.

5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.

6. Long term maintenance plan. Refer to Attachment B.

7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

Attachment A – Existing and Proposed Habitat Conditions

The Hidden Harbour parcel covers 229-acres with the majority of the tract previously used for row crop production. Prior to the County acquisition in 2004, the property was proposed and designed for a residential community referred to as Hidden Harbour. Due to the substantial residential development under construction and planned for the vicinity between Ellenton and Parrish, the County acquired this property to adequately plan for necessary school, recreational, and regional park facilities. These facilities are being evaluated and designed in 2005-2009. The County is planning to construct the school and associated athletic fields in the western and central portions of the tract, and the regional park within the eastern portion. In collaboration with the SWFWMD, Manatee County agreed to allow habitat enhancement and creation on the property to provide appropriate mitigation credits for wetland impacts associated with proposed roadway facilities that will directly benefit the vicinity (e.g. SR 64, Upper Manatee River Road). In addition, a portion along the western boundary of the Hidden Harbour property will be necessary to fulfill right-of-way requirements for the Upper Manatee River Road and associated stormwater and floodplain compensation facilities. Since originally proposed within the 2005 mitigation plan, the County's site design has provided additional acreage for habitat improvements; particularly the opportunity to expand and restore additional upland habitat buffers that will be particularly beneficial for wildlife corridors and connectivity. The following provides additional information on the existing and proposed habitat conditions for the various mitigation portions of the property. Refer to Figure B for the designated locations and photographs for representative conditions. Figure C is the NRCS soil survey for the tract, including hydric soil locations. Figure D depicts the conceptual site plan for the adjacent school and recreational facilities.

Forested Wetland Enhancement Area 1 (FWE 1 – 4.8 acres) – This forested wetland is a mesic oak hammock with an east-west channelized creek connecting to Gamble Creek at the northeast corner of the property. The dominant tree cover includes live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), and cabbage palm (*Sabal palmetto*), with additional coverage provided by water oak (*Quercus nigra*), Brazilian pepper (*Schinus terebinthifolius*), and scattered red maple (*Acer rubrum*). Understory coverage varies with pockets of saw palmetto (*Serenoa repens*), scattered wax myrtle (*Myrica cerifera*) and saplings of the above referenced tree species. The hydrology of the majority of this system is primarily groundwater saturation near the surface grade elevation with potential inundation limited to flood events. In order to achieve positive hydraulic surface and storm water connections from the upland row crop areas to the ditched creek channel, deep lateral drainage ditches were historically dredged through this wetland to connect with the creek (refer to Figure B and site photographs). This ditching diverted and channelized contributing watershed conditions, altering appropriate seepage hydrology for this wetland system. As a result, most of this wetland system within the County property has only minimal opportunities to maintain adequate wetland hydrology. In 2005, the upland row crop areas within property north of Hidden Harbour were being converted to a residential community. To provide mitigation credit, the ditch & spoil segment within this same wetland system on the adjacent property has been graded and planted with trees. In order to continue enhancing the hydrology of this wetland, the ditch segments dredged through and adjacent to this wetland will also be backfilled with the adjacent spoil material. In areas where the ditch grade has silted and covered with desirable vegetation, excess spoil material will be removed from the wetland to match the natural grade elevations. Depending on the slope gradient, proposed tree and shrub plantings (min. 10 ft. spacings) will primarily include laurel oak, water oak, red maple and wax myrtle. In order to minimize the potential of erosion, silt screens will be intermittently installed perpendicular to flow, and depending on the season of earthwork; winter rye (fall, winter) or brown-top millet (spring, summer) will be seeded to provide quick temporary cover. As evident by the adjacent restoration activities in the same wetland, ground cover planting is not anticipated to be necessary. However, a contingency plan of supplemental herbs will be planted if there is insufficient natural recruitment of desirable ground cover. Along with the hydrologic improvements, the B. pepper will be eradicated from this system.

Forested Wetland Enhancement Areas 2 & 3 (FWE 2 – 8.4 acres, FWE 3 – 40.4 acres) – These forested wetlands are closer, have lower grade elevations, more B. pepper cover, and are more influenced by the hydrology of Gamble Creek and the Manatee River compared to FWE 1. Dominant tree cover is provided by laurel oak, live oak, and cabbage palm. The B. pepper is more prevalent along the upper transition between

the hammock and adjacent marsh habitat within FWE 3. Other common canopy and shrub species include red cedar (*Juniperus silicicola*), slash pine (*Pinus elliottii*), myrsine (*Myrsine floridana*), saw palmetto, greenbriar (*Smilax rotundifolia*), grapevine (*Vitis* spp.) and swamp fern (*Blechnum serrulatum*). Along the lower transition between the hammocks and adjacent marsh, there is a narrow zone of scattered white mangrove (*Laguncularia racemosa*) and few red mangrove (*Rhizophora mangle*). The marsh is dominated by black needlerush (*Juncus roemerianus*) and leather fern (*Acrostichum aureum*), with some minor bands of cattails (*Typha* sp.) along the water's edge. The cattails are generally located within limited narrow zones with minimal potential to recruit and generate into the adjacent marsh habitat.

A title search was conducted by the County as part of the acquisition process to determine the limits of the sovereign state lands (SSL) versus private ownership. The hammock areas are above mean high tide elevations and were part of the County acquisition of Hidden Harbour. The 50-60 acres of marsh habitat and 20-30 acres of tidal creek and bay area buffered by the hammocks are sovereign lands. These sovereign wetland areas will receive secondary ecological benefits by the proposed enhancement activities but are not quantified as mitigation credit under the proposed plan. Enhancement of these hammocks will be conducted by herbicide application of the B. pepper, which in some areas are particularly large trees (refer to photos). Due to the environmental damage that cutting and removing the snags would cause, the B. pepper will be allowed to decay in place and no construction activities are proposed within the system. This will allow the natural recruitment and generation of appropriate hydrophytic vegetation, while opening areas for easier wildlife access to forage and nest. An intensive initial effort to eradicate the B. pepper will be conducted, followed by annual maintenance for a minimum of five years. As with all the habitat creation and enhancement areas for the property, the quantity and schedule of maintenance events will be evaluated to ensure continued success with emphasis on eradicating and leaving as minimal coverage of exotics as possible.

It is also noted that there is 3-4 acres of additional mesic oak habitat along the north bank of the Manatee River and within the Hidden Harbour property. This acreage may be included within the mitigation plan at a later date. This linear zone along the river was purposely removed from inclusion to evaluate how this habitat may provide any necessary buffers and/or mitigation associated with the County facilities, as well the relationship with the proposed Upper Manatee River Road and associated stormwater and floodplain compensation facilities constructed on the Hidden Harbour property.

Upland Habitat Restoration (UHR 1 – 18.8 acres, UHR 2 – 17.3 acres, UHR 3 – 6.0 acres) – The majority of the upland habitat restoration acreage include former row crop activities that will be restored to habitat buffers for the adjacent enhanced forested wetlands (FWE 2 & 3) and marsh creation (MC 1). Proposed plantings will include slash pine, live oak, laurel oak, wax myrtle, and various herbs such as muhly grass (*Muhlenbergia capillaries*), broomsedge (*Andropogon virginicus*), Fakahatchee grass (*Tripsacum dactyloides*), and lovegrass (*Eragrostis spectabilis*). This buffer has been widened since originally proposed for the mitigation program.

Since the eastern portion of UHR 2 area was cleared but not root raked in preparation of development activities, the seed source and presence of desirable ground cover species provide an opportunity for appropriate upland habitat restoration. The dominant ground cover includes low panicums (*Dicanthelium* spp.), with additional coverage provided by muhly grass, flat-top goldenrod (*Euthamia caroliniana*), and broomsedge. The majority of saw palmetto roots are still present which helps stabilize the soil and there has been some minor palmetto regeneration. There is a narrow band of palmetto and live oak along the steep eastern sideslope of this area along the border of Gilley Creek and the Manatee River (refer to photo); which provides a seed source for additional recruitment. Aerial photos indicate this area was primarily covered with palmetto with scattered oaks and pines concentrated within the eastern portion adjacent to the seepage marsh (ME 1). The proposed restoration will include a dense planting (10 ft. centers) of live oak and slash pine; with shrub plantings of gallberry, fetterbush, wax myrtle, and some saw palmetto. Herb planting doesn't appear necessary since there is adequate coverage of appropriate species. However, supplemental herb planting may include muhly grass, love grass (*Eragrostis spectabilis*), and wiregrass (*Aristida stricta*).

Restoration of appropriate upland habitat at this location is particularly important because it will provide a wildlife corridor connection from the wetland hammocks adjacent to the Manatee River to the forested

wetland (FWE 1), marsh creation (MC 1), and the off-site forested wetland corridors along the north boundary of the property and Gilley Creek in the northeast. Considering so many of the upland areas in the region have been and will continue to be converted to residential communities, restoring upland habitat will be of particular value for wildlife use.

Marsh Creation (MC 1 – 3.3 acres) & Marsh Enhancement (ME 1 – 1.5 acres) – The marsh creation area has been under row crop production and is currently being designated to provide a portion of the mitigation for anticipated marsh impacts associated with the construction of Upper Manatee River Road. As previously noted, if this roadway facility is not constructed and/or wetland impacts not mitigated through the FDOT mitigation program, the proposed marsh creation will be re-evaluated in the future. At this time, the proposed marsh design will include a shallow oligohaline system with potentially 2-3 emergent pools to concentrate food resources for wading bird and wildlife foraging during dry periods. It is envisioned this wetland system will be hydraulically connected to Gamble Creek via overflow structure and reinforced with rip-rap material. Some of the anticipated species being considered include bulrush (*Scirpus validus*, *S. robustus*), blackrush, leather fern, marshhay cordgrass (*Spartina patens*), saltgrass (*Distichlis spicata*), seashore dropseed (*Sporobolus virginicus*), seashore paspalum (*Paspalum vaginatum*), and sand cordgrass (*Spartina bakeri*). Potential floodplain encroachment necessary for the County facilities may provide the opportunity to consider utilizing and, if necessary, expanding this marsh creation area to also fulfill floodplain compensation requirements. As a result, design plans for the marsh creation will be delayed in order to further evaluate the impacts and mitigation conditions relative to this situation.

The marsh enhancement area (ME 1 – 1.1 acres) is a surface water seepage system. Historic aerials indicate the system was probably fringed with myrtles and trees; and was impacted during the same time as clearing of the adjacent upland area (UHR 2). The dominant vegetation includes chalky bluestem (*Andropogon glomeratus*), dog fennel (*Eupatorium capillifolium*), with additional coverage provided by maidencane (*Panicum hemitomon*), low panicums, and scattered primrose willow (*Ludwigia repens*). The proposed enhancement of this system includes herbicide eradication of the fennel and willow; with a dense planting of wax myrtle along the perimeter to provide buffer cover. An existing wet access road crossing is located near the southern extent where the marsh connects to the adjacent forested wetland hammock (FWE 3, refer to photos). This road will be vacated and hydrophytic vegetation will be allowed to regenerate in this area.

Overall, the habitat plan incorporates and enhances the currently available upland and wetland habitat areas of the property; as well as appropriately and adequately compensates for the anticipated wetland impacts associated with the roadway projects. The correlation and corridor connectivity of these habitats relative to the Manatee River and Gamble Creek provide an opportunity to preserve and enhance ecologically valuable habitats that continue to be rapidly lost and impacted by development along the Manatee River. In addition, these habitat activities will provide secondary wetland and wildlife benefits to the marshes, tidal creeks, Gamble Creek and the Manatee River that border the mitigation area. Manatee County recognize the ecological value the tract can provide, and have made the efforts to preserve, restore and enhance the habitat. As depicted on Figures D & E, the County has made plans to incorporate a canoe launch, nature trail and boardwalk that loops through the forested wetlands along the river, extending north through the upland restoration areas, and leading off-site with a proposed Greenway Trail adjacent to Gamble Creek. With the proposed school and public recreational facilities, the trail facilities will provide valuable opportunities for environmental educational. The County has also been in negotiation to acquire additional property directly east of the tract on the other side of the Manatee River and Gamble Creek. This property has similar native habitat types of forested wetland and intertidal creeks representative of Hidden Harbour. Acquisition of this additional property will provide an extended riverine habitat corridor.

Attachment B – Maintenance & Monitoring Plan, Success Criteria

Maintenance is anticipated to commence in the spring, 2008 with an intensive initial herbicide application of exotic and nuisance species; particularly the Brazilian pepper. These enhancement areas include the forested wetlands and the marsh enhancement. Maintenance activities for the upland habitat restoration area 2 will commence after plant installation, currently scheduled for the spring, 2009. Herbicide

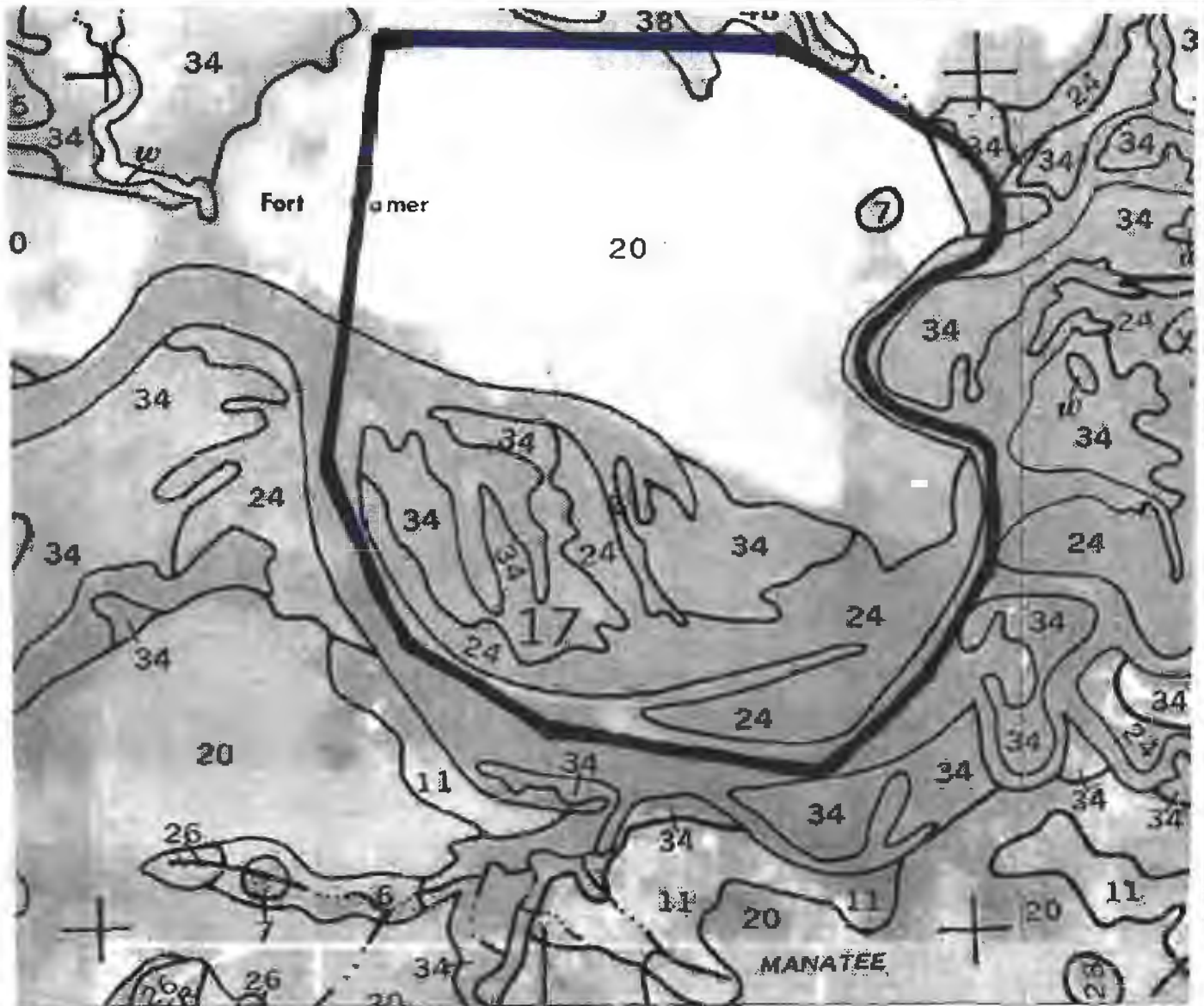
maintenance will be conducted annually in the forested wetlands for the B. pepper, with more frequent treatments anticipated for the upland restoration and marsh creation areas. Additional treatments as necessary will be conducted for a minimum of five years and until success criteria is met. Afterward, periodic herbicide treatments will continue as necessary by Manatee County.

Monitoring will be conducted on an annual basis after the initial herbicide application in the spring, 2008. This monitoring will include qualitative assessments of the wildlife use, vegetative cover and diversity, hydrologic conditions, and any problem areas. Permanent photo station points will be established prior to initiating the monitoring. The results of the monitoring events will be compiled into annual monitoring reports, which will be conducted for a minimum of five years and until success criteria is met.

Success criteria will be different for the mesic hammocks, upland habitat restoration, marsh enhancement, and marsh creation areas. Even though all the B. pepper will be eradicated to the degree possible, survivorship will be limited to no more than 5% coverage within the mesic hammocks, and less than 1% within the other habitat areas. Enhancement for the north forested wetland (FWE 1) will also include demonstration of restored habitat conditions within the ditch segments; with at least 40% coverage of planted and naturally recruited trees and shrubs, 70% coverage of ground cover vegetation, and demonstration of appropriate grade stabilization. For the marsh enhancement area, the fennel and primrose willow will be eradicated and limited to no more than 5% coverage. For the marsh creation, there will be a minimum 80% coverage of desirable vegetation within the planted zones (excluding open water components, which will comprise less than 30% of the creation area), and less than 5% coverage of exotics.



**Figure A - Location Map
SW 80 - FDOT Mitigation
Hidden Harbour**



LEGEND

SCALE 5.2 inches = 1 mile North ^

- #7 – Canova, Anclote, and Okeelanta soils ****
- #20 – EauGallie fine sand**
- #24 – Felda-Wabasso association, frequently flooded ****
- #34 – Okeelanta muck, tidal ****
- #38 – Palmetto sand ****

**** - Hydric Soils**








**FDOT - District 1
MITIGATION SITE
(Manatee River Basin)**

**HIDDEN HARBOUR
(SW 80)**

**FIGURE C
NRCS Manatee County
Soil Survey**

**Hidden Harbour
Conceptual Site Plan
County Recreation Area
& School Site**

SW 80 – Hidden Harbour
Figure D – Conceptual Site Plan

-  Interpretive Signage
-  Canoe launch
-  Parking
-  Observation site
-  Pavilion/Restrooms
-  Pavilion
-  Playground

- Legend**
-  Fort Hatter Road
 -  FOOT Property
 -  School Property Outline
 -  HIGH SCHOOL BLDG
 -  FOOTBALL STADIUM
 -  PRACTICE FIELD
 -  SOCCER FIELD
 -  SOFTBALL FIELD
 -  BASEBALL FIELD
 -  OTHER REC
 -  CONCESSION
 -  RETENTION POND
 -  PCT SIGN
 -  Site Property (107.8 acres)
 -  landscaping

Approximate FDOT
Mitigation Areas (Purple)





Forested Wetland Enhancement (FWE 1) – This mesic oak hammock has dominant cover of laurel oak, live oak, water oak, and cabbage palm. Understory is minimal except pockets of saw palmetto.



Forested Wetland Enhancement (FWE 1) – One of the large north-south ditches that collects surface water from the uplands and directly discharges to the channelized creek north of property boundary. Spoil material (right) is 15-20 ft. wide and 5-6 ft. high, covered with paragrass and various sedges. This material will be backfilled into the ditch to restore grade, seeded, and planted with shrubs and trees. Additional enhancement will include eradication of Brazilian pepper (left) that has encroached into this wetland.

FDOT - District 1 Mitigation Site

**MANATEE COUNTY
HIDDEN HARBOR (SW 80)**



Forested Wetland Enhancement (FWE 2,3) – Brazilian pepper is prominent within many areas of the mesic hammocks, particularly along the transition interface with the adjacent marsh habitat.



Forested Wetland Enhancement (FWE 2,3) – The mesic hammocks provide refuge for nesting, foraging, and denning by a variety of wildlife that utilize the range of habitats (Manatee River, Gamble Creek, brackish marshes, hammocks, upland restoration areas) within the vicinity of Hidden Harbour. This alligator nest was built within the base of a B. pepper near one of the tidal creek fingers bisecting the hammocks.

**FDOT - District 1 Mitigation Site
(Manatee River Basin)**

**MANATEE COUNTY
HIDDEN HARBOR (SW 80)**



Forested Wetland Enhancement (FWE 3) – *These mesic hammocks have a dominance of laurel oak, live oak, cabbage palm, red cedar, and scattered large slash pine. Understory coverage varies in density with scattered saw palmetto, myrtle, grapevine, greenbrier, and swamp fern along the lower slopes.*



Forested Wetland Enhancement (FWE 3) – *Another view of the mesic hammock with an area of more red cedar coverage. These hammocks will be enhanced with the eradication of Brazilian pepper that will open more area for desirable species to recruit and generate.*

**FDOT - District 1 Mitigation Site
(Manatee River Basin)**

**MANATEE COUNTY
HIDDEN HARBOR (SW 80)**



Forested Wetland Enhancement (FWE 3) – One of the tidally- connected, dead-end finger creeks that bisect the hammocks, providing more inter-related mosaic of habitats for wildlife use. Substantial fish, amphibian and wading bird activity present within these systems due to variable water levels. Dominant vegetation within the marsh zone includes black needlerush and leather fern.



Manatee River – View from along the north shoreline of the Manatee River along the southwest boundary of Hidden Harbour, looking southeast toward two tidal creek channels and adjacent brackish marsh habitat leading into the forested wetland habitat (FWE 3).

**FDOT - District 1 Mitigation Site
(Manatee River Basin)**

**MANATEE COUNTY
HIDDEN HARBOR (SW 80)**



Upland Habitat Restoration (UHR 2) – This area was cleared but not rock raked, allowing the generation of low panicums, flat-top goldenrod, muhly grass, and broomsedge; good foraging area for deer entering from the hammocks. Proposed restoration includes dense plantings of slash pine, live oak, gallberry, fetterbush, wax myrtle and saw palmetto.



Upland Habitat Restoration (UHR 2) – A narrow band of palmetto and live oaks remain along the steep sideslopes of Gamble Creek and the Manatee River. The restoration of UHR 2 will provide a riverine buffer and wildlife corridor connection between forested wetland habitats north (FWE 1&2) and south (FWE 3).

**FDOT - District 1 Mitigation Site
(Manatee River Basin)**

**MANATEE COUNTY
HIDDEN HARBOR (SW 80)**



Marsh Creation (MC 1) – This upland peninsula is surrounded by forested wetlands east and west (FWE 2), Gamble Creek to the south, and additional former row crop area to the north. Marsh creation will be conducted to provide foraging opportunities and wildlife habitat corridor connections between the wetlands. Upland habitat restoration (UHR 1) will provide additional habitat diversity, wildlife connectivity and buffer the marsh from the adjacent wetlands and creek.



Marsh Enhancement (ME 1) – This seepage marsh has dominant coverage of broomsedge, fennel, and maidencane. Proposed enhancement includes herbicide eradication of the fennel and primrose willow. The access road crossing (forefront) will be vacated, allowing the vegetation to regenerate.

**FDOT - District 1 Mitigation Site
(Manatee River Basin)**

**MANATEE COUNTY
HIDDEN HARBOR (SW 80)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Balm Boyette – Stallion Hammock Restoration

Project Number: SW 81

Project Managers: Tom Ash, Environmental Scientist - Hillsborough County EPC

Phone No: (813) 272-7104

Ross Dickerson, Manager - Hillsborough County Parks, Recreation & Conservation

(813) 272-5810

Stephanie Powers, Environmental Scientist – SWFWMD, SWIM Section

(813) 985-7481

County: Hillsborough

Location: Sec. 15, 16, 17, 20, 21, 22, T31E, R21E

IMPACT INFORMATION (Proposed Construction Date)

(1) FM: 4154891 – US 301, Balm Road to Gibsonton Drive (2008) *

ERP #: 43031128.000

COE #: Pending

(2) FM: 1973941 – SR 563, Pipkin Rd. to SR 572 (Drane Fd. Rd.) (2014)

ERP #: _____

COE #: _____

(3) FM: 4131361 - McMullen Road, Balm Riverview to Boyette Rd. (2008/09)**

ERP #: _____

COE #: _____

Drainage Basin: Alafia Water Body: None SWIM water body? N

Impact Acres / Types (FLUCFCS):

(1) FM 4154891 – 0.3 ac. 631 (3) FM 4131361 - 0.2 ac. 618

(2) FM 1973941 – 9.3 ac. 615

1.9 ac. 617

0.6 ac. 641

TOTAL 11.8 acres

TOTAL: 12.3 acres

* This project has additional wetland impacts (11.5 acres) in the Tampa Bay drainage basin, with the impacts proposed for mitigation at the Ekker Tract (SW 82).

** The final design of this project may result in no wetland impacts.

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration Enhancement Preservation

Mitigation Area: **15-20 ac.**

SWIM project? Aquatic Plant Control project? Exotic Plant Control Project?

Mitigation Bank? Drainage Basin(s): Alafia Water Body(s): Pringle Branch SWIM water body? N

Project Description

A. Overall project goal: The Balm Boyette Scrub Preserve (Figs. A & B) is a 4,933-acre tract was acquired by Hillsborough County Parks, Recreation and Conservation Department through their Environmental Lands Acquisition Program (ELAPP). The majority of the tract has high quality wetland and upland habitat communities. The eastern third of the tract was mined for phosphate ore in the 1960's, and has partially reclaimed landscapes comprised of wide linear open water pits, steep slopes, and rolling upland terrain (Figs. B-F, and site photos). Prior to mining, there were three wetland tributaries that formed the headwaters of a forested wetland referred to as Stallion Hammock and an interior meandering creek called Pringle Branch (Fig. C). Pringle Branch is a tributary of Fishhawk Creek and the Alafia River. The majority of two tributaries were mined, resulting in two isolated lobes of forested wetlands that historically connected to Stallion Hammock (Fig. F). The major objective of the project includes restoration of approximately 50-60 acres of wetland habitat from the open water pit and spoil complex adjacent to Stallion Hammock. The remaining open

water pits (57 acres) and uplands east of the restored wetland and within the contributing sub-basin will be incorporated into a surface and ground water hydraulic model. This contributing hydrology will determine appropriate wetland grade elevations and associated hydroperiods for the existing and restored portions of Stallion Hammock.

B. Brief description of current condition: The mine pits within proximity of Stallion Hammock include steep slopes above and below the water elevation; typically 4:1 slopes and steeper. The slopes extend an average of 6-8 ft. below the water elevation and rise 8-15 ft. above the waterline (refer to photos). As a result, the slopes minimize the width and acreage of vegetated littoral zones in the open water pits. A few of the pits not proposed for filling have shallow grades and littoral zones providing the establishment of cattails, primrose willow, Carolina willow, various sedges, and spatterdock. However, the majority of the pits are primarily open water with some occasional duckweed pockets formed from having stagnant water conditions due to minimal or no water outfall. For the pits that do have outfall ditch conditions into adjacent downstream pits, the ditches have sheer slopes that drop several feet in elevation and dense cover of nuisance vegetation (refer to photos). Some of these ditches historically had culverts that have become dislodged, plugged, or undermined so the majority of the culverts are non-functioning. The remaining Stallion Hammock habitat has mixed forested wetlands primarily dependant upon groundwater seepage hydrology and the periodic overflow of the narrow and incised Pringle Branch. The uplands within the project area are heavily dominated by bahiagrass with minor coverage provided by blackberry, fennel, goldenrod, salt-bush, and grapevine. As was customary in earlier mine reclamation techniques, due to the steep slope gradients from the pits to the uplands, post-mining stabilization included planting and establishment of slash pine within 50 ft. wide buffers around the pits. Over the years, lack of fire within these buffers has provided conditions for opportunistic species such as laurel oak, wax myrtle, elderberry, blackberry, and grapevine to generate and dominate. Refer to Attachment A for additional information. Except for pine plantings and opportunistic vegetation generated along narrow and steep pit slopes, the remaining uplands within the project area are primarily limited to bahiagrass cover (refer to site photos).

C. Brief description of proposed work: Evaluation of existing and appropriate surface and ground water hydrology within the contributing watershed of Stallion Hammock will be critical to determine grade elevations necessary to restore the pits with appropriate wetland habitats (Figure F, yellow delineated area). Due to availability and location of upland spoil in relation to the open water areas, the restored wetland habitat will not exactly match the historic dimensions of the east and central tributaries but will include diverse wetland habitat communities. The proposed hydrology and associated grading plan will determine the final acreage and dimensions of various constructed wetland habitats. Such habitats are expected to include mixed forested hardwoods within the outer facultative zones; mixed cypress, ash, and tupelo in the interior obligate zones; shallow and obligate marshes, and some shallow open water pockets. The steep and heavily vegetated ditch connections between the pits will be replaced with shallow intermittent streams incorporated through wide gradual slopes of planted conveyance swales and buffered with dense tree and shrub plantings. This is particularly important since the large area and linear alignment of the pits funnel wildlife through upland gaps where it is necessary for wildlife to cross the ditches. As a result, the ditches hinder wildlife access and movement between the various upland components of the sub-basin. Along with the loss of flatwood and wetland habitat, rare xeric habitat was removed by mining activity and replaced with open fallow areas that provide minimal cover for wildlife. To aid in improving the inter-relationship of upland and wetland habitats for wildlife, fallow uplands in the contributing sub-basin will be enhanced by planting appropriate tree species. The proposed restoration plan also includes the enhancement of upland habitat by planting tree species such as longleaf pine, sand pine, live oak, and

xic oak species. Rather than random planting, these species will be concentrated in zones based on their appropriate grade elevations, such as oaks in the higher elevations and pines in lower elevations. Additional information of the proposed plan design is included in Attachment A with additional details will be provided in subsequent annual updates of the FDOT mitigation plan.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The major roadway (SR 563) is a new alignment that will cross forested wetlands primarily associated with unreclaimed phosphate mine pits. These habitats are similar to the mine cuts at Balm Boyette. Restoring at least 15 acres of forested wetland floodplain will provide appropriate mitigation for the proposed wetland impacts. A Unified Mitigation Assessment Methodology (UMAM) assessment will be conducted of the wetland impacts and appropriate mitigation credit will be designated as the restoration and enhancement plan is further evaluated and finalized. This roadway project is not scheduled to commence construction until October, 2014, and may be further delayed in FDOT's work program.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection, there were no existing or proposed mitigation banks in the Alafia basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: This Balm Boyette project has been on the wish list for restoration by Hillsborough County and the SWIM program for several years but could not proceed beyond initial evaluation due to insufficient funding sources.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Hillsborough County and SWFWMD SWIM Section will collaborate toward contractor selection

Contact Name: Tom Ash (HCEPC), Ross Dickerson (Hills. Co. Parks), Stephanie Powers (WMD-SWIM) or Mark Brown (SWFWMD – 352- 796-7211)

Entity responsible for monitoring and maintenance: Consultant on contract with Hills. Co. and/or SWFWMD

Proposed timeframe for implementation:

Commence: Planning – 2005-2008, Design & Permitting 2008-2009, Construction 2010 Complete: Maintenance & Monitoring – 2010-2015 (refer to schedule below)

Project cost: \$4 - 5 million (total); Note – the anticipated funding sources to date include approximately \$1 million from FDOT with additional funds from FDEP, Hillsborough County, and potentially other sources. FDOT only receives appropriate mitigation credit for habitat improvements conducted with FDOT mitigation funds.

Attachments

X 1. Detailed description of existing site and proposed work. Refer to Attachment A.

X 2. Recent aerial photograph with date and scale. Refer to Figures B (2004 aerial) and F (1995 aerial).

X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A for location map and Figure F for conceptual design plan. Additional evaluation and engineering design will be provided within the annual updates of the FDOT mitigation plan.

X 4. Detailed schedule for work implementation, including any and all phases. Refer to Attachment B and following draft schedule:

Site Evaluation, Hydrologic Modeling, Restoration Design & Permitting – 2005 - 2008

Construction & Planting – 2010

Maintenance & Monitoring – 2010 – 2015 (minimum)

Maintenance & Management – 2015 – Perpetual

Note – due to funding limitations, construction is planned to occur in phases. If this occurs, the habitat restoration activities for the FDOT mitigation program will be included in the first phase construction.

X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.

X 6. Long term maintenance plan. Refer to Attachment B.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

Attachment A – Balm Boyette - Existing Site and Proposed Work

At 4,933 acres, the Balm Boyette Scrub Preserve represents one of the largest contiguous tracts of public lands in Hillsborough County. There is a great diversity of wildlife, vegetation and habitat communities on the property, and it represents one of only a few tracts of xeric habitat remaining in the County. The County has an extensive land management plan that provides details of the various habitat and management activities. The mining activity within the eastern third of the property represents the largest area of displaced habitat on the tract, and it has been the desire and goal of Hillsborough County to at least restore as much wetland habitat as possible adjacent to Stallion Hammock. In addition, wetland restoration on this tract has also been on the SWFWMD SWIM's habitat restoration plan since the mid-1990's. The following information summarizes the existing habitat conditions and proposed activities associated with the area.

Stallion Hammock (Potential Enhancement 50+ Acres) – The unmined portion of Stallion Hammock is dominated by mixed hardwoods such as red maple (*Acer rubrum*), laurel oak (*Quercus laurifolia*), water oak (*Quercus nigra*), sweet bay (*Magnolia virginiana*), swamp bay (*Persea palustris*), tupelo (*Nyssa sylvatica* var. *biflora*), cabbage palm (*Sabal palmetto*), and dahoon holly (*Ilex cassine*). The subcanopy includes saplings of the same tree species and ground coverage is dominated by various fern species (e.g. *Woodwardia virginica*, *Osmunda cinnamomea*, *Thelypteris palustris*) (refer to photos). Mining activity effectively removed the majority of two headwater wetland tributaries (Fig. F - referred to as eastern and western tributaries). This altered the contributing basin flow to the unmined portion of the Stallion Hammock wetland and the associated Pringle Branch located in the hammock. An access road berm separates the mine pits from the remaining hammock and there is a ditch outfall draining surface water directly into Pringle Branch. Compared to historic conditions, the perennial ditch water flow into the branch potentially draws down the contributing basin groundwater conditions. In addition, the point discharge flow into the branch reduces the historic groundwater seepage spread along the contributing basin and wetland perimeter, resulting in uneven distribution of ground and surface water into the hammock.

Additional hydrologic and vegetative evaluation of Stallion Hammock will be required to determine the degree of how the contributing basin alterations have altered the system. Until such time the surface water modeling is conducted and there is a determination of necessary structural improvements, the forested wetland habitat enhancement acreage associated with Stallion Hammock will not be designated for FDOT mitigation credit. However, there could be more than 50 acres of direct hydrologic enhancement associated with the wetland area between the two roads and directly north of the railroad tram. This doesn't include any additional headwater wetland enhancement associated with the remaining hammock tributary or the two isolated lobes of the eastern and western tributaries. There will be at least secondary enhancement of these

wetland systems associated with the proposed restoration plan of the sub-basin but the degree of improvement and potential mitigation credit will be determined as part of the final design.

Stallion Hammock Wetland Restoration (60-65 Acres) – The restoration effort includes backfilling approximately 30 acres of open water with approximately 30 acres of adjacent spoil within the area bordering the remaining Stallion Hammock. The majority of this area is located within the same location of where portions of Stallion Hammock were displaced by mining activities as exhibited in the bluish green highlighted area on Figure D. The proposed restoration area is delineated in yellow on Figure F. Due to steep slopes and deep water, there are minimal littoral zones associated with these pits; primarily narrow bands of cattails (*Typha* spp.), primrose willow (*Ludwigia peruviana*), and Carolina willow (*Salix caroliniana*) (refer to photos). Cross-sections determined water depth of these pits is typically 6-8 feet. The adjacent upland spoil areas are typically steep-sided, narrow ridges with top grade elevations 8-10 feet above the open water areas. Typical vegetation along the slopes include slash pine (*Pinus elliotii*), wax myrtle (*Myrica cerifera*), and grapevine (*Vitis* spp.) (refer to photos). Since the pits have very minimal littoral zones and the uplands are predominantly steep slopes and narrow ridges, the overall habitat characteristics and wildlife use opportunities for the pit & spoil complex is very limited compared to the historic hammock habitat. However due to the magnitude of the earthwork and associated costs to restore and enhance wetland habitat, various funding sources through FDEP, FDOT mitigation program and the SWIM program have become necessary to proceed with implementing the plan. In addition, the plan is expected to be constructed in phases, and there have been some discussions that portions of the wetland creation may be proposed to provide mitigation for long-range wetland impacts associated with County infrastructure improvements in the Alafia River basin. There have been preliminary discussions that potential mitigation could include wetland impacts associated with the anticipated expansion of Lithia-Pinecrest Road. At this time, it is anticipated that approximately 15-20 acres of forested wetland creation will be designated to provide mitigation for the proposed FDOT wetland impacts.

Prior to earthwork, aerial herbicide eradication of the exotic and nuisance vegetation will be conducted within the pits proposed for filling to minimize seed source re-establishment during post-construction. The grading plan will result in a mosaic of forested wetland, marsh, and some minor but shallow open water components to provide refuge and concentrated foraging opportunities for amphibians, reptiles, and fish. This will result in more diverse wetland habitat characteristics and value than the historic Stallion Hammock wetland removed by mine operations. A benefit of the existing berm that separates the pits from Stallion Hammock is the structural opportunity to conduct the necessary earthwork without the potential of turbid water discharging into Stallion Hammock or Pringle Branch. Prior to earthwork, a ditch block will be constructed where the existing outfall ditch discharges from the pits. With the available storage volume of the pits from the east, ditch blocks can also be installed to discontinue contributing flow into the pits during the construction period. Then surface water within various pit segments can be partially drawn down by temporarily pumping into the pits east of the earthwork zone. An additional option includes strategically placed ditch blocks in the construction zone to disconnect segments of the open water prior to filling; allowing the opportunity to temporarily pump and retain some surface water into pit segments in the same manner conducted with the mining operation. By partial lowering of the water table in the pits, bulldozers can push and extend the fill to avoid the substantial expense of using backhoes, front-end loaders, and dump trucks to cut and haul fill material. After the rough grading of the tributaries, it is envisioned a temporary water recirculation process will probably be adopted to mimic natural conditions and hydraulically form the final grade elevations.

Appropriate wetland planting will be conducted as grading activities of individual areas are completed to quickly establish coverage and minimize turbidity. Plantings will include a diverse assemblage of bare root herbs installed on 3 ft. centers within appropriate elevation zones; with such species as arrowhead (*Sagittaria lancifolia*), bulrush (*Scirpus validus*), fireflag (*Thalia geniculata*), pickerelweed (*Pontederia cordata*), sand cordgrass (*Spartina bakeri*), soft rush (*Juncus effuses*), spatterdock (*Nuphar luteum*), and spikerush (*Eleocharis interstincta*). Diverse tree species will include 1-gallon nursery stock planted on staggered 10 ft. centers; primarily bald cypress (*Taxodium distichum*), black gum, laurel oak, popash (*Fraxinus caroliniana*), red maple, and sweet bay. Some shrub plantings will include wax myrtle and buttonbush (*Cephalantus occidentalis*).

As previously noted, there are conveyance ditches that hydrologically connect the remnant pits. These ditches have sheer slopes that have continuously eroded and undermined, resulting in several feet of drop from the top of bank. Existing ditch cross sections and flow estimates (volume, velocity, etc.) will be evaluated and incorporated with the surface water modeling effort to determine appropriate elevations for not only contributing appropriate volumes to the restored and existing Stallion Hammock, but the conveyance dimensions necessary to resemble natural habitat for easier wildlife access. The existing water elevations compared to the upland elevations, and outfall flow and velocity between a few pits may indicate some existing groundwater drawdown. In order to create and maintain a more appropriate conveyance and minimize the potential of erosion and undermining, the lowest elevations in the swales may require some structural support such as geoweb, rip-rap rubble, etc. This material will be kept to a minimum where necessary to achieve support, and will quickly transition to resemble natural features. Due to the steep slopes and high top-of-bank elevations of these ditches, it will be necessary to grade back the side-slopes 50 feet or more to create a more natural conveyance of 10:1 slopes or greater. In order to stabilize these slopes quickly, it may be necessary to seed with brown-top millet, winter rye, and/or bahia. However, these slopes will also be planted with trees (slash pine, laurel oak, red maple) on 10 ft. centers and wax myrtle on separate 10 ft. centers to quickly establish ground and canopy cover. A few of these conveyance crossings also require vehicular access for land management activities (refer to Figure F). These crossings will probably be shallow wet crossings during the rainy season, with geoweb material or large rubble rock that allows lateral seepage as well as periodic overflow. The geoweb and rock is typically capped with small limerock base material for vehicle access. These conveyance improvements are necessary components to restore and enhance hydrologic connectivity while providing wildlife access and habitat corridors. However, the hydrologic and habitat improvements associated with the crossings will not be quantified in the mitigation credits.

Forested/Shrub Wetland Enhancement (10 acres) – Upon review of the 1968 aerial taken during the mining operations, mine pits, spoil ribbons, and a drainage ditch replaced the eastern tributary to Stallion Hammock. Reclamation generally resulted in 200-300 ft. wide slough contoured from a pit to the hammock (refer to Figure F, red delineated area). However, the contributing basin flow to the hammock was short-circuited with the construction of a large ditch connected to the most eastern pit proposed for fill material. As a result, this wetland slough has minimal hydroperiods, resulting in a dominance of opportunistic transitional species such as elderberry (*Sambucus canadensis*), wax myrtle (*Myrica cerifera*), salt-bush (*Baccharis halimifolia*) and blackberry (*Rubus* spp.). Wetland enhancement will be conducted by filling the ditch, thereby restoring the sheet flow hydrology of this wetland that will also contribute water to the directly adjacent wetland restoration area and Stallion Hammock. Supplemental planting of cypress and maple (avg. 30 ft. spacings) within the slough will also provide additional vegetative enhancement and diversity.

Upland Habitat Enhancement (approx. 250 acres) – The habitat, landscape and topography within the mined area of Balm Boyette represent the typical reclamation techniques and features conducted prior to the current mining regulations. Mining within xeric and sandhill habitats required removing extensive layers of overburden sands to extract the ore. Subsequently, the reclamation of such areas resulted in steep and deep slopes bordering linear open water pits and rolling upland terrain. With these conditions at this particular sub-basin at Balm Boyette, the adjacent native ecosystems has high quality habitat for wildlife that is a stark contrast to the open fields of rolling landscape dominated by bahiagrass (*Paspalum notatum*), with additional coverage provided by dog fennel (*Eupatorium capillifolium*), blackberry, broomsedge (*Andropogon virginicus*), and salt-bush. There has been some minor recruitment and generation of desirable species from the adjacent habitats but due to the slow recruitment rate and large acreage, implementing a tree planting effort will accelerate the enhancement of the upland habitats.

Total restoration of upland habitat components would be an extensive process that is not currently within the County's proposed objectives of the property. The existing dense grass coverage provides conditions to allow prescribed burns without re-introducing native herbs like wiregrass (*Aristida stricta*). However, the uplands can still be enhanced by restoring canopy components in the sub-basin. With tree cover, this would encourage more wildlife movement and access from the adjacent native habitats to utilize the enhanced uplands, open water sources and the restored wetland habitat of Stallion Hammock. The proposed planting plan will be evaluated relative to appropriate grade elevations and hydrologic conditions. Longleaf pine (*Pinus palustris*) and slash pine (*Pinus elliotii*) will be the dominant planted species, particularly in the lower

grade elevations. For the higher elevations, live oak (*Quercus virginiana*) and longleaf pine will be the dominant species with some plantings of sand live oak (*Quercus geminata*) and sand pine (*Pinus clausa*). Tree plantings will include 1-gallon stock and/or equivalent size sack trees planted in a random pattern on approximately 20 – 30 ft. spacings to restore conditions to produce more natural upland habitat. At this time, none of the potential upland enhancement activities are proposed to provide mitigation for the anticipated wetland impacts.

Attachment B – Schedule, Maintenance & Monitoring, Success Criteria

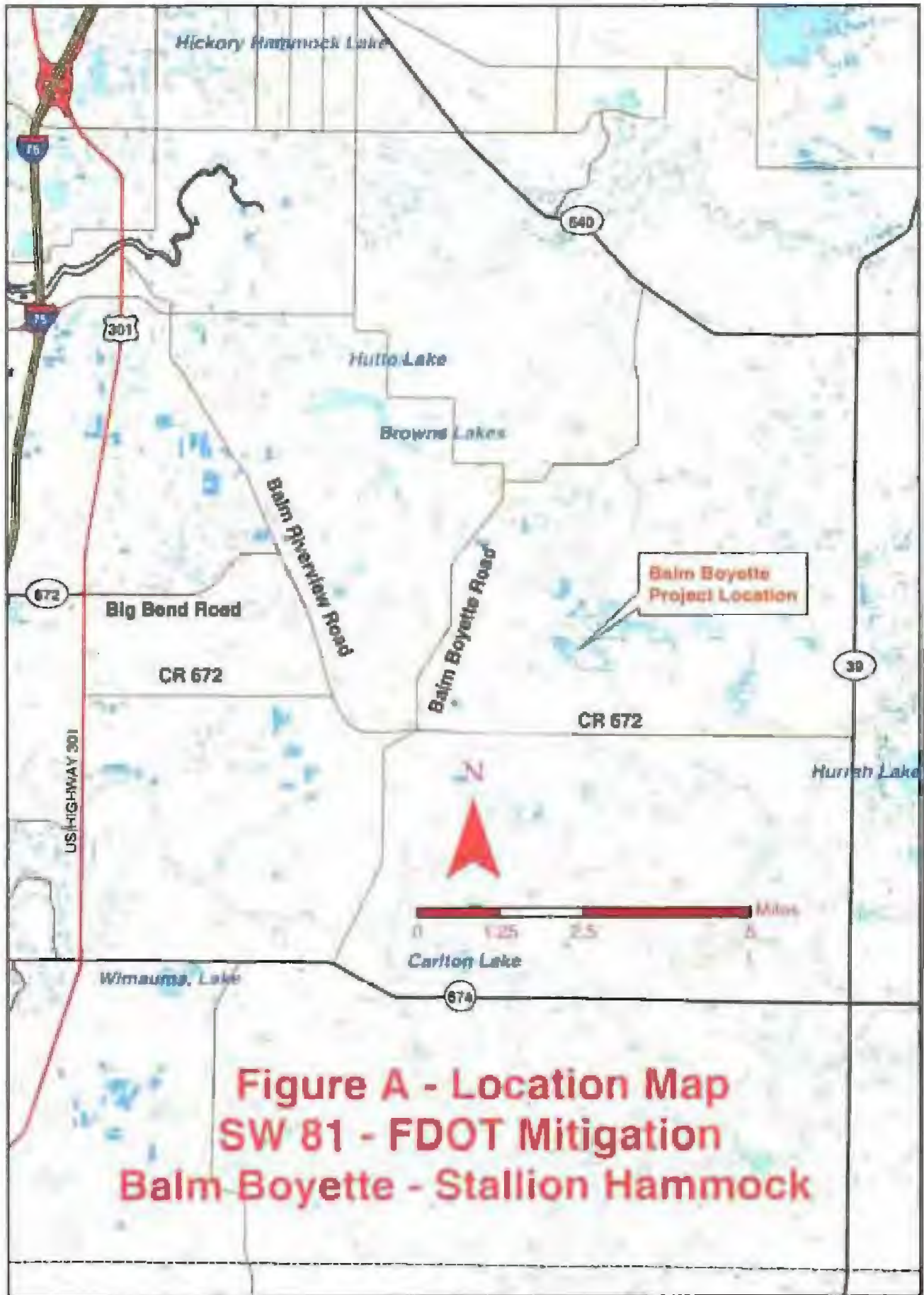
The proposed schedule includes contracting engineering and environmental services to obtain additional site information, conduct the necessary surface and groundwater modeling, and prepare a design plan in 2006 - 2008. The permitting is anticipated in 2008-2009 and construction is planned within the 2009-2010 time frame, which will be a few years prior to the anticipated FDOT wetland impacts.

Herbicide application to eradicate and control exotic and nuisance species from the wetland restoration area will be conducted prior to earthwork. Due to the deep water and limited littoral zones of the majority of adjacent pits, the quantity of the exotic and nuisance species are not extensive. Where necessary, some exotic and nuisance species eradication in the remaining pits will be conducted to minimize contributing seed source to the restored wetland area. Post-construction, there will be a minimum five years of extensive maintenance to guarantee success criteria. Maintenance will be a more extensive effort during the first couple years after planting to allow for establishment of plant species, and less frequent herbicide applications as the habitats mature. Anticipated herbicide events will include every two months for the first two years and quarterly thereafter, however additional maintenance events will be conducted to ensure success criteria is met and maintained. Based on the conditions of the various habitats and status of selected species proposed for planting, supplemental planting will be conducted where necessary to fulfill desired results of each habitat area and success criteria. Herbicide applications will be conducted by a licensed herbicide applicator on contract through the SWFWMD. After a minimum of five years and the desired habitat conditions and mitigation success has been achieved, perpetual management will be conducted through the Hillsborough County Parks, Recreation & Conservation Department and/or designee to maintain the same success criteria. Based on the progress of the habitat conditions, inspections and any necessary herbicide treatments will be expected on at least a semi-annual basis to eradicate exotics and nuisance species. The Conservation Dept. has a full-time herbicide spray crew on staff.

Monitoring will be conducted by a consulting firm on contract with the SWFWMD on a semi-annual basis for a minimum of five years and until meeting success criteria. Monitoring will include a comprehensive qualitative assessment of each habitat component within the restored wetland habitat of Stallion Hammock, including but not limited to plant health & survivorship, recruited plant species, cumulative plant coverage, exotic & nuisance species coverage, wildlife use & opportunities, and recommended actions necessary to ensure and further enhance habitat success. This same monitoring will be conducted for the enhanced conveyance swales and adjacent buffers constructed between the pits. Additional monitoring will be conducted to evaluate anticipated hydrologic improvements within the wetland enhancement areas associated with the existing Stallion Hammock, and potentially within the two remnant lobes of the eastern and western tributaries. Documentation of the planted tree survivorship and growth rates will be conducted within the upland enhancement area. Annual monitoring reports will be prepared, and the report will include qualitative and photo documentation of pre-construction habitat conditions, construction activities, and habitat condition at the monitoring station locations that will be documented on the permitted design plans and utilized for the entire monitoring period. However, site conditions will be annually documented for the entire site, not just for the monitoring stations that will be designated within the final design. Annual monitoring reports will be prepared and submitted to the SWFWMD-Regulation Department and USACOE Enforcement Branch to document habitat conditions, any problems and solutions, and anticipated activities for the following year.

Success criteria will be determined as part of the design process but is expected to include a minimum of 90% survivorship of planted material for a minimum of one year from the selected nursery contractor(s). Any plant mortality will be replaced with appropriate species to be agreed upon with Hillsborough County and the SWFWMD. Plant coverage requirements for the restored wetlands of Stallion Hammock and the hydrologic

conveyance areas is expected to include a minimum 90% coverage of planted and recruited desirable species. Tree canopy coverage requirements for the planted wetlands and uplands will be a minimum of 30%. Exotic and nuisance vegetation eradication will be conducted within the planted wetland areas to as minimum coverage as possible for all the various habitat zones, with maximum coverage limit of 5% to achieve success criteria. Additional conditions and criteria will be evaluated and added as the project progresses to further ensure successful habitat improvements are achieved for the project.



**Figure A - Location Map
SW 81 - FDOT Mitigation
Balm Boyette - Stallion Hammock**

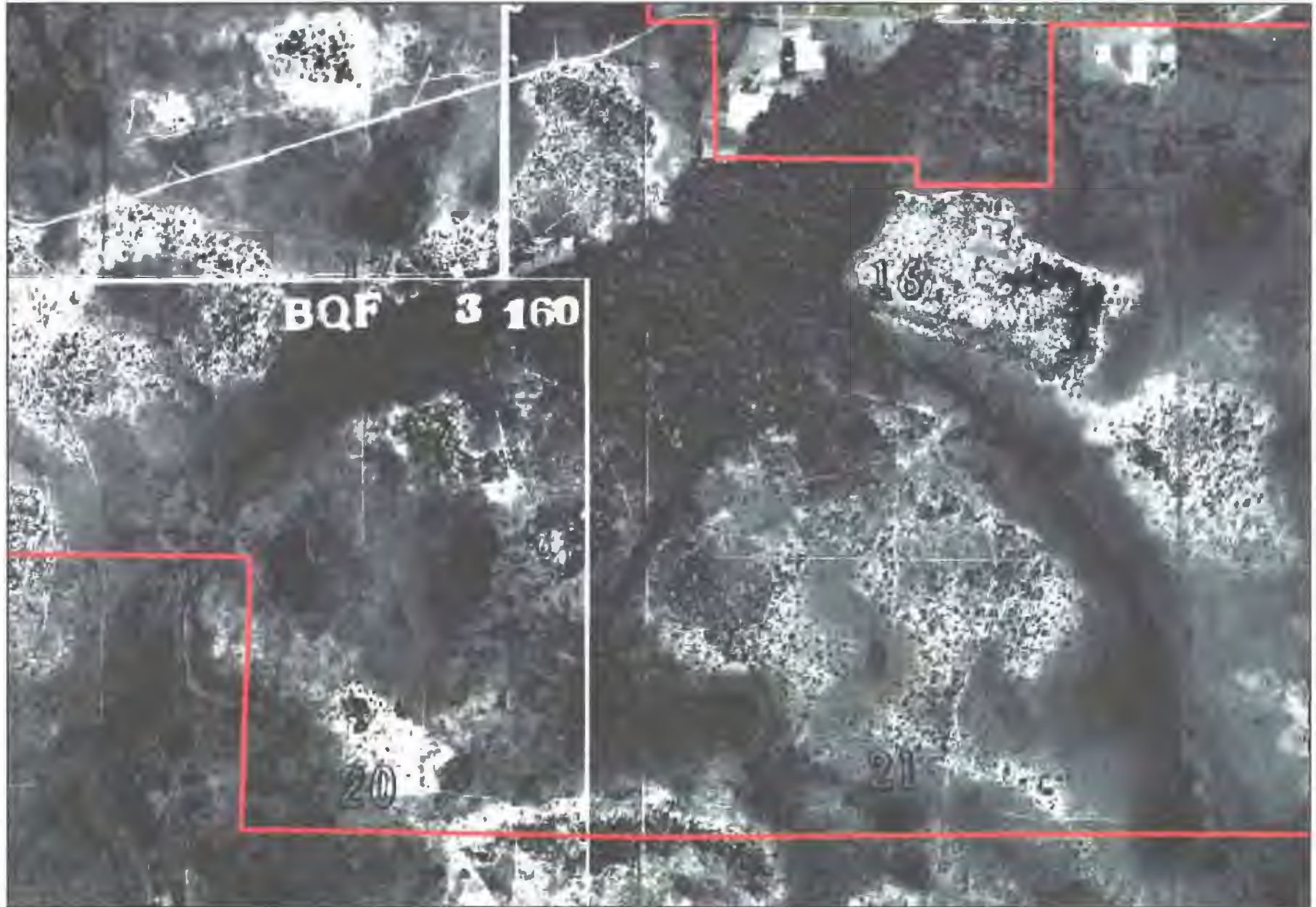
Balm Boyette Scrub Preserve

Figure B - 2004 Aerial



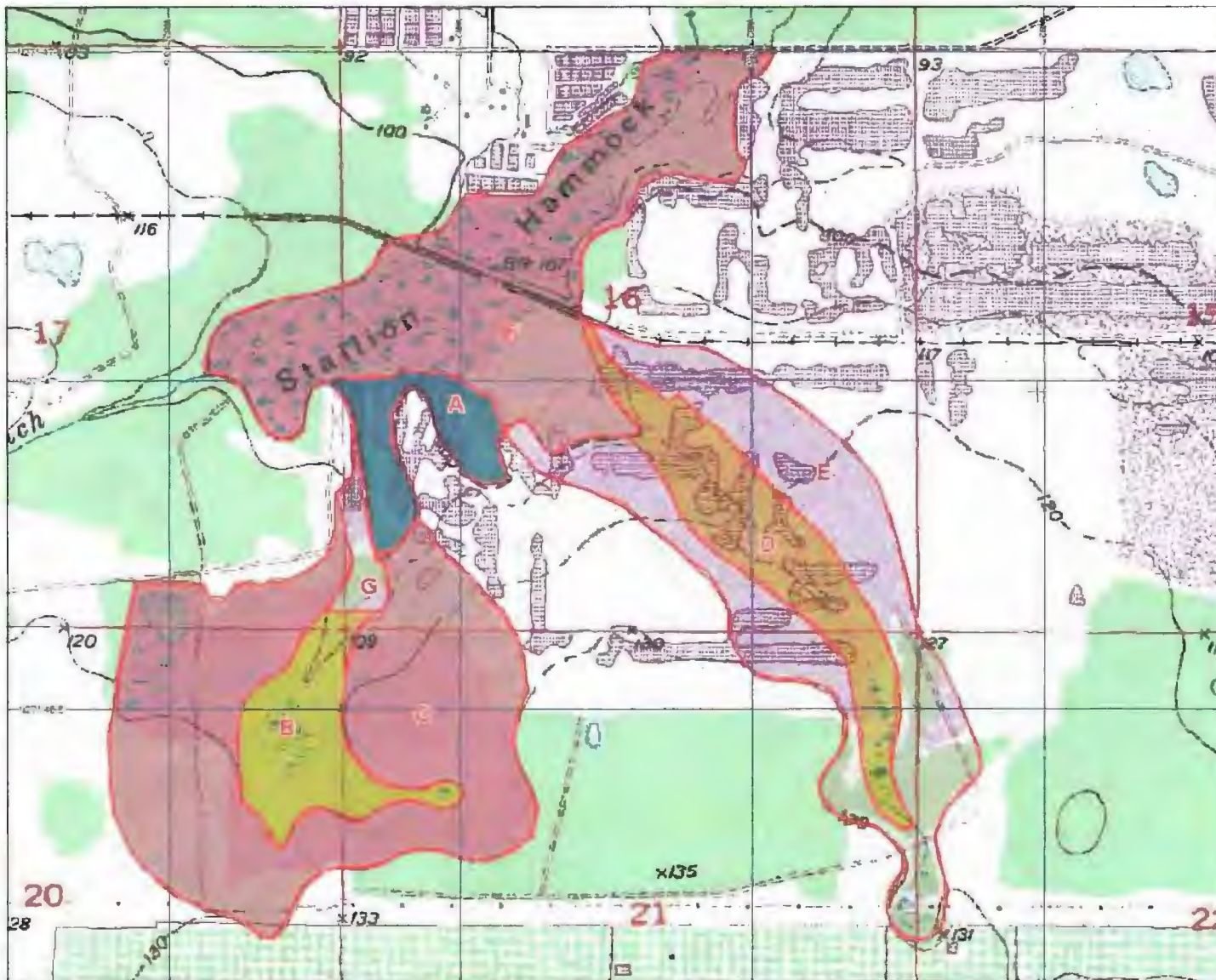
Balm-Boyette Scrub Preserve
Stallion Hammock 1938

Figure C - Pre-Mining Aerial



0 500 1,000 2,000
Feet

Figure D - Stallion Hammock Watershed



Legend

- A . Portion of Stallion Hammock (Lost to Mining)
- B . Original western tributary wetland boundary
- C . Western tributary watershed
- D . Eastern tributary (historic) wetland boundary
- E . Eastern tributary watershed
- F . Remaining portions of Stallion Hammock (boundary= S-16 to North)
- G . Western tributary (destroyed)



**Figure F - Infrared Aerial
 SW 81 - Balm Boyette -
 Stallion Hammock Restoration**



Wetland Restoration – One of the open water pits adjacent to Stallion Hammock. Proposed plan includes grading the upland spoil ridge (background) into the pit; elevating the bottom of the pit to appropriate grades to restore wetland habitat.



Spoil Ridge – One of the narrow spoil ridges proposed for grading into the adjacent pits. Vegetation primarily includes pines, wax myrtle, grapevine and bahiagrass.

**FDOT Mitigation Site
(Alafia River Basin)**

**BALM BOYETTE
STALLION HAMMOCK RESTORATION
(SW 81)**



Forest & Shrub Wetland Enhancement – A naturally regenerated wetland within the mine reclamation area; near the historic location of the mined eastern tributary to Stallion Hammock. The wetland is dominated by facultative species (elderberry, salt-bush, wax myrtle, blackberry) and hydrologically altered by a large ditch proposed for fill.



Stallion Hammock – The remaining forested wetland hammock has forested canopy dominated by laurel oak, red maple, and bays; understory dominated by various fern species. The wetland hydrology is primarily from contributing basin groundwater seepage with periodic floodwater overflow from the narrow, incised Pringle Branch.

**FDOT Mitigation Site
(Alafia River Basin)**

**BALM BOYETTE
STALLION HAMMOCK RESTORATION
(SW 81)**



Upland Enhancement – The uplands between the pit slopes east of the proposed wetland restoration area has rolling terrain. Dominant vegetative cover includes bahiagrass, fennel, blackberry, salt-bush and minimal canopy species. Proposed enhancement will include planting various tree species.



Pit Slopes – One of the pits not proposed for fill. Average slope grades are 4:1, 8-10 feet elevation drop from the upland to the water. These buffers average 50 ft. wide with vegetative cover dominated by preserved pines, myrtle and grapevine. Some of the pits have duckweed due to stagnant and non-flowing water.

**FDOT Mitigation Site
(Alafia River Basin)**

**BALM BOYETTE
STALLION HAMMOCK RESTORATION
(SW 81)**



Upland Enhancement – The majority of pit areas (not proposed for filling) have water elevations several feet below top-of-bank, typically 4:1 slopes of pine, oak, and myrtle buffers. The fallow uplands are dominated by bahiagrass. By planting trees in these fallow areas, there will be more habitat connectivity and corridors between the tract's native habitats and the open water components used by wildlife.



Hydrologic Connections – The majority of the ditches between the pits have sheer slopes with bottom grade elevations several feet below top-of-bank. The slopes and dense vegetative cover (predominantly exotics) present hazards for wildlife access. These connections will be enhanced by grading the slopes to resemble natural creek conditions; with wide swales, gentle slopes, planting wetland vegetation and adjacent upland buffers to create habitat corridors for wildlife.

**FDOT Mitigation Site
(Alafia River Basin)**

**BALM BOYETTE
STALLION HAMMOCK RESTORATION
(SW 81)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Ekker Tract**

Project Number: **SW 82**

Project Managers: Brandt Henningsen, PhD. (WMD SWIM – Sr. Env. Scientist) Phone No: 813-985-7481, ext. 2202
Manny Lopez (WMD Environmental – Sr. Env. Scientist) 352-796-7211, ext. 4270

County: Hillsborough

Location: Sec. 12, T 31S, R22E

IMPACT INFORMATION (Proposed Construction Date)

1 FM 4154892 – US 301, Balm Road to Gibsonton Road (2007)* ERP #: 43031128.000 COE #: Pending
2 FM 4154893 – US 301, Sun City Center to Balm Road (2010)** ERP #: _____ COE #: _____
3 FM 4113371 – US 92, Eureka Springs to Thonot. Rd. (2007)*** ERP #: 43031172.000 COE #: 2006-602-JPF

Drainage Basin: Tampa Bay Water Body(s): Tampa By-Pass Canal, Big Bullfrog Creek, Little Bullfrog Creek
SWIM water body? N

Impact Acres / Types (FLUCFCS):

(1) FM 4154892 <u>1.5</u> ac. <u>610</u>	(2) FM 4154893 <u>2.5</u> ac. <u>631</u>
<u>7.2</u> ac. <u>631</u>	<u>0.2</u> ac. <u>640</u>
<u>2.8</u> ac. <u>640</u>	<u>TOTAL 2.7 acres</u>
<u>TOTAL 11.5 acres</u>	

(3) FM 4113371 <u>0.1</u> ac. <u>610</u>	
<u>0.1</u> ac. <u>640</u>	
<u>TOTAL 0.2 acre</u>	TOTAL – 14.4 acres

* Additional wetland impacts (0.3 acre) associated with this project are within the Alafia River basin, with mitigation designated at Balm Boyette (SW 81).

** Additional wetland impacts (0.8 acre) associated with this project are within in the Little Manatee River basin, mitigation designated at the Little Manatee River – Lower Tract (SW 83). Forested wetland impacts (4.8 acres) associated with this project are being mitigated with forested wetland enhancement at Boyd Hill Nature Park (SW 71).

*** This US 92 segment proposes additional wetland impacts (1.6 acres) in the Hillsborough basin with the associated mitigation designated for Colt Creek State Park (SW 84).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation X Restoration X Enhancement ___ Preservation Mitigation Area: **84 acres**

SWIM project? Y Aquatic Plant Control project? N Exotic Plant Control Project? Y
Mitigation Bank? N Drainage Basin: Tampa Bay Drainage Basin Water Body(s): Bullfrog Creek, Smith Creek
SWIM water body? Bullfrog Creek outfalls to Tampa Bay which is a SWIM water body.

Project Description

A. Overall project goal: The 85-acre Ekker Tract was acquired by the SWFWMD to conduct habitat improvements that will benefit Bullfrog Creek and Tampa Bay. After construction-related activities for habitat improvements, the tract will be managed under Hillsborough County's Environmental Lands Acquisition and Protection Program (ELAPP). The northern portion of the property is dominated by mesic oak hammock and planted pine plantation (refer to Figure D and site photos). An objective is to enhance the upland habitat by primarily removing nuisance and exotic vegetation, appropriate pine thinning to restore pine flatwood habitat, conduct supplemental planting, and implementation of a land

management plan. The southern portion of the property has a substantially altered landscape comprised of 158 excavated tropical fish ponds covering 23 acres. The aquaculture operation was discontinued prior to public acquisition, and the vegetative conditions include substantial domination of exotic and nuisance species. The proposed plan includes exotics eradication and appropriate grading of the ponds to create approximately 16 acres wetlands that will include forested, marsh, and open water habitat (Figures D & E). The perimeter ponds bordering Ekker Road and Symmes Road will be filled to restore upland habitat that will provide an appropriate buffer around the created wetlands.

B. Brief description of current condition: Mesic oak hammock habitat (approx. 29 acres) is predominantly within the northwestern portion of the property and a linear buffer adjacent to Bullfrog Creek (Figure D and photos). The pine plantation (approx. 32 acres) is within the north-central and eastern portion of the tract. Some pines were also planted in small areas where the oaks were not too dense to preclude growth. The tropical fish ponds are located within the southern half of the property, ranging in size from 600 to 5000 square feet (less than 0.1 acre each). The pond bottom grades range 3-5 feet below top-of-bank with dominant coverage of exotic vegetation such as cattails and torpedo grass, and surrounded with Bermuda grass and Brazilian pepper. There is a small retention pond (0.4 acre) northeast of the fish ponds that has a small intermittent creek (Smith's Creek) that seeps and meanders north to Bullfrog Creek. The creek is also bordered by mesic oak habitat. Additional details on the habitat conditions are described in Attachment A and site photographs.

C. Brief description of proposed work: The oak hammock habitat and pine plantation has minor coverage of exotic and nuisance species, predominantly Brazilian pepper that will be eradicated and controlled from re-establishment. The pine plantation is comprised of small slash pines less than 6-inch DBH and 20-30 ft. high. The majority of the pines were planted on dense 5-10 ft. centers so with the canopy closure and pine straw thatch, there are areas of minimal ground cover (refer to photos). By thinning the pines, this will open the understory for natural recruitment and regeneration of broomsedge and other herb species presently on the site. Supplemental planting of other species such as broomsedge, wiregrass, saw palmetto, gallberry and wax myrtle will be conducted to provide appropriate and adequate ground and shrub coverage. Some of the recently generated laurel oak habitat also has canopy closure that excludes understory vegetation (refer to photos), so selective thinning and supplemental planting will be also conducted in the oak hammock to diversify the habitat. The wetland creation area will be constructed to displace the fish ponds, and include a mosaic of wetland habitat types bordered by a restored upland buffer. More details of the proposed habitat improvements and planting plan are described in Attachment A.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority of the anticipated wetland impacts proposed for mitigation at Ekker is a US 301 segment, and many of the associated roadway wetland impacts are associated with crossings over Bullfrog Creek and Little Bullfrog Creek. Since these two creek crossings are upstream of the Ekker Tract that is also located adjacent to Bullfrog Creek, the loss of this habitat along the creek will be appropriately mitigated with habitat improvements at Ekker. Based on the wetland functional assessment (UMAM) of the mitigation activities, it is anticipated that additional long-range FDOT wetland impacts can also be proposed for appropriate mitigation credit at Ekker.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection, the only existing or proposed mitigation bank in the basin is the Tampa Bay

Mitigation Bank (TBMB); the bank area was under construction and did not have available credits released for purchase.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : The proposed habitat improvements associated with this Ekker Tract project is a SWIM sponsored project.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: The project will be constructed by either the SWFWMD Operations Dept. or private contractor working through the SWIM Section.

Contact Name: Brandt Henningsen, Manny Lopez

Phone Number: 813-985-7481, ext. 2202

Entity responsible for monitoring and maintenance: Private consultant on contract through the SWFWMD

Proposed timeframe for implementation: Commence: Planning & Design – 2005-2007, Construction – 2008

Complete: Maintenance & Monitoring - 2013 (refer to schedule below)

Project cost: \$ 1.1 – 1.5 million (total) Planning & Design - \$100,000, Construction & Planting - \$800,000 - \$1,000,000, Maintenance & Monitoring \$200,000 - \$300,000

Attachments

X 1. Detailed description of existing site and proposed work. Refer to Attachment A.

X 2. Recent aerial photograph with date and scale. Refer to Figures B & D (2004 aerials).

X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A for location map and Figure D for existing and proposed habitat improvements associated with the entire tract. Figure E includes a conceptual design for the wetland creation portion of the project. As design details are completed, this information will be incorporated within the annual updates of the FDOT mitigation plan.

X 4. Detailed schedule for work implementation, including any and all phases. Refer to Attachment B and following draft schedule:

Site Evaluation, Hydrologic Modeling, Restoration Design & Permitting – 2005 – 2007

Construction & Planting – 2008

Maintenance & Monitoring – 2008 – 2013

Maintenance & Management – 2013 - Perpetual

X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.

X 6. Long term maintenance plan. Refer to Attachment B.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

Attachment A – Ekker Tract – Existing Site and Proposed Work

Due to the high concentration of developed lands within the Tampa Bay Drainage Basin, the SWFWMD and Hillsborough County primarily have to pursue acquisition of parcels impacted by past agricultural activities. Habitat creation, restoration and enhancement on these parcels provide valuable ecological improvements within this highly urbanized basin and receiving waters of Tampa Bay. The SWFWMD purchased the 70-acre Ekker parcel in 2001, and the adjoining 15 acres along the northwestern property boundary in 2003. The property will be perpetually managed through the Hillsborough County Parks, Recreation and Conservation Department as part of their Environmental Lands Acquisition and Protection Program

(ELAPP). As exhibited by Figure B, the Ekker Tract is within a few miles of the Kitchen Habitat Restoration Area that includes three additional public land tracts also being restored in the basin through the SWIM/County program.

The historical aerials indicate the majority of the Ekker property was cleared of native flatwood vegetation between 1938 and 1957, and converted to improved pasture. By 1957, the majority of the tropical fish ponds were excavated, with the remaining 26 ponds installed by 1980. Hundreds of other fish ponds were excavated on surrounding property, many of which are being converted to residential communities. As of the summer, 2005, the extensive aquaculture production area south of Ekker Tract was being converted to a residential subdivision. Because the Ekker fish ponds have been in place for so many years and the dredged material was hauled away from the site, restoring this area into upland habitat would require a large amount of fill material brought to the site. With the loss of substantial freshwater wetland habitat in the Tampa Bay basin, the County and SWIM decided the best ecological alternative for the area is to convert the ponds to appropriate and valuable wetland habitat.

What made the decision even more ecologically important is the available upland habitat enhancement opportunities on the tract. The combination of improvements to wetland and upland habitat will result in diverse and inter-related ecological communities that will result in habitat improvements for existing and future wildlife. This is particularly important for the Gibsonton area. As evident on the aerial (Figure B), there is very minimal undeveloped property in the vicinity; particularly any property that connects to Bullfrog Creek. In January, 2001, members of the National Audubon Society conducted an avifaunal study of the site and noted 14 bird species. In addition, fauna species observed on the property include opossum (*Didelphys marsupialis*), red fox (*Vulpes vulpes*), river otter (*Lutra canadensis*), raccoon (*Procyon lotor*), armadillo (*Dasypus novemcinctus*), and gopher tortoise (*Gopherus polyphemus*). Due to the developed land use of the surrounding property that will only increase in the future, this places more importance on the ecological capacity of the Ekker tract to not only sustain the existing and future generations of wildlife populations, but also improve habitat conditions in order to receive wildlife displaced from other property. The direct connection of the tract to Bullfrog Creek is also valuable since some of the existing and displaced wildlife will utilize this creek corridor to travel upstream and downstream to the natural habitat along Tampa Bay.

Wetland Creation & Adjacent Upland Buffer (Approx. 23 Acres) - The fish pond area on the property have vegetatively transitioned to extensive exotic and nuisance species (refer to photos). The most common pond vegetation includes cattails (*Typha* spp.), torpedo grass (*Panicum repens*), spikerush (*Eleocharis* spp.), duckweed (*Lemna* spp.) with occasional primrose willow (*Ludwigia peruviana*) and Carolina willow (*Salix caroliniana*). Brazilian pepper (*Schinus terebinthifolius*) is common along the sideslopes and top-of-bank. Ground coverage around the ponds includes bahiagrass (*Paspalum notatum*), Bermuda grass (*Cynodon dactylon*), dog fennel (*Eupatorium capillifolium*), and broomsedge (*Andropogon virginicus*). The ponds are buffered along Symmes Road and Ekker Road by a dense monoculture perimeter of B. pepper and roadside drainage ditches covered with cattails and other exotics. In general, there is minimal habitat value associated with the aquaculture area that will substantially deteriorate with generation of more exotic vegetation if not converted to appropriate habitat.

The conceptual wetland creation design for the pond area is depicted on Figures D & E. The conceptual plan includes marsh habitat (7 acres), forested wetlands (2 acres), open water (7 acres) and upland buffer (9 acres). The acreage per each habitat are just estimates until completion of the final design. The design will incorporate cross-sectional surveys and groundwater elevations obtained from piezometers installed on the property. The piezometers were installed in March, 2004 and are visited every two weeks to determine surficial groundwater elevations.

Prior to earthwork, a very extensive herbicide eradication of the exotic and nuisance vegetation will be conducted throughout the aquaculture area and roadside ditches to minimize seed source re-establishment during post-construction. Due to the extensive coverage of exotic vegetation, this may include aerial herbicide application along with the ground spraying from a licensed herbicide applicator. Appropriate wetland plantings will be conducted as grading activities are completed to quickly establish coverage and minimize turbidity. Plantings will include a diverse assemblage of bare root and potted herb species installed on 3 ft. centers within appropriate elevation zones; with such species as arrowhead (*Sagittaria lancifolia*),

bulrush (*Scirpus validus*), fireflag (*Thalia geniculata*), pickerelweed (*Pontederia cordata*), sand cordgrass (*Spartina bakeri*), soft rush (*Juncus effusus*), spatterdock (*Nuphar luteum*), and spikerush (*Eleocharis interstincta*). Diverse tree species will include 1 and 3-gallon nursery stock planted on staggered 10 ft. centers; primarily bald cypress (*Taxodium distichum*), black gum (*Nyssa sylvatica biflora*), laurel oak (*Quercus laurifolia*), popash (*Fraxinus caroliniana*), red maple (*Acer rubrum*), and sweet bay (*Magnolia virginiana*). Some shrub plantings will include wax myrtle (*Myrica cerifera*) and buttonbush (*Cephalanthus occidentalis*).

As part of the site evaluation, the design team is evaluating the potential options of possibly diverting storm and surface water from the roadside ditch sections of Symmes Road and Ekker Road through the wetland creation area to provide additional water quality and attenuation benefits for the vicinity, as well as increase the contributing water source for the wetland creation area. The results of this evaluation will be incorporated in the construction design plans and further detailed in the future mitigation narrative.

The upland buffer around the wetland creation area is an important habitat component of the plan. The Brazilian pepper will be eradicated to establish an appropriate 50-100 ft. buffer of restored upland habitat. To achieve rapid ground cover and minimize the potential re-establishment of exotics and nuisance species, winter rye (dry season) or brown-top millet (wet season) may be conducted to provide temporary cover of the upland restoration area. At the same time as the seeding, plantings of permanent herbs (bare root and potted, 3 ft. spacings) will include species such as muhly grass (*Muhlenbergia capillaries*), sand cordgrass, seaside paspalum (*Paspalum distichum*), and broomsedge (*Andropogon virginicus*).

The density of ground cover vegetation in the upland restoration buffer will decrease with the establishment, growth and coverage of shrubs and trees. The most common tree plantings will include 1 and 3-gallon stock (10 ft. spacings) of laurel oak (*Quercus laurifolia*), live oak (*Quercus virginiana*), cabbage palm (*Sabal palmetto*), red maple (*Acer rubrum*), and slash pine (*Pinus elliotii*). In order to establish the vegetative buffer with a shorter duration while the trees become established and reach maturity, 1-gallon wax myrtle (*Myrica cerifera*) will be densely planted on 10-15 ft. spacings.

Oak Hammock (29 Acres) and Pine Flatwood Enhancement (32 Acres) - The historical aerials indicate the oak hammock habitats approximate the same general limits present during the 1930's but currently have more canopy closure. There has been an increase of some oak habitat along the western portion of the tract with the removal of historic pine flatwood habitat. The hammocks have dominant canopy cover provided by live oak (*Quercus virginiana*), laurel oak, water oak (*Quercus nigra*) with scattered cabbage palm (*Sabal palmetto*) and pine (*Pinus elliotii*, *Pinus palustris*). The understory varies in species and coverage. The oak hammock within the northwest portion of the tract are dominated with live oak and tend to have moderate to dense understory coverage of saw palmetto (*Serenoa repens*), cabbage palm, grapevine; with pockets of various fern species under dense canopy (*Nephrolepis exalta*, *Pteridium aquilinum*, *Osmunda cinnamomoea*, *Thelypteris* spp.). Other common species include dog fennel, beggar's-tick (*Bidens alba*), grapevine (*Vitis* spp.), various sedges (*Andropogon* spp.), carpetgrass (*Axonopus* spp.), flat-top goldenrod (*Euthamia minor*), blackberry (*Rubus* spp.) and low panicums (*Dicanthelium* spp.). The live oaks extend along the upper steep banks of Bullfrog Creek where there is also coverage of dense palmetto transitioning down to scattered mangrove (*Laguncularia racemosa*) and leatherfern (*Acrostichum* spp.) along the waterline of this tidally connected creek. Brazilian pepper is scattered within the oaks and pine plantation of the property, particularly along the upper banks of Bullfrog Creek. The more recent natural recruitment and generation of oak hammock habitat within the southwest portion of the property has more coverage of the opportunistic and younger laurel oak than the old generation of live oaks present for several decades in the northwest portion. In some small areas of the laurel oaks, the canopy density has resulted in substantial shade that has limited ground coverage.

Enhancement of the oak habitat will be conducted through eradication of the Brazilian pepper and where the laurel oak coverage is dense, selective thinning will be conducted to provide opportunities for sunlight to reach the sub-canopy and allow for natural generation of understory vegetative. The laurel oaks will be either logged and/or herbicide (Garlon) to decay in place in order to provide habitat niches and snags for wildlife cover and foraging opportunities. In order to provide more subcanopy for wildlife cover, a combination of shrub plantings will include wax myrtle, cabbage palm, saw palmetto (*Serenoa repens*) and

beautyberry (*Callicarpa americana*). In addition, there will be supplemental plantings of herb to provide more diversity and cover of understory vegetation. The primary species to be considered include the same herbs proposed for planting within the upland restoration area (e.g. broomsedge, wire grass, muhly grass). In addition, carpet grass is a species that grows well under partial shade and is one of the few native species that is commercially available in seed bags. Some carpet grass will be disced into areas of existing minimal ground cover. Millet may also be mixed to provide a temporary cover and seed source for birds.

The pine plantation will have individual pines harvested to widen the general spacings to an average of 20 feet. At the same time, the scattered B. pepper will be eradicated. Where necessary, decreasing the depth of pine thatch material will require commercial straw collection, shallow disking and/or possibly a low cool season prescribed burn where available fuel material is limited so as to avoid the potential of crown fires. Due to the close proximity of adjacent residential areas, it may not be possible to conduct prescribed burns during or post-construction so minimizing the thatch material may have to require mechanical harvesting or disking into the soil. There are some areas of various sedges, grasses, grapevine, and blackberry within the pine plantation. By thinning trees and thatch material, this will provide opportunities for natural recruitment and generation of herb species. After tree thinning, site evaluation will determine where supplemental ground cover planting is necessary and will include herbs and shrubs necessary to provide species diversity, cover and foraging opportunities for wildlife. Dominant species will include saw palmetto, gallberry, wax myrtle, wiregrass, and broomsedge. It may be possible that an upland habitat area on nearby Hillsborough ELAPP property will be able to provide a seed donor opportunity for upland habitat enhancement at Ekker Tract. If not, then the shrub and herb plantings will be nursery stock.

Retention Pond (0.4 acre) – The dredged retention pond has the associated spoil material around the pond perimeter and essentially no available littoral shelf. There are some oaks on the spoil mounds but also B. pepper. The proposed plan includes backfilling a portion of the pond to create and plant a littoral zone. The littoral zone acreage will depend on desired depth and dimensions; with possible concentration of the shelf near the outfall (refer to Figure E). The wetland creation area that replaces the fish ponds will hydrologically connect to the regraded pond to provide some additional water quality treatment and attenuation before outfalling into Smith Creek and Bullfrog Creek. Common species to be planted in the littoral zone will include soft rush, spike rush, arrowhead, pickerelweed, and spatterdock.

The Ekker homestead and driveway entrance (Figure D) are located on the tract and the associated one acre of coverage is excluded from the mitigation plan. The sale of Ekker property to the SWFWMD included a life estate agreement so the residence will not be conveyed to another party. The residence will eventually be conveyed to Hillsborough Parks and will probably be used by the Parks Department as a residence for on-site land management and security.

Attachment B – Schedule, Maintenance & Monitoring, Success Criteria

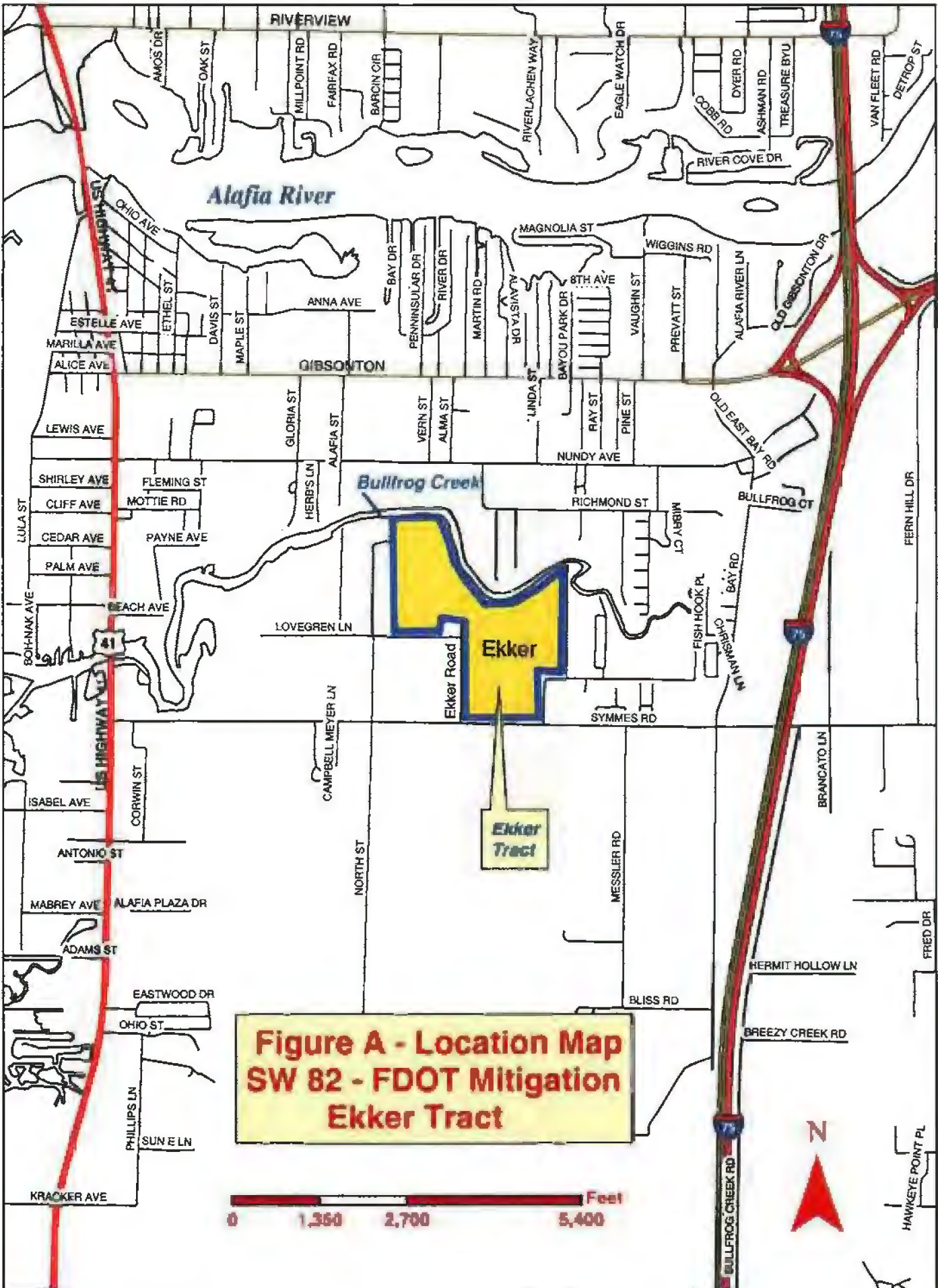
The proposed schedule includes engineering and environmental evaluation from 2005-2007 to obtain site information, conduct the necessary surface and groundwater modeling, and finalize a design plan for permitting in 2007. Construction is scheduled for 2008. Post-construction maintenance and monitoring will continue for a minimum of five years and until success criteria is met, followed by perpetual maintenance and land management activities.

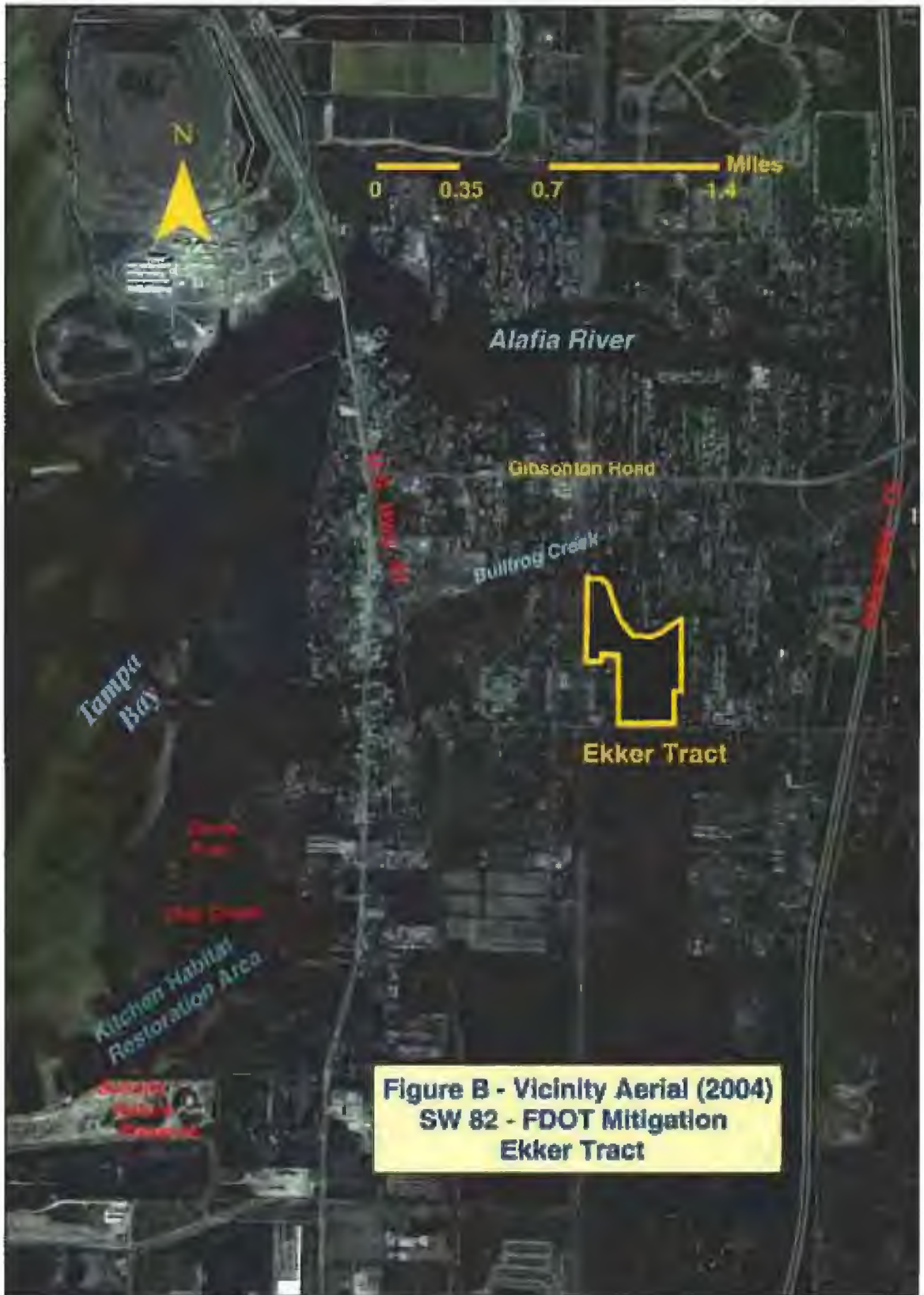
As noted, herbicide maintenance activities to eradicate and control exotic and nuisance species from the tract will be conducted prior to and post-construction activities. Post-construction, there will be a minimum five years of extensive maintenance to guarantee success criteria. Maintenance will be a more extensive effort during the first few years after planting to allow for establishment of appropriate plant species, and less frequent herbicide applications as the habitats mature. Anticipated herbicide events will include every two months for the first three years and quarterly thereafter, however additional maintenance events will be conducted when necessary to ensure success criteria is met and perpetually maintained. Based on the conditions of the various habitats and status of selected species proposed for planting, supplemental planting will be conducted where necessary to fulfill desired results of each habitat area and associated success criteria. Herbicide applications will be conducted through a licensed herbicide applicator on contract

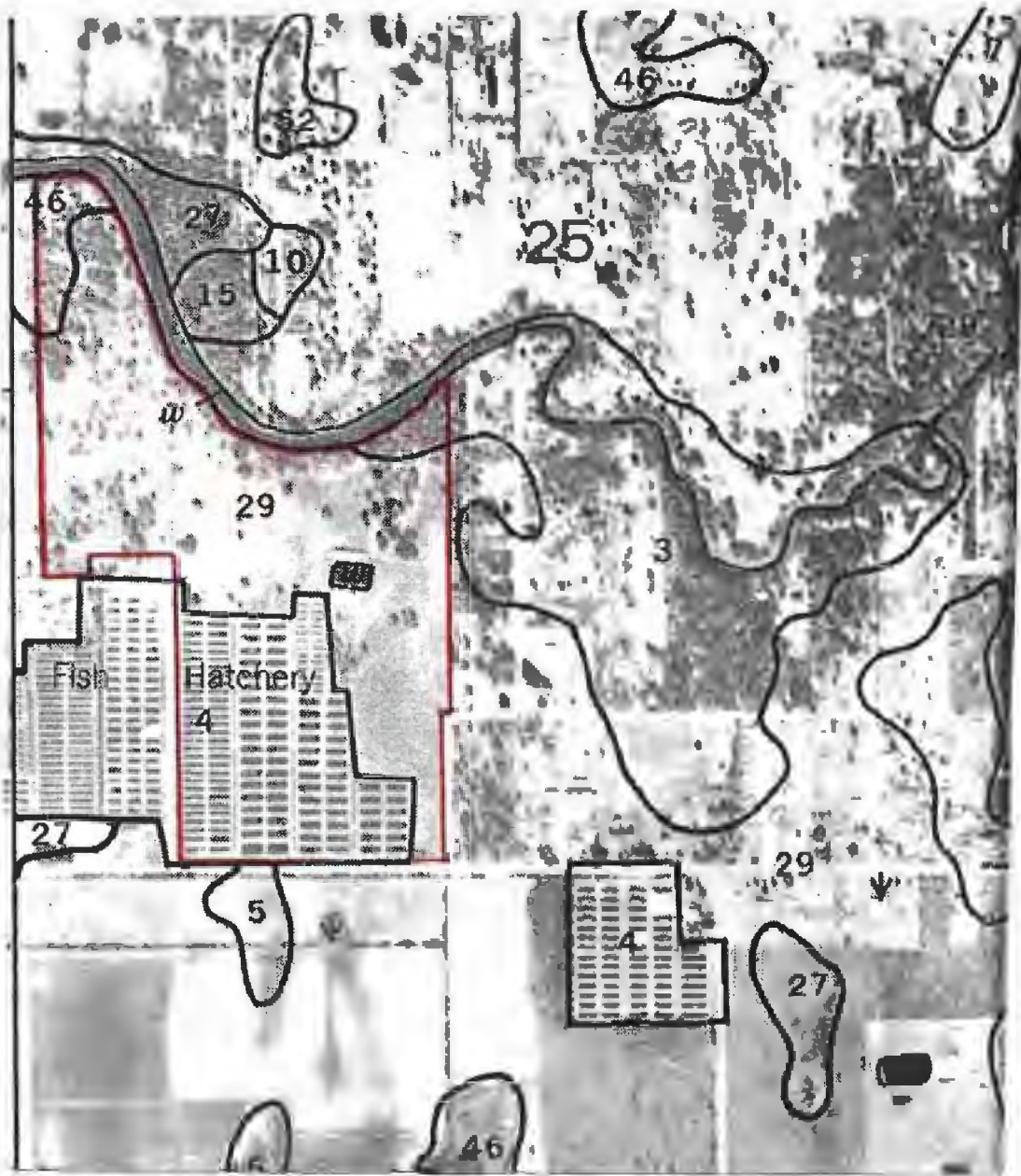
through the SWFWMD. After a minimum of five years and the desired habitat conditions and mitigation success has been achieved, perpetual management will be conducted through the Hillsborough County Parks, Recreation & Conservation Department and/or designee to maintain the same success criteria. The Parks Department may choose to utilize their own herbicide crew or contract for a private licensed applicator. Based on the progress of the habitat conditions, perpetual herbicide treatments is anticipated to occur on a semi-annual basis to eradicate exotics and nuisance species.

Monitoring will be conducted by an environmental consulting firm on contract with the SWFWMD on a semi-annual basis for a minimum of five years and until meeting success criteria. Monitoring will include a comprehensive qualitative assessment of each habitat component within the wetland creation area including but not limited to plant health & survivorship, recruited plant species, cumulative plant coverage, exotic & nuisance species coverage, wildlife use & opportunities, and recommended actions necessary to ensure and further enhance habitat success. Qualitative monitoring will also be conducted for the restored and enhanced upland habitats. Annual monitoring reports will be prepared, and the report will include qualitative and photo documentation of pre-construction habitat conditions, construction activities, and habitat conditions at the monitoring stations that will be designated on the final design plans and utilized for the entire monitoring period. However, habitat conditions will be annually documented for the entire site, not just for the monitoring stations. Annual monitoring reports will be prepared and submitted to the SWFWMD-Regulation Department and USACOE Enforcement Branch to document habitat conditions, any problems and solutions, and anticipated activities for the following year.

Success criteria will be determined as part of the design process but is expected to include a minimum of 90% survivorship of planted material for a minimum of one year from the selected nursery contractor(s). This includes plantings within the wetland creation, as well as upland restoration and enhancement communities. Any plant mortality will be replaced with appropriate species to be agreed upon with Hillsborough County and the SWFWMD. Plant coverage requirements for the wetland creation and restored upland habitat buffer will include a minimum 90% coverage of planted and recruited desirable species; 60% for the enhanced uplands. Tree canopy coverage requirements for the constructed forested wetlands and restored uplands will be a minimum of 30%, 50% for the enhanced uplands. Exotic and nuisance vegetation eradication will be conducted within the entire tract; with maximum coverage limit of 5% to achieve success criteria. Additional conditions and criteria will be evaluated and added as the design progresses to further ensure successful and integrated habitat improvements are achieved for the project. One of the most important aspects of the project is to demonstrate the inter-relationship of the various upland and wetland habitat components relative use by wildlife.







LEGEND (Hydric Soil)**

- 3 - Archbold fine sand
- 4 - Arents, nearly level (historically Myakka f.s.)
- 29 - Myakka fine sand
- 46 - St. Johns fine sand **

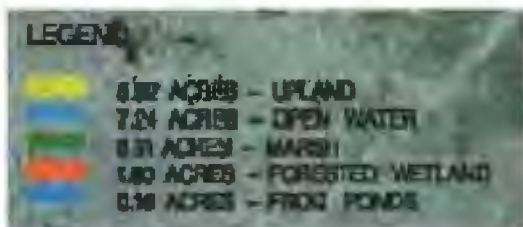
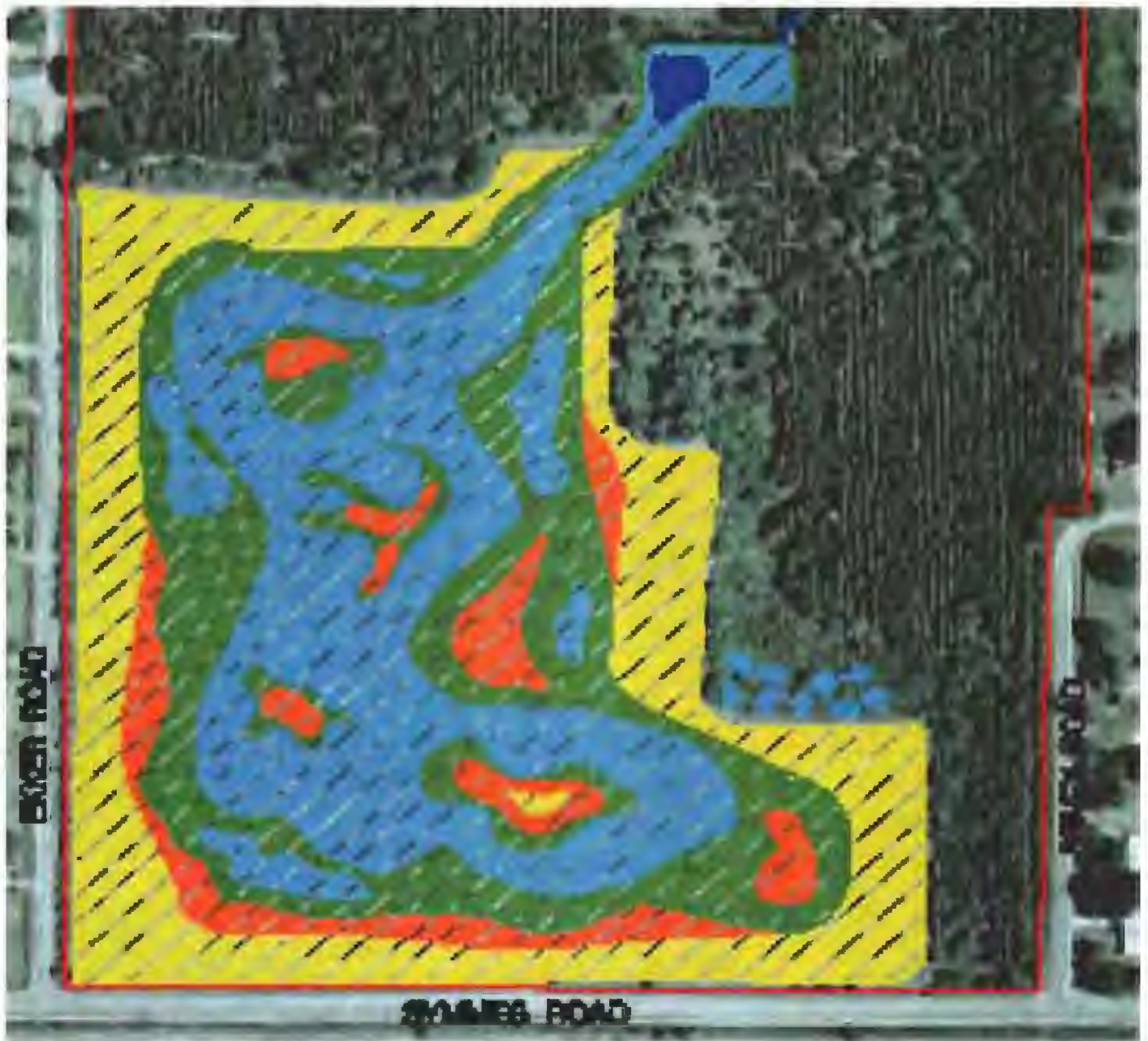
SCALE 5.5 inches = 1 mile
NORTH ^ 1982 Aerial

**FDOT - District 7
 MITIGATION SITE
 (Tampa Bay
 Drainage Basin)**

**EKKER TRACT
 (SW 82)**

**FIGURE C
 NRCS Hillsborough County
 Soil Survey**





**FDOT
MITIGATION SITE
(Tampa Bay
Drainage Basin)**

**EKKER TRACT
(SW 82)**

**FIGURE E
CONCEPTUAL WETLAND
CREATION PLAN**



Tropical Fish Ponds – Typical vegetative conditions include a substantial dominance of exotic and nuisance species such cattails, torpedo grass, duckweed, primrose willow; with side bank coverage of bermuda grass and Brazilian pepper. Proposed plan includes herbicide eradication of existing vegetation, regrading the fish ponds to create and plant forested and marsh wetland habitat, and buffer with restored upland habitat.



Retention Pond – The small dredged retention pond is located north of the fish ponds. The proposed plan includes backfilling a portion of the pond to create and plant a littoral zone. The wetland creation displacing the fish pond area will hydrologically outfall to this regraded pond for additional water quality treatment and attenuation before outfalling into Smith Creek and Bullfrog Creek.

**FDOT – District 7 Mitigation Site
(Tampa Bay Drainage Basin)**

**EKKER TRACT
(SW 82)**



Oak Hammock Buffer – A high quality habitat buffer (left) is located adjacent to Bullfrog Creek. In the northwest portion of the property, a narrow open canopy break along the buffer provides an easily accessible wildlife corridor and gopher tortoise forage on the bahiagrass.



Bullfrog Creek - The upland and wetland habitat improvements proposed for the Ekker Tract will provide many water resource and wildlife benefits for the creek and Tampa Bay.

**FDOT – District 7 Mitigation Site
(Tampa Bay Drainage Basin)**

**EKKER TRACT
(SW 82)**



Oak Hammock – The oak hammock in the northwest portion of the property has diverse coverage provided by live oak, laurel oak, cabbage palm, longleaf pine, saw palmetto, and various fern species. Scattered exotic species such as Brazilian pepper and Australian pine (far left) will require eradication.



Oak Hammock – Dense laurel oak canopy within the southwest portion has minimized understory coverage. Planned activities include selective laurel oak thinning and supplemental planting of various shrubs and herbs such as cabbage palm, wax myrtle, broomsedge, wiregrass and carpetgrass.

**FDOT – District 7 Mitigation Site
(Tampa Bay Drainage Basin)**

**EKKER TRACT
(SW 82)**



Pine Plantation – Typical condition of dense pines and minimal ground cover due to canopy closure and pine straw thatch. Proposed plan includes eradicating scattered Brazilian pepper, thinning the pines, minimizing thatch, and planting shrubs and herbs such as saw palmetto, wax myrtle, gallberry, broomsedge and wire grass.



Pine Plantation – Canopy openings within and adjacent to the pine plantations support appropriate herb and shrub vegetation. As pines are thinned and thatch is minimized, these ecotones will provide opportunities for natural recruitment and generation of understory vegetation.

**FDOT – District 7 Mitigation Site
(Tampa Bay Drainage Basin)**

**EKKER TRACT
(SW 82)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Little Manatee River - Lower Tract

Project Number: SW 83

Project Managers: Ross Dickerson, Manager
Hillsborough Parks, Conservation Services Section

Phone No: 813-672-7876

County: Hillsborough

Location: Sec. 20, 29, T 32S, R19E

IMPACT INFORMATION

1 – FM 4154893, US 301 – Sun City Center to Balm Road (2010) ERP #: _____ COE #: _____

Drainage Basin: Little Manatee River Water Body(s): Carlton Branch, Pierce Branch, Howard Prairie, Little Manatee River SWIM water body? (Y/N) No

Impact Acres / Habitat Types (FLUCFCS):

1- FM 4154893	0.5 ac.	610	TOTAL 0.8 acre
	0.3 ac.	640	
<u>TOTAL</u>	<u>0.8 acre</u>		

* This US 301 segment proposes additional wetland impacts in the Tampa Bay Drainage Basin; mitigation is designated within the Ekker Tract (SW 82).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation ___ Restoration X Enhancement ___ Preservation **Mitigation Area: 142 acres**

SWIM project? (Y/N) N Aquatic Plant Control project? (Y/N) N Exotic Plant Control Project? (Y/N) Y
Mitigation Bank? (Y/N) N If yes, give DEP/WMD mit bank permit #: _____ COE # _____

Drainage Basin(s): Little Manatee River Water Body(s): Little Manatee River SWIM water body? (Y/N) N, however the river does outfall into Tampa Bay, which is a designated SWIM water body. The Little Manatee River is also designated an Outstanding Florida Water.

Project Description

A. Overall project goal: The Little Manatee River – Lower Tract (LMR) was acquired by the Hillsborough County Parks, Recreation and Conservation Department and the SWFWMD, and is managed by Hillsborough Parks – Conservation Services Section. The 1,902-acre tract is bisected by Interstate-75 and the Little Manatee River meanders through the parcel (Figures A & B). The majority of the LMR tract has high quality native habitat conditions. However, there is a 142-acre portion of previously cleared upland and wetland habitat that generated exotic species, predominantly Brazilian pepper and cogon grass. The goal is to eradicate exotics and conduct appropriate species planting to enhance approximately 137 acres of uplands and 5 acres of wetlands (Figure C).

B. Brief description of current condition: Except for the designated project area, the majority of the LMR tract has high quality and diverse upland and wetland ecosystems. The upland habitats include a dominance of pine flatwoods, with areas of sand pine scrub predominantly located along the riverbank, mixed hardwoods, and coastal hammocks located on slight ridges between meandering tributaries of the river (Fig. B). Wetland systems are dominated by estuarine marsh habitats bordering the river and associated tributaries, as well as scattered freshwater marshes in the flatwoods. The designated 142-acre project area was historically dominated by pine flatwood habitat prior to conversion

to improved pasture in the 1980's. After cattle operations were discontinued and the LMR tract was publicly acquired, generation of native and exotic vegetation occurred in the pasture. Dominant ground cover currently consists of bahiagrass and broomsedge, with scattered pockets of cogongrass throughout (refer to photos). A generated shrub component includes scattered Brazilian pepper, wax myrtle, cabbage palms and longleaf pine. There are three wetlands within the designated project area. Wetland #1 (0.4 acre) is an isolated marsh with a dominance of cattails, smartweed, and maidencane. Wetland #2 (1.2 acres) has similar herb species with a transitional perimeter of wax myrtle and Brazilian pepper. The northern portion of Wetland #3 (3.2 acres) is a marsh system with similar dominant species as the other two wetlands. During extreme wet conditions, this marsh has a hydrologic connection south to the river through a shrub component of B. pepper and wax myrtle. The project area is bordered on the west by Interstate-75, north by an FDOT rest area, and the northeast by row crop areas. South and southeast of the project area is a borrow pit, high quality pine flatwoods, and sand pine scrub along the riverbank (refer to photos).

C. Brief description of proposed work: In 2004, there was a partial herbicide eradication of some Brazilian pepper within the western and northern portion of the project area. As depicted on the 2005 aerial (Figure C), the dead pepper was pushed into separate piles. The proposed plan includes returning to the previously treated area as well as untreated areas to herbicide (Garlon) all the B. pepper. After treatment, the existing and new pepper snags will be piled and burned. The cogon grass in the uplands and cattails within the marshes will also be eradicated with herbicide. In both cases, there is adequate and appropriate native herb species that will generate to displace these exotics. However, supplemental planting of pickerelweed and arrowhead will be conducted in the areas dominated by cattails. Longleaf pine (1-gallon size material) will be randomly planted on 50-60 ft. spacings, of sufficient distance from existing pines and cabbage palms to restore the flatwoods canopy component. Routine herbicide maintenance (minimum semi-annual) will be scheduled to control regeneration of the B. pepper, cogon grass, and cattails. As the pines reach maturity and broomsedge recruits into the cogon covered areas, a prescribed burn management schedule will be implemented for the project area. This will further enhance the habitat conditions, attracting and providing more opportunities for wildlife to access and utilize the entire LMR tract. This is particularly important since it will expand upon the native habitat corridor along the river, and restore the portion of the LMR tract that is currently not covered with appropriate habitat.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): There are very few state roadways located within the small Little Manatee River basin, and the US 301 segment is the first project since the inception of the FDOT mitigation program in 1996 that has any proposed wetland impacts in the basin. The anticipated minor marsh impacts (0.83-acre) are low quality and appropriately mitigated at the LMR tract. As of 2006, there are very few anticipated roadway projects within this basin during FDOT's proposed 10-year work program, so the proposed LMR habitat improvements will be conducted many years in advance of any additional wetland impacts that may also be proposed for mitigation at the LMR tract.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: As of 2006, there are no existing or proposed mitigation banks in the Little Manatee River Basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : The LMR project is within SWIM's Five-Year Habitat Restoration Plan. However in a collaborative effort to distribute projects to resource

agencies, this project will be managed and conducted through the Hillsborough Parks Dept – Conservation Services Section.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Independent maintenance contractor working for the Hillsborough Co. Parks Dept.
Contact Name: Ross Dickerson (Hills. Parks – Conservation Section) Phone No: 813-672-7876

Entity responsible for monitoring and maintenance: Private maintenance and monitoring contractors working for Hillsborough Parks and/or SWFWMD.

Proposed timeframe for implementation:

- 1 – Initial Herbicide Eradication & B. Pepper Burning – Summer – Fall, 2008
- 2 - Semi-annual herbicide treatments – Winter, 2008 – Winter, 2010
- 3 – Supplemental pine plantings – Summer, 2010
- 4 – Annual Monitoring & Report – Winter, 2008 – Winter, 2012 (estimated)

Project cost: TOTAL - \$150,000

- \$100,000 – Initial Herbicide Eradication & B. Pepper Burning
- \$30,000 – Semi-annual Herbicide Treatments
- \$10,000 – Supplemental Planting
- \$10,000 – Monitoring

Attachments

- X 1. Description of existing site and proposed work. Refer to previous discussion.
- X 2. Recent aerial photograph with date and scale. Refer to Figures B & C (2005 natural color aerial).
- X 3. Location map and information on existing and proposed conditions. Refer to Figure A (location map), previous discussion, and site photos.
- X 4. Detailed schedule for work implementation, including any and all phases. Refer to above timeframe for implementation.
- X 5. Proposed success criteria and associated monitoring plan. Refer to previous discussion and Attachment A.
- X 6. Long term maintenance plan. Refer to previous discussion and Attachment A.
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

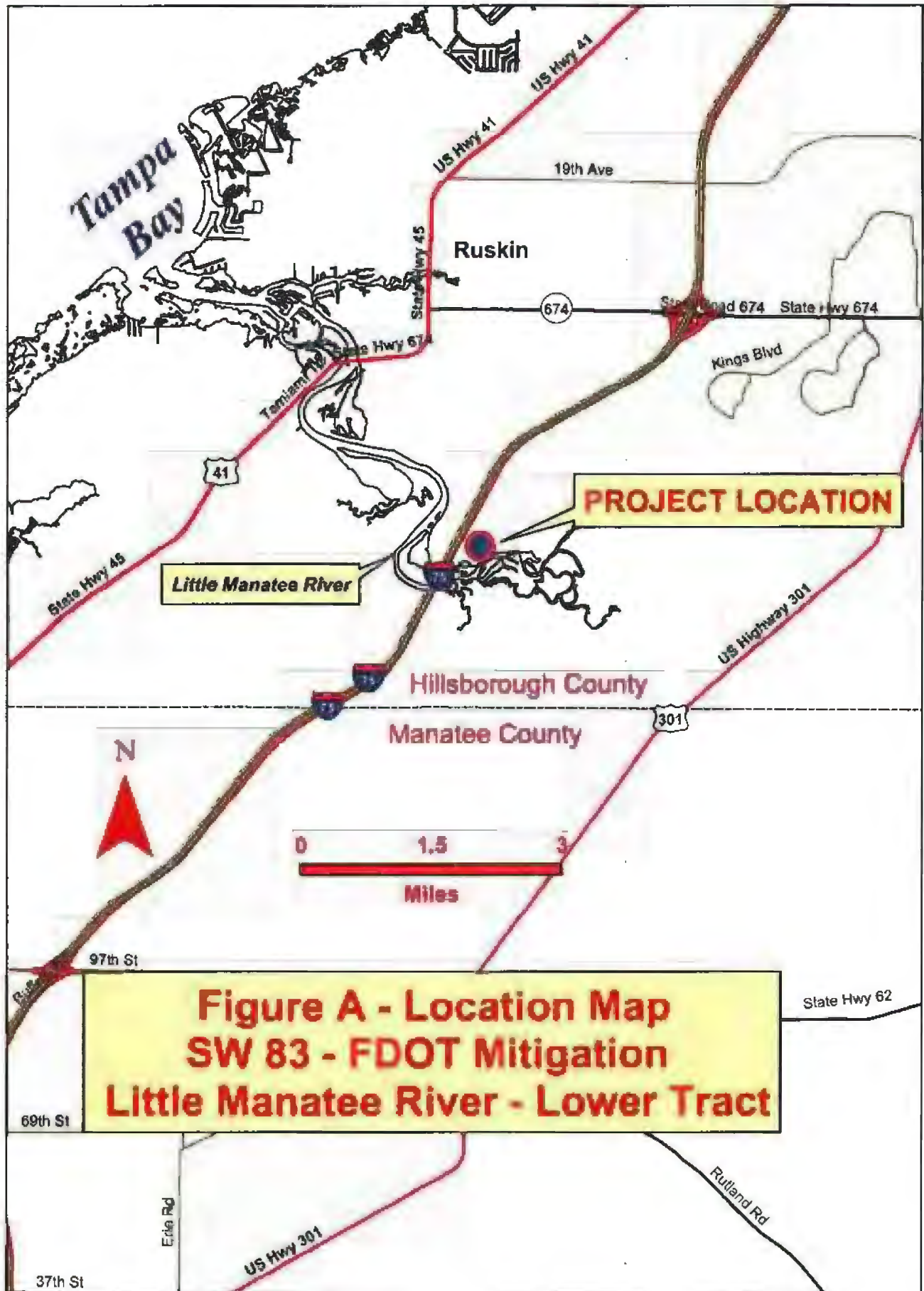
Attachment A – Maintenance & Monitoring Plan, Success Criteria

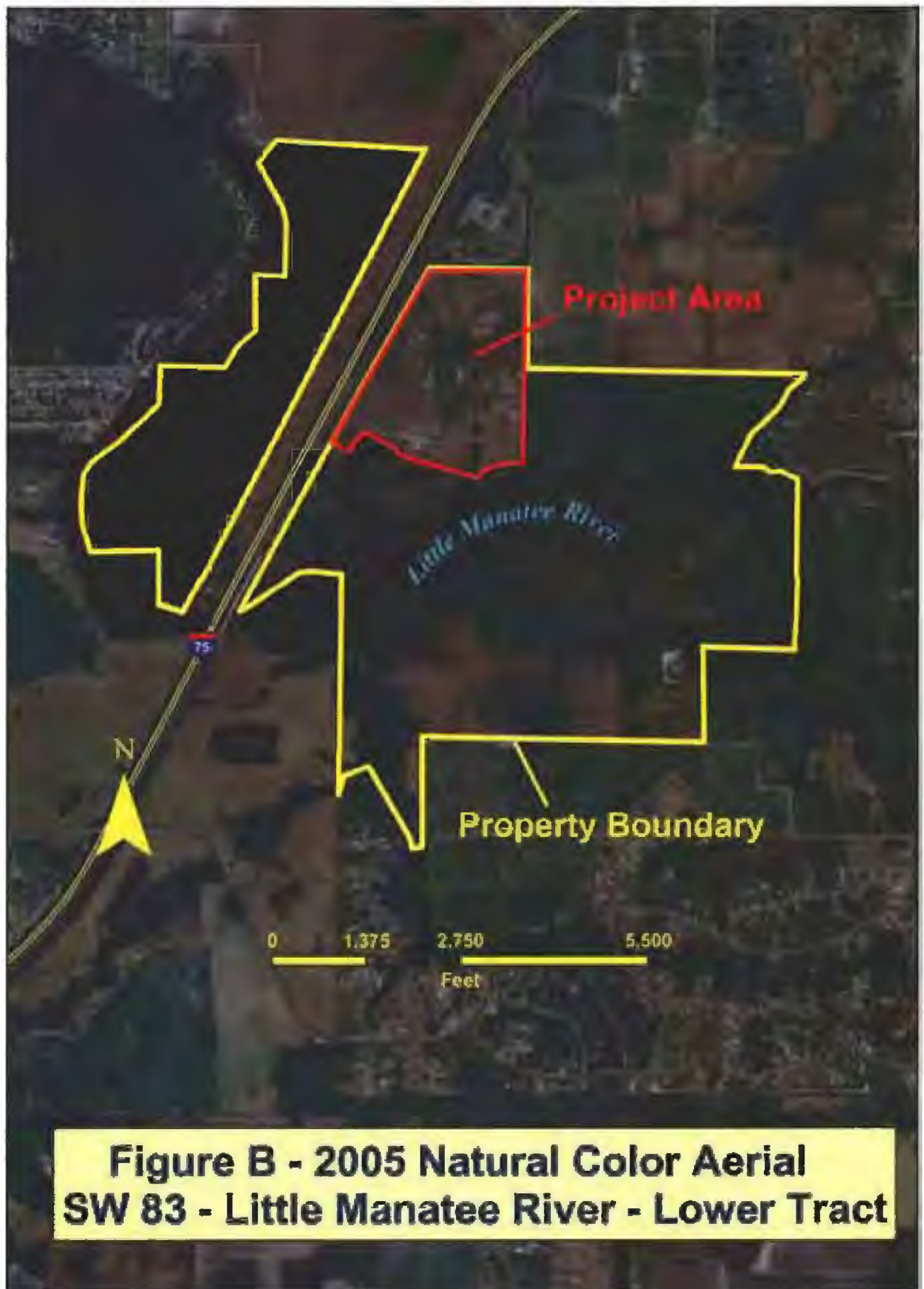
Maintenance activities are anticipated for a minimum three years and until success criteria is met. These activities will include herbicide treatments as necessary of Brazilian pepper, cogon grass, cattails and any other generated exotic and nuisance species. Herbicide treatments are expected on a minimum semi-annual schedule and will be conducted under the supervision of a licensed herbicide applicator. It is envisioned that the same long-term land management activities of the remaining LMR tract will be adopted in the project area, particularly implementation of a prescribed burn program on 3-5 year rotation cycles, and any supplemental pine planting necessary to provide appropriate coverage.

Monitoring will be annually conducted and this information will be reported in annual reports including qualitative assessment and photo documentation of vegetative conditions, wildlife activities, wetland hydrology and hydroperiods, and any miscellaneous activities such as land management and herbicide

maintenance. Monitoring stations representative of the various habitat enhancement and restoration areas will be established and used as photo-documentation of site conditions.

Success criteria vary and are dependent on the habitat areas. Herb cover for the wetlands will include 80% cover of desirable species and less than 5% cover of exotic and nuisance species. For the enhanced uplands, success criteria will include achieving less than 5% coverage of exotic and nuisance species, greater than 90% survivorship of planted material, and conditions require the capability to implement a prescribed burn program.





**Figure B - 2005 Natural Color Aerial
SW 83 - Little Manatee River - Lower Tract**





Wetland Enhancement – Wetland 1 is a small, ephemeral isolated marsh (0.4 acre) with cattails in the core. Proposed herbicide eradication of the cattails, allowing maidencane to regenerate, along with supplemental planting of soft rush and pickerweed. Brazilian pepper (background) will also be eradicated and replaced with pine plantings.



Wetland Enhancement – Wetland 2 has similar functions and characteristics as Wetland 1, except for a buffer of wax myrtle and Brazilian pepper. The B. pepper and cattails will be eradicated, with supplemental planting of wetland herbs where necessary.

**FDOT Mitigation Site
(Little Manatee River Basin)**

**LITTLE MANATEE RIVER TRACT
(SW 83)**



Upland Enhancement – The dominant exotic vegetation generated within the uplands include cogon grass (foreground) and Brazilian pepper (background). Eradication and control of the exotic vegetation will allow native species regeneration and supplemented with pine plantings.



Upland Enhancement – Some eradication and piling of B. pepper has been conducted in the past for a portion of the project area. Removing the remaining and regenerated B. pepper within the project area, planting pines, and incorporating the area into a prescribed burn program will minimize the B. pepper seed source and regeneration rates.

**FDOT Mitigation Site
(Little Manatee River Basin)**

**LITTLE MANATEE RIVER TRACT
(SW 83)**



High quality flatwood habitat within the LMR tract, located along the southeast boundary of the designated project area. By enhancing, restoring and managing appropriate habitats in the project area, there will be more vegetative cover and foraging opportunities to attract more wildlife from the adjacent native habitats.



Many of the highest quality ecosystems at the LMR tract are associated with the Little Manatee River. An inter-related mosaic of habitats such as estuarine marshes, hardwood hammocks, and sand pine scrub along the riverbanks. However, the existing habitat buffer along the northern bank of the river is narrow along portions of the designated project area. With the habitat improvements, the buffer, connectivity and corridor along the river will be enhanced for wildlife access.

**FDOT Mitigation Site
(Little Manatee River Basin)**

**LITTLE MANATEE RIVER TRACT
(SW 83)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Colt Creek State Park

Project Number: SW 84

Project Manager: SWFWMD Land Resources Division
FDEP – Parks Division

Designated PM's to be determined.

County: Polk

Location : Colt Creek St. Park – Sec. 6, T26S, R23E;
Sec. 31, 32, 30, 29, 19, 20, 17, 18, T25S, R23E;
Fussell Tract – Sec. 5, 8, T26S, R23E

IMPACT INFORMATION (Proposed Construction Dates)

1 - <u>FM 4113371 – US 92, Eureka Springs to Thonot. Rd. (2007)*</u>	ERP #: <u>44006732.00</u>	COE #: <u>2006-4072-JPF</u>
2 - <u>FM 4064592 – I-75, Fowler to BB Downs (2015)</u>	ERP #: _____	COE #: _____
3 - <u>FM 4218311 – I-75, BB Downs to SR 56 (2009)</u>	ERP #: _____	COE #: _____
4 - <u>FM 4079441 – I-75, Rest Areas (2009)</u>	ERP #: _____	COE #: _____
5 - <u>FM 2555851 – SR 39, I-4 to Knights Griffin (2014)</u>	ERP #: _____	COE #: _____
6 - <u>FM 2578622 – Park Road, I-4 to Sam Allen (2009)</u>	ERP #: _____	COE #: _____
7 - <u>FM 4089321 – SR 39 @ Hillsborough River (2009)</u>	ERP #: _____	COE #: _____
8 - <u>FM 4218314 – I-75, S of CR 54 to N of CR 54 (2010)</u>	ERP #: _____	COE #: _____
9 - <u>FM 2587362 – I-75, CR 54 to SR 52 (2016)</u>	ERP #: _____	COE #: _____
10 - <u>FM 2564222 – US 301, SR 39 to CR 54 (2013)</u>	ERP #: _____	COE #: _____
11 - <u>FM 2562432 – SR 52, CR 581 to Old Pasco Road (2014)</u>	ERP #: _____	COE #: _____
12 - <u>FM 4110142 – I-75, SR 52 to Pasco/Hernando C.L.. (2016)</u>	ERP #: _____	COE #: _____
13 - <u>FM 2557931 – US 301, Tampa Bypass to Fowler Ave. (2015)</u>	ERP #: _____	COE #: _____
14 - <u>FM 2578623 – Sam Allen Road, Alexander to Park (2015)</u>	ERP #: _____	COE #: _____
15 - <u>FM 2562433 – SR 52, Old Pasco to I-75 (2014)</u>	ERP #: _____	COE #: _____
16 - <u>FM 2563341 – SR 52, US 41 to CR 581 (2015)</u>	ERP #: _____	COE #: _____
17 - <u>FM 4165611 – CR 54, I-75 to US 301 (Undetermined)</u>	ERP #: _____	COE #: _____

Drainage Basin(s): Hillsborough River Water Body(s) : Hillsborough River, Cowhouse Slough, Cypress Creek
SWIM water body? (Y/N) No

* NOTE: This project has additional wetland impacts (0.2 acre) in the Tampa Bay Drainage Basin. The designated mitigation for these impacts include habitat creation and enhancement at the Ekker Tract (SW 81).

Impact Acres / Habitat Types (FLUCFCS code):

(1) FM 4113371 1.0 ac. 610
0.1 ac. 618
0.3 ac. 640
0.2 ac. 641
TOTAL 1.6 acres

(2) FM 4064592 3.3 ac. 615
4.3 ac. 617
1.0 ac. 624
2.7 ac. 630
5.5 ac. 631
TOTAL 16.8 acres

(3) FM 4218311 1.5 ac. 510
3.0 ac. 617
13.2 ac. 625
6.8 ac. 630
10.5 ac. 631
TOTAL 35.0 acres

- (4) FM 4079441 8.9ac. 630
TOTAL 8.9 acres
- (5) FM 2555851 6.4 ac. 617
1.2 ac. 618
5.9 ac. 641
TOTAL 13.5 acres
- (6) FM 2578622 0.2 ac. 617
0.4 ac. 641
TOTAL 0.6 acre
- (7) FM 4089321 0.5 ac. 641
TOTAL 0.5 acre
- (8) FM 4218314 2.3 ac. 610
8.8 ac. 630
2.1 ac. 631
2.1 ac. 641
1.6 ac. 643
TOTAL 17.3 acres
- (9) FM 2587362 8.7 ac. 630
1.5 ac. 641
TOTAL 10.2 acres
- (10) FM 2564222 0.1 ac. 641x
TOTAL 0.1 acre
- (11) FM 2562432 0.8 ac. 641
TOTAL 0.8 acre
- (12) FM 41101242 0.1 ac. 615
TOTAL 0.1 acre
- (13) FM 2557931 0.2 ac. 618
0.3 ac. 641
TOTAL 0.5 acre
- (14) FM 2578623 0.9 ac. 617
0.8 ac. 641
TOTAL 1.7 acres
- (15) FM 2562433 1.4 ac. 615
0.1 ac. 621
TOTAL 1.5 acres
- (16) FM 2563341 9.7 ac. 615
5.9 ac. 621
2.5 ac. 630
13.5 ac. 641
7.5 ac. 643
TOTAL 39.1 acres
- (18) FM 4165611 Undetermined

TOTAL – 148.2 Acres

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation Restoration Enhancement Preservation
acres*

Mitigation Area: 1051

(*Note: these acres only include the portion within the Hillsborough basin, additional acreage in the Withlacoochee basin anticipated to be added in the future to the FDOT mitigation program)

SWIM project? Aquatic Plant Control project? Exotic Plant Control Project? Mitigation Bank?

Drainage Basin(s) : Hillsborough River, Withlacoochee River

Water Body(s): Withlacoochee River, Gator Creek, Colt Creek SWIM water body?

Project Description

A. Overall project goal: The Colt Creek State Park (5,118 acres) has been a high priority tract for public land acquisition over the last 30 years, and was jointly acquired from the Overstreet family by the SWFWMD, FDEP, and Polk County in June, 2006. The tract was considered a priority acquisition for habitat preservation, restoration and enhancement due to the ecologically valuable location within the Green Swamp (Designated Area of Critical State Concern) and thousands of acres of adjacent public lands (refer to Figures A & B). One of the adjacent parcels is the Fussell Tract (Figures A-C, G). The overall project goal is to utilize the FDOT mitigation program for the preservation, restoration, and enhancement of wetland and upland habitat within the Hillsborough River watershed portion of Colt Creek S.P. (713 acres), and hydrologic restoration to enhance forested wetlands (338 acres) within the adjacent Fussell Tract. The remaining portion of the Colt Creek S.P. is located within the Withlacoochee River watershed basin, and will be evaluated for habitat enhancement opportunities that may be nominated to provide mitigation for wetland impacts associated future roadway projects in the basin.

B. Brief description of current condition: Colt Creek S.P. has a variety of upland and wetland habitats, however the Overstreet family incorporated many land use changes and drainage features over a 60-year period to increase the productivity of ranching operations. The tract has an extensive network of wetland and upland-cut ditches, and approximately half of the former upland habitats were converted to improved pastures. The majority of the remaining native habitats have various alterations to hydrology and vegetative communities due to the drainage features and land management activities. Some of the pastures were historically wetland habitat (Figures D & E), and the remaining wetlands have altered drainage patterns and minimal hydroperiods due to the drainage ditches. As a result, pine flatwoods and hardwood hammocks that historically bordered the cypress-dominated forested wetlands have provided a seed source to generate pine and hardwood species in the wetlands; particularly slash pine, live oak, laurel oak, and red maple. Many of the unconverted upland habitats that were historically dominated by pine flatwoods haven't received adequate fire management, resulting in recruitment and generation of the same hardwood species. The adjacent Fussell Tract is appropriately managed by the SWFWMD, however a north-south drainage ditch short-circuits historic meandering drainage patterns through forested wetlands, altering hydrology and hydroperiods as well. Additional site information is provided in Attachment A and site photos. Figures C, D, F, G depict the ecosystems present at the tract.

C. Brief description of proposed work: The public acquisition of Colt Creek S.P. cost taxpayers \$54.5 million. The FDOT mitigation program funds \$7.5 million for the acquisition of the 713-acres within the Hillsborough basin portion to

provide preservation mitigation credit. Additional mitigation credit in the Hillsborough basin portion will be provided by restoring forested wetland and marsh habitat (Figures D, E, F), enhancing wetland habitats by filling ditches to restore historic surface and ground water flow conditions, restoring upland habitats by planting appropriate vegetative species, and enhancing the existing upland habitats by reintroducing appropriate land management activities such as thinning hardwoods and implementing a prescribed burn plan. For the adjacent Fussell Tract, forested wetlands will be enhanced by filling ditches to hydrologically restore meandering surface & sheet water flow patterns (Figure G). Additional habitat enhancement opportunities will be evaluated for the northern portion of Colt Creek S.P. for possible FDOT mitigation credit in the Withlacoochee basin, particularly to compensate for wetland impacts associated with the future expansion of Interstate-4 in Polk County. Additional details are provided in Attachment A, and will be annually updated in the mitigation plan as additional site evaluation and design proceeds toward construction.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority of the anticipated wetland impacts include forested wetland habitats associated with widening Interstate-75 in northern Hillsborough and southern Pasco Counties; with the majority of the proposed roadway construction to commence 2009. The majority of the proposed mitigation activities are associated with preservation, restoration and enhancement of 636 acres of forested wetlands at Colt Creek S.P. and Fussell Tract. The wetland habitat improvements at Colt Creek will be buffered by upland habitat enhancement and restoration to provide an interdependent mosaic of habitats critical to supporting wetland-dependent wildlife species. Since both tracts are predominantly bordered by over 260,000 acres of public lands that also have native habitats being enhanced, restored and appropriately managed, there is even more ecological value associated with this mitigation project. Hydrologic restoration of wetlands within two of these tracts is also being conducted through the FDOT mitigation program, including the 7,500-acre Hampton Tract (SW 59) and 11,000-acre Baird Tract (SW 64).

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: During the time of mitigation selection of the listed roadway projects, there were no established or proposed mitigation banks within the Hillsborough or Withlacoochee River Basins.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: During the mitigation selection period, there were no new SWIM-associated projects proposed in the Hillsborough or Withlacoochee basins. When appropriate for wetland mitigation credit, SWIM - associated projects in these basins have been designated for the FDOT mitigation program.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Private contractor selected by the SWFWMD/FDEP through competitive bid process.

Contact Name: Mark Brown, WMD Environmental Scientist Phone Number: (352) 796-7211, ext. 4488

Entity responsible for monitoring and maintenance: Private contractor selected by the SWFWMD will conduct monitoring and maintenance. Land management activities will be coordinated between the SWFWMD and FDEP.

Proposed timeframe for implementation:

Acquisition – June, 2006

Site Evaluation & Develop Conceptual Plan – 2006-2008

Install Monitor Wells & Watershed Modeling – 2008-2009

Design & Permitting – 2008- 2009

Construction – 2010-2011

Minimum 5 Years - Maintenance & Monitoring – 2010 – 2015

Project cost: \$11.8 million (total) --- amount is only for Fussell Tract and portion of Colt Creek S.P. within the Hillsborough basin, additional costs if and when northern portion of the Colt Creek is designated for mitigation credit.

Acquisition - \$7,560,000 (Hillsborough portion of Colt Creek, preservation mitigation credit;
720 acres x \$10,500 per acre = \$7,560,000)

Watershed Modeling, Design, Permitting & Pre-Construction Monitoring - \$350,000

Wetland Restoration - \$2,700,000

Upland Restoration - \$650,000

Wetland & Upland Enhancement - \$350,000

Post-Construction Maintenance & Monitoring - \$140,000

Attachments

X 1. Description of existing site and proposed work. Previous discussion & Attachment A – Existing Site & Proposed Activities

X 2. Recent aerial photograph with date and scale. Attached 2005 true color aerials, Figures B, C, D, F, G.

X 3. Location map and figures of existing and proposed conditions. Figure A – Location Map, Figures B, C, D, F, G – Existing & Proposed Conditions.

X 4. Schedule for work implementation, including any and all phases. The work schedule for proposed activities is presented under Project Implementation.

X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B – Maintenance & Monitoring Plan, Success Criteria.

X 6. Long-term maintenance plan. Refer to Attachment B – Maintenance & Monitoring Plan.

X 7. Explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

ATTACHMENT A – Existing & Proposed Activities

Green Swamp - Background

Colt Creek State Park (5,118 acres) is located within the region referred to as the Green Swamp (Area of Critical State Concern). The Green Swamp consists of 870 square miles (560,000 acres), of which 260,000 acres have been protected through public ownership and conservation easements. This includes approximately 118,000 acres acquired by the SWFWMD in fee and conservation easements. The Green Swamp is considered a unique and critical natural resource asset with statewide significance. The water and natural resource values of the Green Swamp have made the region one of the highest priority protection areas through public acquisition by the State and SWFWMD. The Green Swamp contains the headwaters of four major rivers: the Hillsborough, Withlacoochee, Peace and Ocklawaha. These four major headwater river channels and tributaries of the Green Swamp play a vital role in conveying water to significant downstream natural systems. Public ownership and conservation easements of the Green Swamp serves to protect the important upstream reaches of the Hillsborough and Withlacoochee Rivers, and the volume of freshwater which they contribute to Tampa Bay, Withlacoochee Bay, Tsala Apopka Lake and many other natural systems and habitats.

With over 70% of the adjacent property comprised of existing public lands and conservation easements (refer to Figures A & B), acquiring Colt Creek S.P. from the Overstreet family has been one of the major missing pieces for public land acquisition due to the existing and potential ecological value and benefits to

wildlife habitat and water resources in the Green Swamp. To the west of Colt Creek S.P., the SWFWMD owns and manages an area referred to "Green Swamp – West Tract" (37,350 acres). To the north and east, the SWFWMD owns and manages "Green Swamp – East Tract" (67,670 acres). Combined, these areas are referred to as the "Green Swamp Wilderness Preserve" (GSWP). As part of the East Tract, there are portions referred to as the Fussell Tract (1,280 acres) and Hampton Tract (7,500 acres). Wetland hydrologic restoration of the Hampton Tract was selected to the FDOT mitigation program in 2000 (SW 59), and due to the hydraulic conveyance connection of wetlands between the Fussell Tract and Colt Creek S.P., these two tracts are combined as part of the same mitigation evaluation and implementation. North of GSWP is the Withlacoochee State Forest – Richloam Tract (62,720 acres), owned and managed by the Florida Division of Forestry. Within the Richloam Tract is the Baird Tract (11,000 acres). Wetland hydrologic restoration of the Baird Tract (SW 64) was nominated by FDEP and selected to the FDOT mitigation program in 2000.

Colt Creek State Park – Existing Conditions

The Overstreet family owned the property from 1941 to 2006, and over that period, the SWFWMD made several offers to acquire the property either through fee simple or a conservation easement. In 2005, the Overstreet family proposed the construction of a 750-lot residential development on the tract. Fortunately after many months of negotiation, the family agreed to sell the tract fee simple for public ownership. The \$54.5 million acquisition costs were funded by the SWFWMD (\$24.3 million), FDEP (\$24.3 million), and Polk County (\$5 million). For preservation mitigation credit, the 720-acre portion of the tract within the Hillsborough River basin is funded (\$7.5 million) through the SWFWMD by the FDOT mitigation program. Of the 720 acres, 7 acres of an existing access road and associated clear zone are not accounted for mitigation credit.

Even though Colt Creek S.P. provides important ecological value for the region, there have been substantial activities conducted on the property during the past six decades to improve conditions for ranching operations and cattle production. The network of extensive large and small ditches has altered the hydraulic and hydrologic features of the property, as well adjacent public and private lands. Many upland habitat communities and some wetland areas within the tract were sufficiently drained to gradually convert into improved pasture. The largest converted wetland area is the pasture within the southwest quadrant of the property (Figures D, E, F). Remaining native upland habitats in the Hillsborough basin portion of the tract have not been incorporated into regular prescribed burn cycle. As a result, pines (*Pinus elliotii*) and hardwoods such as live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), and red maple (*Acer rubrum*) have recruited and generated within the forested wetlands as well as former pine flatwoods. The wetland hydroperiods have been altered to a minimal depth and duration as a result of the ditching and short-circuiting of water flow patterns. This has allowed facultative vegetative species to recruit and encroach upon systems that were historically dominated by obligate species and canopy dominated by bald cypress (*Taxodium distichum*). As a result, regeneration of appropriate hydrophytic vegetation is minimal, particularly the lack of cypress saplings. This altered transition of vegetative species is depicted in the site photographs.

Colt Creek State Park – Proposed Conditions

For purposes of providing wetland mitigation, the initial activities will concentrate on enhancing and restoring habitats within a 713-acre portion located within the Hillsborough River watershed (Figure D). The northern portion of the tract will be further evaluated for possible mitigation opportunities of wetland impacts associated with future roadway activities within the Withlacoochee River Basin. The most promising wetland restoration opportunity is an approximately 20-acre pasture area that was historically a forested wetland floodplain associated with Colt Creek. The most notable anticipated impacts in the Withlacoochee basin will be the future expansion of Interstate-4 in Polk County. The initial 23-acres of wetland impact associated with constructing two lanes to I-4 were designated for mitigation at the adjacent Hampton Tract. Additional expansions to I-4 will occur however the proposed design, permitting and construction dates have not been scheduled by FDOT until after 2016. As a result, the following discussions on the proposed conditions will only concentrate on the designated mitigation activities associated with the portion of the property within the Hillsborough basin.

Wetland Restoration (Forested – 65 acres, Marsh – 33 acres, Hydric Flatwoods – 27 acres) – The most notable examples of wetland habitat lost due to altered hydrology is the 90-acre improved pasture in the

southwest corner of the tract (Figures D-F). As exhibited by the 1941 aerial (Figure E), this pasture historically had forested wetlands dominating the western and eastern boundaries. There were also marshes, sloughs, hydric flatwoods, and pine flatwoods. Contributing water flow to and through these wetlands was re-routed through three ditches, as well as roadside ditches associated with the construction of the adjacent CR 471. There are 65 acres of forested wetland restoration (Area #3) proposed within the approximate footprint of the historic limits of forested wetlands. The forested wetland limits are proposed to be wider than historic conditions along the western boundary to provide more visual and audio buffer for wildlife from CR 471. The 33 acres of marsh restoration components will include some scattered obligate pockets and shallow slough connections. The hydric flatwoods (27 acres) will be restored in the higher elevations along the east side of the pasture. There is a very large southern watershed that contributes flow through the ditches. Due to the large contributing basin, filling the ditches would be sufficient to restore appropriate wetland hydrology without altering the pasture grade elevations. However it is unlikely that condition can be accomplished without possibly staging the contributing headwater flow and water table conditions of adjacent private property to the south. As a result, much of the pasture grade elevations will require lowering by excavating some of the surficial sand material. It is anticipated that the final grade elevations will only decrease an average of 12-18 inches below existing pasture grade elevations, with some obligate pockets dropping 18-24 inches below grade, and shallow 6-12 inches for the hydric flatwoods. There is a subsoil clay horizon in the pasture averaging +/- 40 inches below grade, so excavation will not extend into the clay, and this horizon will provide an aquitard that will restrict percolation and maintain adequate and appropriate hydrology and hydroperiods necessary to support the wetland restoration area.

The proposed wetland elevations and grading plan will be finalized as part of a necessary surface water modeling effort for the contributing watershed. Instead of deeper water wetland habitat, it will be the goal to restore very shallow surface water of less than a 6-inch depth in the rainy season to restore appropriate wetland hydrology and habitat conditions, with scattered obligate marsh pockets to concentrate food resources in the dry season for foraging by wading birds and mammals. The hydric flatwoods will be designed to have seasonal high water table conditions match the grade elevations, as well as scattered concave pockets for containing shallow surface water for wildlife use. The pasture will be evaluated to determine if some of the bahiagrass can be cut for sod, thus also removing some of the topsoil. Remaining topsoil and underlying sands will be evaluated for possible use to fill both upland and wetland-cut swales and ditches on the tract. Due to the ditching necessary to convert the area to pasture, the majority of the organic topsoil has oxidized over the decades. However there may be some remnant pockets of sufficient organic content that will be excavated and backfilled within undercut areas to achieve final wetland grades. It is envisioned most of the excavated sand material will be utilize at appropriate locations within the state park, particularly to provide fill for the proposed campground facilities in the center pastures. As a last resort, material will be properly hauled and disposed off-site by the contractor for residential and/or roadway construction.

Two smaller forested wetland restoration areas (Figure D – Area #1 – 18 acres, Area #2 – 6 acres) were also converted to improved pasture as a result of ditching and altered hydrology. However, the wetland hydrology can probably be restored by filling the adjacent drainage ditches without altering off-site drainage features. This effort will be verified with the surface water modeling.

The same herb, shrub, and tree species will be proposed for the three proposed wetland restoration areas. After appropriate wetland hydrology is restored and grade elevations are established for wetland restoration, herb plantings will include bare root material planted on 3 ft. centers. Dominant species will include soft rush (*Juncus effusus*), arrowhead (*Sagittaria lancifolia*), pickerelweed (*Pontederia cordata*), spikerush (*Eleocharis interstincta*); along with sand cordgrass (*Spartina bakeri*) in the hydric flatwoods. In addition to these herb species, the forested wetland restoration components will be planted with bald cypress, red maple, tupelo (*Nyssa sylvatica* var. *biflora*), popash (*Fraxinus caroliniana*); with laurel oak along the outer perimeter, and slash pine in the hydric flatwoods. Trees will be one-gallon nursery stock material planted on 10 ft. centers. To provide more buffer and cover, wax myrtle (*Myrica cerifera*) will be planted in the shallow grades along the western and northern perimeter of the forested wetland restoration area #3. Other shrubs to be planted include buttonbush (*Cephalanthus occidentalis*). Along with the ground cover, the hydric flatwoods will have scattered 20-30 ft. plantings of slash pine and wax myrtle.

The wetland restoration areas will be evaluated through pre-post qualitative assessment of vegetative conditions and wildlife use, and hydrologic monitoring conducted with continuous automatic recorders installed in restored wetland areas #1 and #3. The water level data will be daily recorded and the electronic information downloaded every 2-3 months to prepare hydrographs. Monitoring will be conducted for a minimum of two years pre-construction and five years post-construction, but may be extended to provide more long-term regional information of water levels in the Green Swamp.

Wetland Enhancement (Forested – 216 acres, Marsh – 12 acres) – There are 15 delineated wetland areas totaling 228 acres that will be enhanced by restoring the appropriate hydrology. An extensive modeling effort of the contributing watershed will determine the appropriate water control elevations to hydrologically restore flow through the wetlands. The majority of the major ditches on the property divert and direct water flow through and around the outer zones and perimeter of the wetland systems, resulting in more direct hydraulic and hydroperiod impacts to the wetland cores (Figure D). These ditches will be easier to access and backfill, restoring appropriate water sheet flow patterns through the entire wetland systems. There are some connecting swales and ditches in the interior of some wetlands that are too small to accurately depict on the aerials. Many of these drainage features have partially filled in naturally and generated vegetation over the years. These drainage features will be evaluated for the severity of ecological damage as a result of dewatering versus the habitat value and functions of the wetland cores. Some of those drainage features and appropriate hydraulic connections may be more appropriately restored with the installation of ditch blocks and cutting breaches within adjacent spoil parallel to the ditches. Filling in the maze of pasture ditches will also restore the gradual water infiltration and lateral surficial aquifer flow contributing to the receiving wetland systems. This is in contrast to the rapid runoff to and through the wetlands as a result of the current ditch drainage system.

With ditch filling, the initial wetland enhancement will be to prevent the decades of altered wetland hydrologic functions. In turn, this will result in the gradual mortality of inappropriate vegetative species and regeneration of desirable hydrophytic species. This will be particularly true to minimize the recruitment and generation of laurel oaks and pines within the wetland cores, and live oaks in the outer facultative zones. The degradation of overall wetland habitat functions and value occurred over many decades, and will require time for the wetlands to recover. The mortality of pines and oaks will be more quick since they cannot sustain long periods of inundation, thus providing conditions for the generation of cypress saplings and appropriate understory species that have had limited opportunities for growth due to extensive shading and insufficient hydrology. However, other hardwood species that can endure more surface (e.g. red maple) will still present and provide diversity and cover. In addition to the increase in appropriate vegetation, the restored hydroperiods will provide more nesting, denning and foraging opportunities for wildlife species that utilize wetlands for portions of their life cycles. Dead trees will be allowed to decay in place, providing snags for wildlife use.

The wetland enhancement will also be evaluated through pre-post qualitative assessment of vegetative conditions and wildlife use, and hydrologic monitoring conducted with continuous automatic recorders installed in select wetlands. At a minimum, recorder installation is anticipated within Wetlands 6, 11, and 12. Monitoring will be conducted for a minimum of two years pre-construction and five years post-construction.

Wetland Preservation (16 acres) – Because the FDOT program funds the acquisition of the designated 720-acre area in the Hillsborough Basin, preservation mitigation credit is designated for the associated upland and wetland habitats. There are four isolated forested wetlands within close proximity of each other that have not been directly altered by ditching and draining (Figure D). These wetlands are dominated by cypress, but there is appropriate coverage of maple and laurel oak along the perimeters. The preservation mitigation value for these wetlands will be primarily associated with ensuring logging will not be conducted, enhancing adjacent upland habitat buffers, and discontinuation of cattle grazing.

Upland Habitat Restoration (123 acres) – There are five pasture areas proposed for upland habitat restoration. The majority of the designated upland restoration areas (Areas #2 & #3 – total 108 acres) are covered with bahia and other pasture grasses. These areas have a very extensive parallel swale drainage system to remove and divert surface water to the major collector ditches associated with the wetland drainage system. These pasture ditches will be backfilled, either with adjacent sod and/or topsoil cut and

transferred from the wetland restoration area in the southwest pasture. The upland pastures will be evaluated for natural recruitment and appropriate restoration methods to re-establish ground cover necessary to implement a prescribed burn program. Longleaf and/or slash pine saplings are typically planted on 10 - 15 ft. centers, thinned over subsequent years to 40-50 ft. spacings. Supplemental plantings of wax myrtle is anticipated to provide appropriate shrub cover for wildlife. Monitoring of water level and natural recruitment and generation of herb cover will determine the need for supplemental herb planting. Between review of historical aerials and preliminary evaluations of site conditions, it is noted that some portions of Areas #2 and #3 probably historically functioned as hydric flatwoods, wet prairie and shallow marsh sloughs. Prior to and after filling of the collector swales and ditches, soil water table evaluations during the rainy season will determine whether some of these areas may be more appropriately restored as shallow wetland habitat.

Upland Habitat Enhancement (220 acres) – There are seven various areas of remnant upland habitats that require enhancement, primarily through cattle removal and implementing prescribed burn management on a 3-5 cycle. This burning will minimize the generation and cover of hardwood species, open some of the canopy for sunlight to penetrate to the understory, and allow more regeneration of appropriate ground and understory vegetation for wildlife foraging. In turn, more ground cover vegetation provides more fuel to carry fire during the prescribed burns.

Other Habitat Activities – As noted, the northern portion of the Colt Creek S.P. is within the Withlacoochee River basin and will be evaluated to potentially provide wetland mitigation for future wetland impacts associated with additional widening proposed for Interstate-4 in Polk County. Of particular note on the tract are substantial wetland areas that have been hydrologically altered by the ditching and diverting water flow out of the historical wetland floodplains of Colt Creek and Gator Creek; two of the major creeks contributing to the Withlacoochee River. There are also many areas of improved pasture that will be evaluated for possible restoration to pine flatwoods and forested wetlands.

With the Overstreet property becoming Colt Creek State Park, the associated habitat restoration and recreational opportunities will be evaluated and determined in collaboration between the FDEP and the SWFWMD during 2006 and 2007. The FDOT mitigation program has included habitat restoration activities for many types of public lands, including state and county parks. For Colt Creek S.P., there has been a consensus between the FDEP and the SWFWMD to implement habitat restoration and enhancement goals similar to other public lands in the Green Swamp. The proposed recreational objectives include providing some campground facilities within pastures within the north-central portion of the property (Figure C, Sections 20 & 29). These facilities will provide the public a base camp to conduct hiking and equestrian activities on trails not only within the state park, but also extending onto adjacent public lands. There are also two mine pits that will provide fishing opportunities. The SWFWMD and FDEP have collaborated on the location and preliminary design of the camping facilities, and will continue to evaluate the habitat restoration opportunities before deciding to nominate potential mitigation activities in the Withlacoochee basin portion of the park.

Fussell Tract – Existing & Proposed Conditions

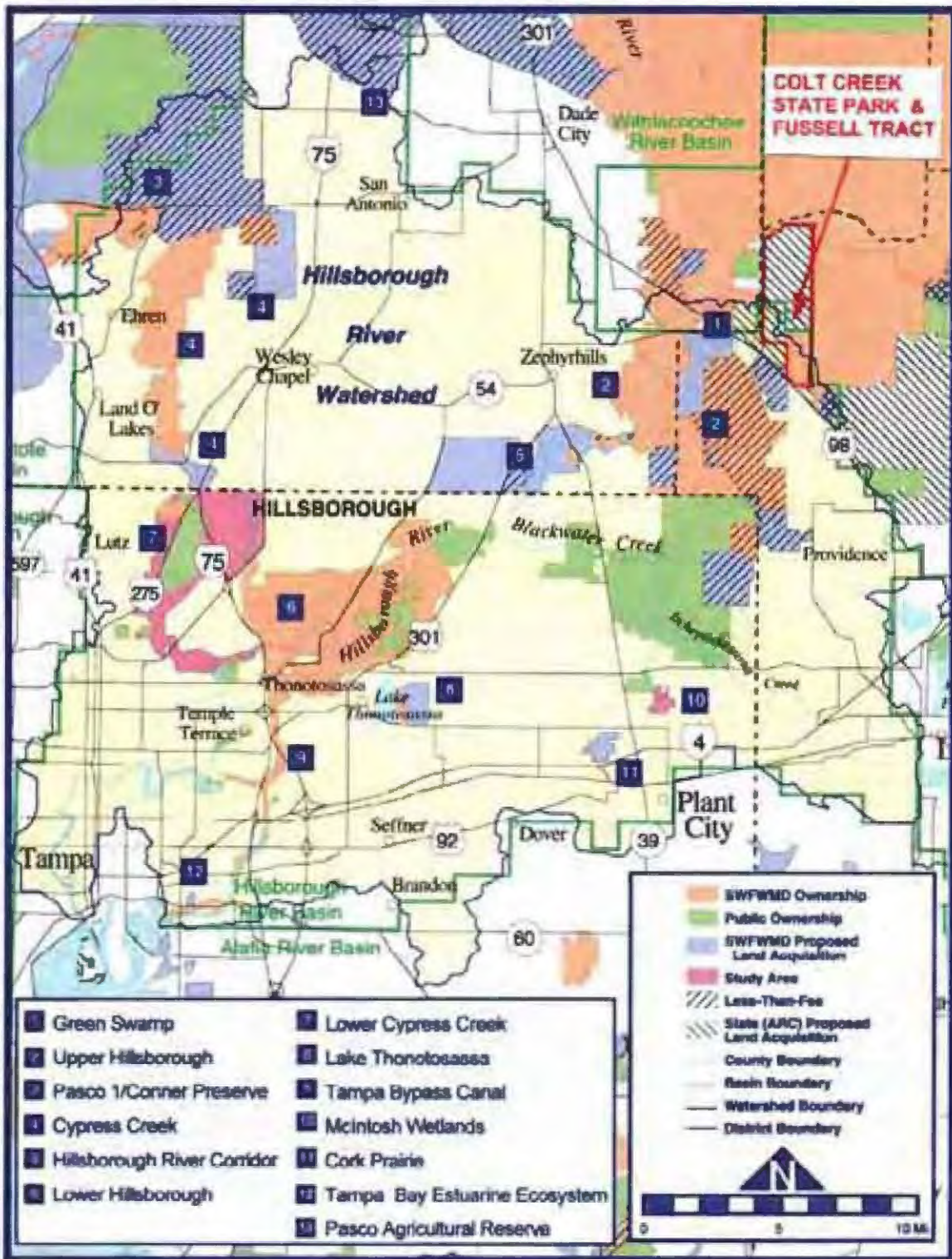
As a result of acquiring the Overstreet Tract, the desired hydrologic improvements of the adjacent Fussell Tract can be conducted as well. The 1,280-acre Fussell Tract is owned by the SWFWMD and considered part of the Green Swamp – East Tract. Historically, there was a drainage flow pattern meandering through 223 acres of cypress domes and strands, as well as the 115-acre mixed forested wetland in the north part of the tract referred to as "Williams Hammock." This drainage pattern was drastically short-circuited by the construction of a 1.5-mile long north-south ditch (refer to Figure G and photos). The proposed plan includes a combination of ditch filling and ditchblocks to restore the meandering drainage pattern and hydroperiods to enhance the wetland habitat conditions. There are other wetlands and uplands on the tract that will receive secondary and indirect habitat enhancement associated with restoring the drainage patterns, but they are not quantified for mitigation credit. At least two automatic water level recorders will be installed in two enhanced wetlands on the tract.

Attachment B – Maintenance & Monitoring, Success Criteria

Maintenance activities will vary based on the type of habitat restoration and enhancement, and coordinated between FDEP and the SWFWMD. For the wetland restoration areas, maintenance will be primarily associated with eradicating exotic and nuisance species vegetation that may generate post-construction. Supplemental planting will also be conducted where necessary. For the wetland enhancement areas, maintenance activities will primarily involve ensuring construction-related areas such as backfilled ditches, installed ditch blocks, and breaches cut into spoil rims are well-stabilized, vegetated and functioning as intended. Maintenance of enhanced uplands will primarily include adoption of a prescribed burn program on 3-5 year rotation cycles, and any supplemental planting necessary to provide appropriate coverage. It is envisioned that many of the same long-term land management activities will include the same principles applied on adjacent public tracts and documented in the "*Plan for Use & Management of the Green Swamp Wilderness Preserve*, SWFWMD, January, 1994." Additional management details will be coordinated with FDEP and reported in subsequent annual updates to the mitigation plan.

Monitoring will be conducted semi-annually for a minimum two years pre-construction and five years post-construction. These evaluations and information will be annually reported in monitoring reports including qualitative assessment and photo documentation of vegetative conditions, wildlife activities, wetland hydrology and hydroperiods, and any miscellaneous activities such as land management and herbicide maintenance. Monitoring stations representative of the various habitat enhancement and restoration areas will be established and used as photo-documentation of site conditions.

Success criteria varies and dependent on the habitat areas. For the forested wetland restoration areas, criteria will include a minimum 95% survivorship of planted material, and 30% canopy for trees over 10 ft. tall and shrubs over 5 ft. tall. Herb cover for the forested wetlands and marsh restoration will include 80% cover of desirable species and less than 5% cover of exotic and nuisance species. Appropriate wetland hydrology and hydroperiods are also required in the restored wetlands. For the enhanced wetlands, documentation of restored hydrologic conditions and hydraulic flow patterns, stabilization and appropriate vegetative cover of filled ditches. Shifts in vegetative cover and diversity will be noted in the monitoring reports, but no specific criteria since the major transitions and regeneration of desirable species will occur over a 10-20 year period. For the upland restoration areas, success criteria will include achieving minimum 20% canopy for pine trees over 10 ft. tall and shrubs over 5 ft. tall. For both the upland enhancement and restoration areas, success also requires achieving sufficient and appropriate ground cover vegetation to implement prescribed fire program on a 3-5 year cycle.



**SW 84 – COLT CREEK STATE PARK
FIGURE A – LOCATION MAP**

SWFWMD - GREEN SWAMP WILDERNESS PRESERVE



SW 84 - COLT CREEK STATE PARK
 FIGURE B - LOCATION AERIAL & PUBLIC LANDS

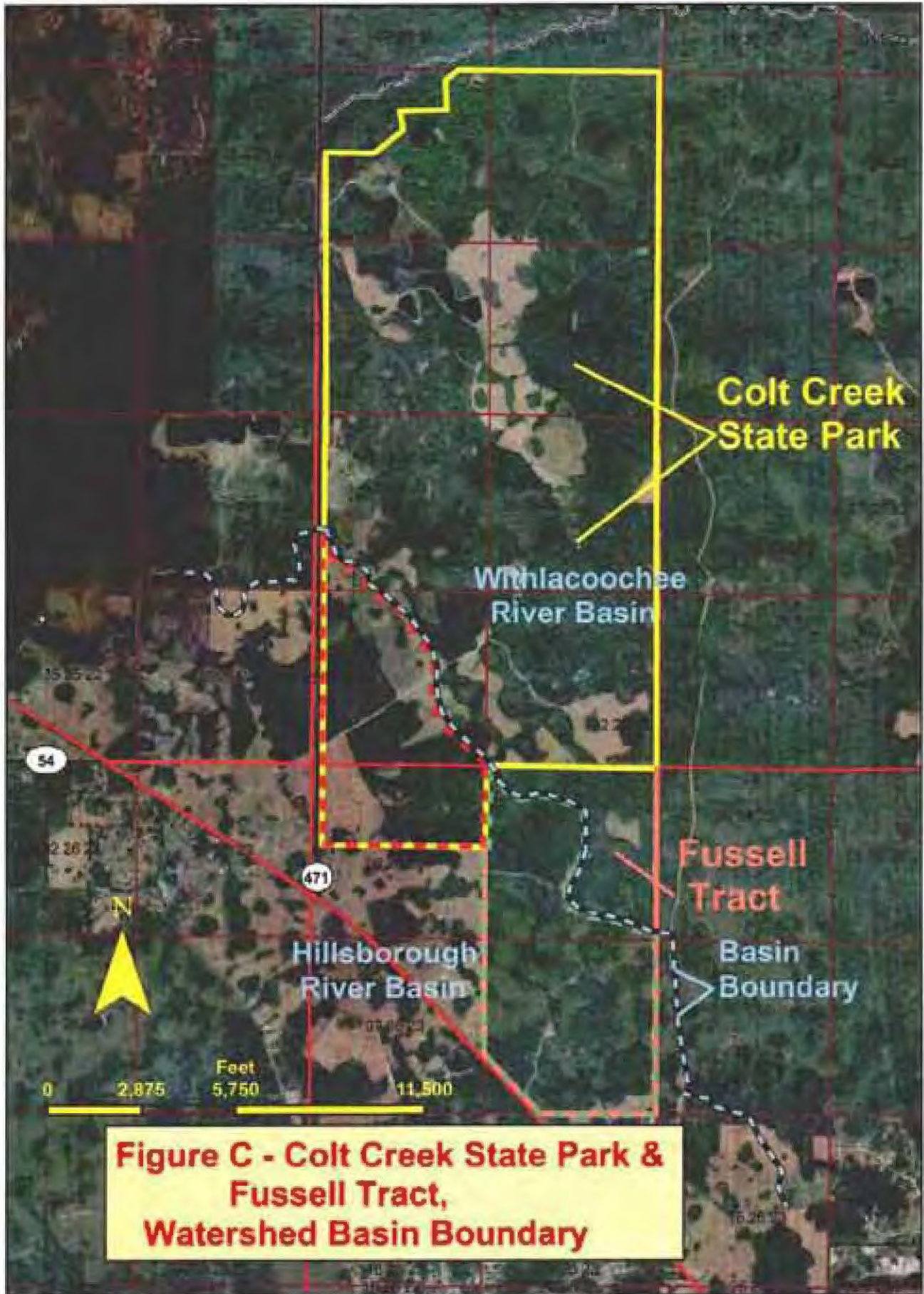
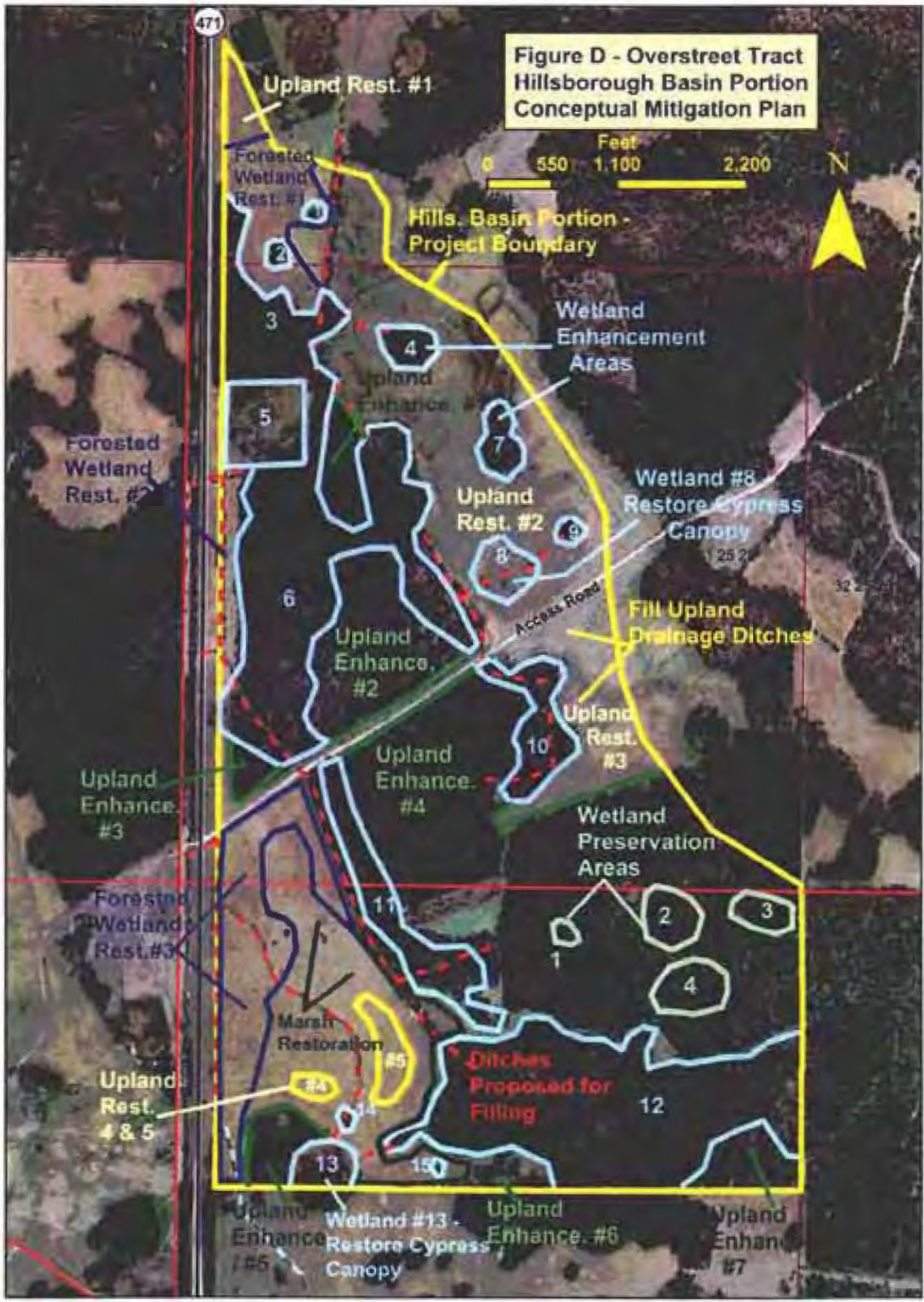


Figure C - Colt Creek State Park & Fussell Tract, Watershed Basin Boundary

Figure D - Overstreet Tract Hillsborough Basin Portion Conceptual Mitigation Plan



471

Feet
0 550 1,100 2,200

N

Upland Rest. #1

Forested Wetland Rest. #1

Hills. Basin Portion - Project Boundary

Wetland Enhancement Areas

Forested Wetland Rest. #2

Wetland #8 Restore Cypress Canopy

Upland Enhance. #1

Upland Rest. #2

Fill Upland Drainage Ditches

5

6

Upland Enhance. #2

Access Road

Upland Rest. #3

Upland Enhance. #3

Upland Enhance. #4

Wetland Preservation Areas

Forested Wetland Rest. #3

11

Marsh Restoration

Ditches Proposed for Filling

Upland Rest. #4 & 5

14

13

15

Upland Enhance. #5

Wetland #13 Restore Cypress Canopy

Upland Enhance. #6

Upland Enhance. #7

12

2

3

4

1

3

4

7

8

9

10

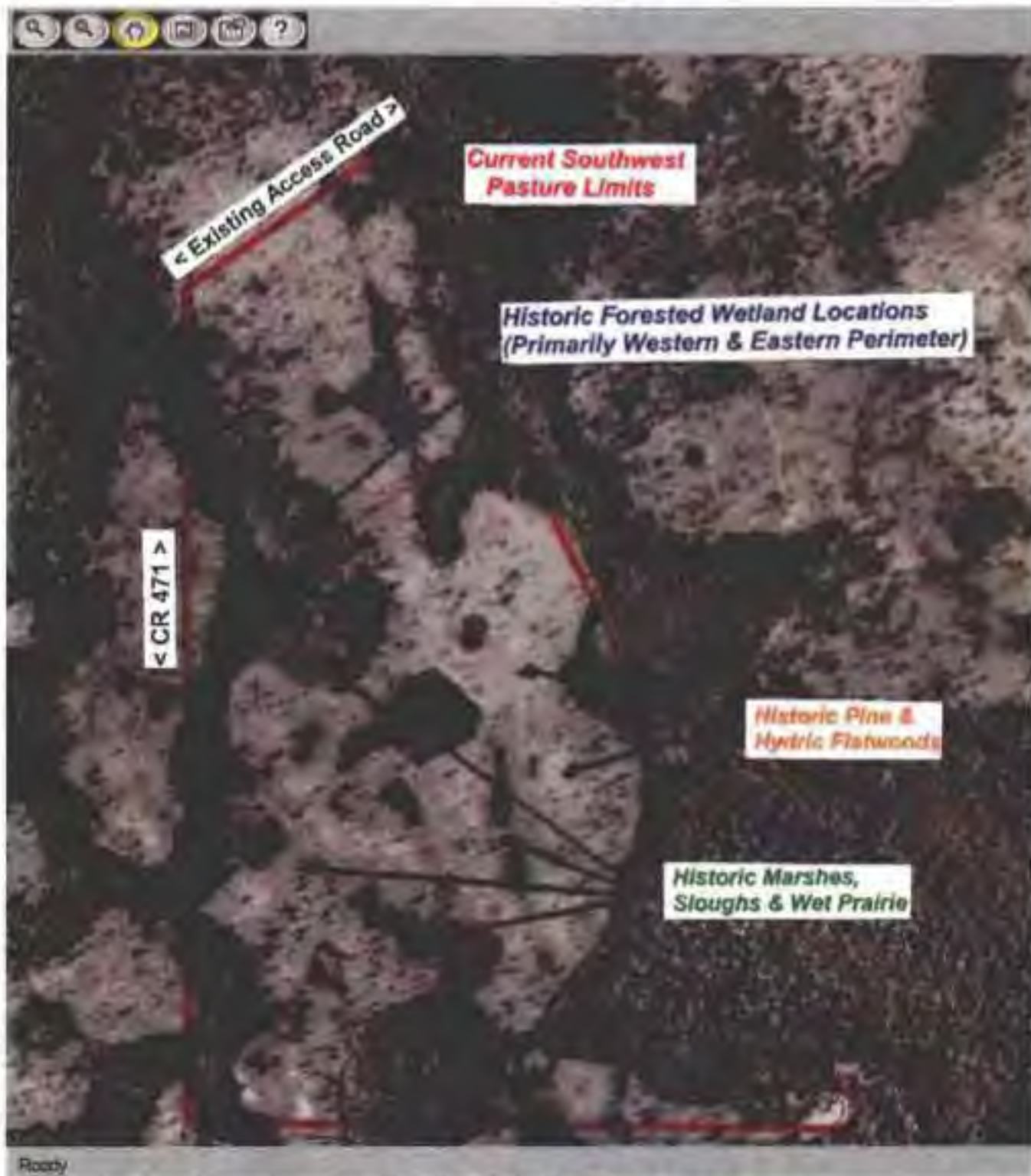
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13

14

15

Aerial Photography: Florida



**FIGURE E – COLT CREEK STATE PARK
1941 AERIAL – SOUTHWEST PASTURE
HISTORICAL WETLAND AREAS**
Approximate Scale – 1 inch = 470 Ft., North ^



Figure F - Colt Creek State Park Hillsborough Basin Portion Conception Wetland Restoration Plan





Wetland Restoration – Eastern view from the western project boundary, at the intersection of north-south and east-west cross ditch in the 90-acre pasture. Grading and planting is proposed to restore the forested wetland (foreground) and marsh habitat (background).



Wetland Restoration – Northern limits of the pasture along access road, looking south at the proposed forested wetland restoration area (foreground) and marsh habitat (background).

**FDOT Mitigation Site
(Hillsborough Basin)**

**COLT CREEK STATE PARK
(SW 84)**



Wetland Enhancement #11 – View from the access road looking south at the north-south drainage ditch (avg. 10-15 ft., 2 ft. deep). Historically a cypress strand, the drainage has resulted in pines and oaks recruiting and generating in the strand (left) and conversion of wetland to pasture (right). Proposed plan includes filling ditch to restore drainage patterns to enhance forested wetland and restore wetland in the pasture.



Wetland Enhancement #6 – Due to ditching and drainage, hydroperiods are minimal; allowing pines and hardwoods such as live oak, laurel oak, and red maple to generate within the historically cypress-dominated wetlands. Enhancement will include restoring hydrology and drainage patterns through the wetlands.

**FDOT Mitigation Site
(Hillsborough Basin)**

**COLT CREEK STATE PARK
(SW 84)**



Upland Restoration #2 – View of the pasture and swales (foreground) cut for drainage. Wetland #9 (background) is drained to west (left) through Wetland #8. The ditches will be filled to restore wetland and upland hydrology, and the pasture will be restored to pine flatwood habitat. Wetland #8 will have the cypress canopy restored.



Upland Enhancement #2 – Hardwoods such as live oak, laurel oak, and red maple have recruited and generated within the historic pine flatwoods. Enhancement will include adopting these upland areas into prescribed burn management on a 3-5 year cycle to decrease hardwoods and open understory for generating more foraging herbs for wildlife.

**FDOT Mitigation Site
(Hillsborough Basin)**

**COLT CREEK STATE PARK
(SW 84)**



Wetland Enhancement – The ditch (avg. 20 ft. wide, avg. 2-3 ft. deep) along the northern perimeter of Wetland 1 diverts and reroutes contributing surface and groundwater flow around the wetland. Proposed ditch filling will restore historic hydroperiods and hydraulic flow patterns through many wetlands and allow easier access for wildlife into the wetlands and adjacent uplands.



North-South Ditch – The main ditch drains and diverts drainage flow patterns in not only the wetlands, but also the adjacent uplands. Surface and ground water conditions will be restored by combination of total ditch filling, as well as installation of 50-70 ft. long ditch blocks. This will provide wide natural crossings and some open water sources in the flatwoods for wildlife, which is particularly valuable during the dry season.

**FDOT Mitigation Site
(Hillsborough Basin)**

**FUSSELL TRACT
(SW 84)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Peace River Mitigation Bank**

Project Number: **SW 85**

Project Manager: Wade Waltmyer, Senior Biologist
EarthBalance, Corporation

Phone No: 941- 426 - 7878

County: Hardee County

Location: Sec. 14, 15, 22, 23 T34S, R25E

IMPACT INFORMATION (Proposed Construction Date)

1 – FM 4154901 – US 17 – Charlotte C.L. to SW Collins (2010)*

ERP #: _____ COE #: _____

2 – FM 1938982 – US 17 – CR 760A to Heard Street (2012)*

ERP #: _____ COE #: _____

Drainage Basin(s): Peace River Basin Water Body(s): None SWIM water body? No

Impact Acres / Habitat Types (FLUCFCS):

(1) FM 4154901 1.4 ac. (615)
 0.8 ac. (617)
 TOTAL 2.2 acres

(2) FM 2569971 3.0 ac. (615)
 TOTAL 3.0 acres

TOTAL – 5.2 Acres

* Note – Both roadway projects also have anticipated non-forested wetland impacts, which will be compensated by purchasing marsh credits from the Boran Ranch Mitigation Bank (SW 53) located in DeSoto County.

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration X Enhancement X Preservation Mitigation Area: **3- 4 credits**
SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? Y
Mitigation Bank Permits WMD ERP# 43029983, ACOE # SAJ 2006-4057 Drainage Basin(s): Peace River Basin
Water Body(s): Peace River SWIM water body? N

Project Description

A. Overall project goal: The Peace River Mitigation Bank (PRMB) is located within a regionally significant and critical habitat and wildlife corridor along the Peace River in Hardee County (Fig. A & B). The tract has been targeted for public land acquisition through the Florida Forever program. The primary goal includes the preservation and enhancement of ecologically significant forested wetland and forested upland habitat along the core of the targeted riverine corridor.

B. Brief description of current condition: The PRMB (total 487 acres) is bisected by the Peace River with almost 2 miles of river frontage along the eastern portion (Figure B). The majority of the tract (369 acres) has high quality mixed forested wetlands (FLUCFCS #617). The varied topography within the expansive riverine forested wetlands creates a variety of micro-habitats including cypress bogs, bay swamps, and bottomland hardwood forests. The dominant canopy coverage is provided by bald cypress, pond cypress, sweetbay, swamp tupelo, red maple, sweetgum, cabbage palm, water oak, and Carolina willow. The understory is sparse but contains a variety of herbaceous and shrubby species, including netted chain fern, cinnamon fern, lizard's-tail, hatpin, yellow-eyed grass, saw palmetto, cabbage palm seedlings, wax myrtle and elderberry. The remaining portion of the tract (118 acres) is upland habitat characterized as

coniferous-hardwood mix (FLUCFCS #434). The vegetative composition is dominated by a mix of slash pine, sweetgum, a variety of oak species, and cabbage palm. The majority of the upland areas have moderate to significant vine coverage, including grapevine, blackberry, poison ivy, Virginia creeper and greenbrier. Other species frequently present in the uplands include dogfennel, ragweed, wax myrtle, winged sumac, and saltbush.

C. Brief description of proposed work: The primary goal of the PRMB is the preservation and enhancement of the habitat conditions by conveying a conservation easement over the site, restricting site use and access, installing strategic fencing and signage, removing existing nuisance and exotic vegetation, reducing brush levels in uplands, and applying habitat land management techniques to the site through the implementation of a funded long-term management plan. The conservation easement will prevent future likely uses of the land that would have been ecologically detrimental, such as silviculture, cattle ranching, and/or residential development of the upland parcels. Even without these stresses on vegetative structure, species composition, and water quality, the site would further degrade without active management. Highly invasive species such as primrose willow, cogon grass, and Japanese climbing fern have been identified on site. The management plan recorded with the easement will prevent current exotic vegetative populations from expanding, and re-introduce a natural prescribed fire regime back into upland habitats to increase vegetative diversity and reduce shrub coverage.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The wetland impacts proposed for mitigation at PRMB include forested wetlands within the lower portions of the Peace River watershed. The non-forested wetland impacts associated with these roadway projects will be mitigated through purchasing credits of non-forested wetland habitat at the Boran Ranch Mitigation Bank in DeSoto County. Both banks have habitat conditions that adequately and appropriately compensate for the anticipated wetland impacts.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The PRMB is a mitigation bank in the Peace River basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time during mitigation selection, there were no SWIM projects planned in the Peace River basin that would appropriately compensate for the proposed wetland impacts.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Peace River Mitigation Bank

Contact Name: Wade Waltmyer, EarthBalance, Corporation

Phone Number: 941 – 426 - 7878

Entity responsible for monitoring and maintenance: EarthBalance, Corporation

Proposed timeframe for implementation: Commence: Design & Permitting: 2005-2006 Complete: No construction required, routine land management, maintenance & monitoring

Project cost: \$427,200 (total estimate through 2008 FDOT Mit. Plan) – Note, estimate will be based on the UMAM assessment of the proposed wetland impact areas. These estimated costs are only associated with the two US 17 segments, additional roadway projects and impacts anticipated to be added in the future.

1 – FM 4154901 – 2.2 acres (estimated 1.16 credits x \$120,000 = \$139,200)

2 – FM 2569971 – 3.0 acres (estimated 2.4 credits x \$120,000 = \$288,000)

Attachments

X_1. Detailed description of existing site and proposed work. Refer previous discussion, SWFWMD ERP #44029983, ACOE #SAJ-2006-4057, attached site photos.

X_2. Recent aerial photograph with date and scale. Refer to Figure B, 2004 aerial.

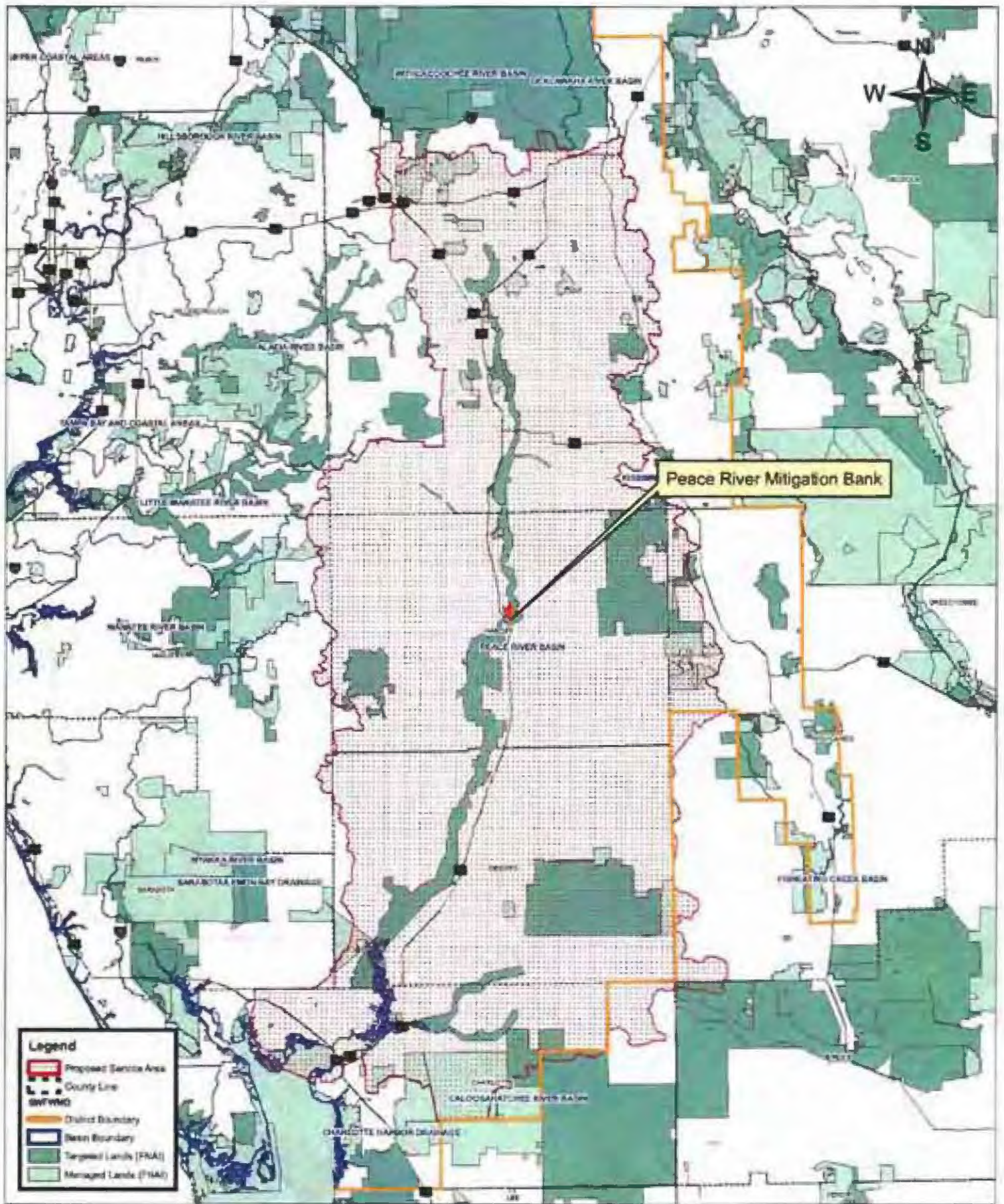
X_3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (location map), Figure B (existing & proposed habitat).

X_4. Detailed schedule for work implementation, including any and all phases. Refer to previous implementation discussion. No construction activities required, currently within the land management, maintenance & monitoring activities.

X_5. Proposed success criteria and associated monitoring plan. Monitoring and success criteria for habitat enhancement are specified in the ERP. Since the site is proposed as a mature preservation and enhancement parcel, typical monitoring methods will not be required to document vegetative and hydrological success. Success criteria for the bank will therefore be evaluated as "events." These events include recording the conservation easement to restrict use and access, funding the management trust fund, fencing and signage along the bank perimeter, eradication of inappropriate plant species to 5% total coverage, eradication of exotic plant species to 1% coverage or less, and completion of the initial shrub reduction/fire event in uplands.

X_6. Long term maintenance plan. A long-term management plan that addresses vegetative maintenance, fire management, site security, access, and approved activities will be recorded with the conservation easement.

X_7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussions.



DATE: 7-27-08
 FILE: fig1_targeted.mxd
 PROJECT NO: 04458.1
 AERIAL: n/a
 SCALE: 1" = 60,000'

**PEACE RIVER MITIGATION BANK
 BASIN BOUNDARY AND TARGETED LANDS
 HARDEE COUNTY, FLORIDA
 SEC 14,15,22,23 TWN 34S, RGE 25E**

**FIGURE A – LOCATION MAP
 SW 85 – PEACE RIVER
 MITIGATION BANK**



LEGEND

Property Boundary

FLUCCS CODE	DESCRIPTION	ACREAGE
434	Hardwood-Cork oak Mixed Upland Forest	118.23ac
437	Mixed Forested Wetland	368.02ac
TOTAL PROJECT ACREAGE: 487.25ac		

DATE: 7-27-08
 FILE: F:\pfl\LUCC6_Map.dwg
 PROJECT NO: 04438.1
 AERIAL: TC 2004 sc01e7
 SCALE: 1"=650'

**PEACE RIVER MITIGATION BANK
 VEGETATION ASSOCIATIONS/FLUCCS MAP
 HARDEE COUNTY, FLORIDA
 SEC. 14, 15, 22, 23 T7N 34S, RGE 25E**

**FIGURE B – HABITAT MAP
 SW 85 – PEACE RIVER
 MITIGATION BANK**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Mobbly Bayou Wilderness Preserve**

Project Number: **SW 86**

Project Manager: Stephen Raymond, Senior Environmental Scientist
Pinellas County Environmental Management

Phone No: 727 – 453 - 6925

County: Pinellas County

Location: Sec. 24, 25, 36, T28S, R16E

IMPACT INFORMATION (Proposed Construction Date)

1 - <u>FM 4152341 – Dale Mabry Sidewalks (2007)</u>	ERP #: _____	COE #: _____
2 - <u>FM 4133991 – US 41, 15 Terrace to Bull Frog Creek (2007)</u>	ERP #: _____	COE #: _____
3 - <u>FM 2568811 – US 19 (SR 55) – Whitney Rd. to Seville Dr. (2008)</u>	ERP #: _____	COE #: _____
4 - <u>FM 4168411 – US 301 - Uncle Tom to Bloomingdale Road (2008)</u>	ERP #: _____	COE #: _____
5 - <u>FM 2569981 – SR 686 (Roosevelt) – I-275 to 9th Street (2012)</u>	ERP #: _____	COE #: _____
6 - <u>FM 2584151 – I-4 (SR 400) @ Selmon Expressway (2009)</u>	ERP #: _____	COE #: _____
7 - <u>FM 2569951 – SR 686 (Roosevelt) – Ulmerton Rd. to 40th St. (2013)</u>	ERP #: _____	COE #: _____
8 - <u>FM 2569961 – SR 686 (Roosevelt) and 49th Street (2011)</u>	ERP #: _____	COE #: _____
9 - <u>FM 4153481 – Tampa Bay Intermodal Centers - Gateway Site (Undeter.)</u>	ERP #: _____	COE #: _____
10 - <u>FM 4125311 – SR 60 – I-75 to Spruce St. (2014)</u>	ERP #: _____	COE #: _____
11 - <u>FM 2569971 – SR 686 (Roosevelt) - 49th St. Bridge to Ulmerton (2014)</u>	ERP #: _____	COE #: _____
12 - <u>FM 4091551 – SR 688 (Ulmerton) – Long Branch to Wild Acres (2014)</u>	ERP #: _____	COE #: _____
13 - <u>FM 4055252 – SR 60 (Adamo Dr.) – US 301 to Falkenburg (2014)</u>	ERP #: _____	COE #: _____
14 - <u>FM 4168381 – US 92 (SR 600) – Pelican Sound to Gandy Bridge (2010)</u>	ERP #: _____	COE #: _____
15 - <u>FM 4136222 – CR 296 - US 19 to Roosevelt / CR 296 (2016)</u>	ERP #: _____	COE #: _____

Drainage Basin(s): Tampa Bay Drainage Basin Water Body(s): Tampa Bypass Canal, Bullfrog Ck., Little Bullfrog Ck.
SWIM water body? No

Impact Acres / Habitat Types (FLUCFCS):

(1) FM 4152341 0.3 ac. (618)
TOTAL 0.3 acre

(2) FM 4133991 0.1 ac. (612)
TOTAL 0.1 acre

(3) FM 2568811 0.8 ac. (612)
TOTAL 0.8 acre

(4) FM 4168411 0.1 ac. (631)
 0.1 ac. (641x)
TOTAL 0.2 acre

(5) FM 2569981 2.1 ac. (619)
 0.7 ac. (631)
TOTAL 2.8 acres

(6) FM 2584151 5.6 ac. (612)
 0.3 ac. (619)
TOTAL 5.9 acres

(7) FM 2569951 0.5 ac. (500)
 0.3 ac. (530)
 0.4 ac. (618)
 0.1 ac. (619)
 0.6 ac. (641)
 0.2 ac. (641x)

TOTAL 2.1 acres

(8) FM 2569961 1.0 ac. (612)
 2.1 ac. (641x)

TOTAL 3.1 acres

(9) FM 4153481 0.2 ac. (618)

TOTAL 0.2 acre

(10) FM 4125311 1.0 ac. (612)

TOTAL 1.0 acre

(11) FM 2569971 0.1 ac. (621)
 0.2 ac. (641)

TOTAL 0.3 acre

(12) FM 4091551 1.5 ac. (500)
 0.3 ac. (530)

TOTAL 1.8 acres

(13) FM 4055252 1.0 ac. (618)

TOTAL 1.0 acre

(14) FM 4168381 0.4 ac. (642)

TOTAL 0.4 acre

(15) FM 4136222 2.8 ac. (618)
 1.3 ac. (641x)

TOTAL 4.1 acres

TOTAL 24.1 acres

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation X Restoration X Enhancement ___ Preservation Mitigation Area: **132 acres**
SWIM project? Y Aquatic Plant Control project? N Exotic Plant Control Project? Y
Mitigation Bank? N Drainage Basin(s): Tampa Bay Drainage Basin Water Body(s): Mobbly Bayou, Tampa Bay
SWIM water body? Y

Project Description

A. Overall project goal: Mobbly Bayou Wilderness Preserve is a 383-acre preserve within one of the few undeveloped tracts adjacent to Tampa Bay (Figure A). The Preserve has diverse upland and wetland habitats critical for a wide variety of wildlife species. However, these habitats have been impacted by the construction of mosquito ditches, ponds and adjacent development. The project goal includes conducting wetland habitat restoration and enhancement by filling ditches to restore appropriate hydrologic regimes, creation of vital oligohaline habitat to provide the salinity transition between freshwater and estuarine wetlands, and the eradication of exotic species. Additional habitat enhancement will be conducted by eradicating Brazilian pepper within the upland habitat area adjacent to the wetlands.

B. Brief description of current condition: The Preserve's habitats include a dominance of mangrove forests and salt-marsh, with additional coverage provided by saltern, pine flatwoods, cabbage palm flatwoods, coastal hammock, and freshwater marsh (refer to Figures B & C). Much of the mangrove forest, salt marsh, and saltern habitat have been hydrologically altered by the construction of mosquito ditches. The ditches limit appropriate and adequate tidal range and fluctuation within the estuarine wetlands. In addition, because of diverted storm and surface water from adjacent developed areas, there is less frequency and consistency of contributing freshwater components critical for maintaining appropriate oligohaline and estuarine habitats. The combination of less estuarine habitat receiving and retaining tidal flow from the south and inconsistent contribution of freshwater from the north has resulted in fewer wetlands having appropriate hydrology, hydroperiods and salinity levels. This is particularly evident within the slightly higher elevations of salt-marsh habitat and adjacent upland habitats, which has had substantial natural recruitment and establishment of Brazilian pepper.

C. Brief description of proposed work: Pinellas County has proposed a combination of restoring wetland hydrology and eradication of exotic species, subsequently resulting in less opportunity for exotic species regeneration and fewer problems with perpetual land management and maintenance activities. The proposed plan includes a combination of activities to improve wetlands ranging from freshwater to estuarine systems (refer to Figures C-E). The existing freshwater ponds (SP on Figure C) will have two internal berms graded to create littoral zone habitat (Figures D & E). The pond water will outfall into an existing oval oligohaline pond (OP). The outer pond berms will be graded to create intertidal marsh habitat and the southeastern portion of the pond will be filled and graded as part of an objective to create six acres of oligohaline marsh and creek habitat. This marsh will provide habitat and water quality improvements before restoring flow to the main channel of Mobbly Creek. A large ditch through the central marsh (CM) and a ditched portion of Mobbly Creek will be backfilled and contoured to restore historic salt-marsh grade elevations. A combination of bulldozers and hydro-blast activities will be used to remove spoil mounds associated with the mosquito ditches. Partial filling of mosquito ditches will be conducted to restore tidal sheet-flow connectivity and appropriate fluctuations of the salt-marsh and mangrove habitats in the areas delineated as Northern SW Ditch (NSD), Central Marsh (CM), and Southern Ditches (SD) (Figures C-E). With the combination of restoring grade elevations from the ditches and spoil mounds, restoring appropriate tidal fluctuations, and B. pepper eradication, there will be natural recruitment and generation of species such as salt grass, black needlerush, smooth cordgrass and saltwort. There will be follow-up herbicide treatment of generated B. pepper treatment and supplemental planting of appropriate herb species. The upland pine flatwoods and oak hammocks bordering the proposed marsh enhancement areas have low to moderate coverage of B. pepper that will also be eradicated and controlled through implementation of a land management plan. Additional details are included in Attachment A.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority of the roadway projects proposed for mitigation at the Preserve have anticipated minor impacts to low quality wetlands and surface waters in the Tampa Bay drainage basin. Most roadway projects have a decrease of proposed wetland impacts as they proceed through design phase, and several of these minor impacts are anticipated to have permits issued without requiring mitigation. As a result of decreasing impacts, additional roadway projects with minor impacts may replace the decreasing impacts. The only proposed roadway with sizeable but very conservative anticipated wetland impacts is the potential 5.6 acres of mangrove impact associated with constructing the Interstate connector of

the Crosstown Expressway to Interstate-4. The Mobbly Bayou restoration project will result in a minimum of 21 acres of mangrove enhancement that will provide appropriate compensation for the unavoidable mangrove impacts.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of selecting mitigation, the only existing or proposed mitigation bank in the basin is the Tampa Bay Mitigation Bank. The mitigation bank was under construction and did not have credits available for purchase.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: The proposed habitat improvements activities are associated with a designated SWIM project.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Private Contractor selected by Pinellas County through competitive bid process.

Contact Name: Stephen Raymond, Pinellas County Senior Environmental Scientist Phone Number: 727 – 453 - 6925
Entity responsible for monitoring and maintenance: Private Contractor selected by Pinellas County.

Proposed timeframe for implementation: Commence: Design & Permitting: 2005-2008 Complete: Construction, 2008–2009, followed by minimum 5 years of maintenance & monitoring

Project cost: \$1.31 million (total estimate);

Design & Permitting	<u>\$150,000</u>
Initial B. Pepper Eradication	<u>\$130,000</u>
Construction	<u>\$900,000</u>
Maintenance (estim. 5 years)	<u>\$100,000</u>
Monitoring (estim. 5 years)	<u>\$30,000</u>

Attachments

X 1. Detailed description of existing site and proposed work. Refer to Attachment A.

X 2. Recent aerial photograph with date and scale. Refer to Figures C-E, 2005 aerials.

X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (location map), Figure B (existing habitat conditions), and Figures C-E (proposed conditions).

X 4. Detailed schedule for work implementation, including any and all phases. Refer to previous implementation discussion.

X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.

X 6. Long term maintenance plan. Refer to Attachment B.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussions.

Attachment A – Background, Site Conditions & Proposed Activities

The Mobbly Bayou Wilderness Preserve is located along the northern portion of Tampa Bay, a designated Surface Water Improvement and Management (SWIM) priority waterbody. The Preserve covers approximately 383-acres in northeastern Pinellas County and borders the northwestern boundary of Hillsborough County. The Preserve is managed jointly by the City of Oldsmar and Pinellas County, with the

County managing 307 acres of ecosystem benefits, and approximately 76 acres in the northern portion managed by the City of Oldsmar as recreational areas. The Preserve is also located within the Pinellas County Aquatic Preserve, and approximately 200 acres has been targeted for restoration, enhancement, and/or creation of habitats that will benefit the Preserve, Mobbly Bayou, and Tampa Bay.

The project planning, evaluation and design included many years of discussions between various entities including but not limited to Pinellas County, SWFWMD – SWIM, FDEP, FDEP Aquatic Preserve Program, U.S. Geological Survey, and various members of the public. Consensus was reached that major elements of ecosystem restoration and management of Mobbly Bayou are in need of attention. Therefore, the objectives of this effort include:

- Ecosystem restoration of the bayou, inclusive of subtidal, intertidal, transitional, and upland habitats, should be accomplished where possible, using a "habitat mosaic" ecosystem restoration approach. In the case of the Preserve, habitat mosaics are defined as assemblages of habitats normally found in coastal/estuarine ecosystems, encompassing upland transitional, intertidal, subtidal, and freshwater habitats.
- Restoration/enhancement of intertidal habitat, including an investigation of the historic and existing hydrological impacts resulting from large-scale ditching for mosquito control on salt-marsh and saltern habitat within the Preserve with a strategic examination of likely targets for mosquito ditch filling/blocking to achieve the greatest ecological benefit.

A habitat map was created by Pinellas County (Figure B) for use in the Mobbly Bayou Wilderness Preserve Management Plan (Figure C). Currently, approximately 73% of the Preserve is comprised of estuarine or tidal habitats. This includes mangrove forest, salt-marsh, and saltern habitats along with oligohaline and mesohaline tidal creeks and open water features. Adjacent habitats include pine flatwoods, cabbage palm/pine flatwoods, and mesic hardwood hammock. Much of the estuarine mangrove forest and saltern habitats have been hydrologically altered by construction of mosquito ditches in the 1950's and 60's. Upland areas within the south end of the Preserve experienced a wildfire as recently as 2000, however fire has generally been excluded from the upland ecosystems of the Preserve.

Upland, intertidal and subtidal areas of the bayou have suffered significant environmental degradation due to urban development, inclusive of dredge and fill activities and clearing of native vegetation and habitats. Upland and wetland areas are disturbed and suffer from invasion of nuisance and exotic species, primarily Brazilian pepper (*Schinus terebinthifolius*). A portion of the bayou was historically excavated for fill, creating a series of separate ponds that now function in part for storm and surface water treatment and attenuation. The two largest ponds as well as two smaller ponds in the Progress Energy corridor have a permanent tidal connection and are oligohaline in nature.

The conceptual restoration plan was based on substantial site evaluation and discussion of various alternatives. With all the adjacent land use changes, it was necessary to evaluate on-site hydrologic restoration opportunities that could not negatively impact adjacent residential areas. It was also necessary to evaluate the effects the mosquito ditching has had on the site, and determine where such restoration efforts would most benefit the site. A major component of the mosquito ditch evaluation included a USGS study of fish populations and their associated migration into and through the site. The fish study determined that the smaller mosquito ditches north of Mobbly Creek appear to have lesser abundance and lower species richness of fish than the natural creek and larger linear ditches to the south closest to Tampa Bay. As a result, it became evident that the ecological disturbance and long-term benefits from attempting to remove the spoil mounds and fill the larger ditches in the southern portion of the Preserve would not off-set the ecological benefits provided by these ditches. Therefore, it was determined the hydrologic restoration activities would focus on the areas associated with the northern smaller ditches. The following information characterizes just the habitat areas and associated activities proposed for FDOT mitigation credit.

Mangrove Enhancement (21 acres) – Overall, mangrove ecosystems dominate the Preserve, including within the majority of the extensive mosquito ditches that extend through the salt marsh habitat. Mangrove species dominate these habitats, including red mangrove (*Rhizophora mangle*), black mangrove (*Avicennia*

germinans), and white mangrove (*Laguncularia racemosa*). With B. pepper eradication within the historic salt marsh areas, access to some of the mosquito ditch spoil mounds will be conducted with traditional construction equipment such as a bulldozer. For areas that have limited equipment access due to mangrove coverage, the hydro-blast method will be utilized to remove the spoil mounds. Hydro-blast includes pumps and fire hoses to spray water at high-pressure, thus displacing the spoil material to below high tide elevations. This method was successfully incorporated in 2004 to displace mosquito ditch spoil material at another Pinellas County / SWIM restoration project funded through the FDOT mitigation program (Gateway Tract, SW 45).

With the hydroblast method, some of the displaced spoil material will be spread under the mangroves and into the ditches. There is very minimal temporary impact associated with this effort since the dense mangroves typically have minimal ground coverage. The mangroves along the ditches still receive appropriate hydrology, however it will be primarily associated with tidal sheet flow versus contained ditch flow. Mangroves and desirable herb species naturally generate within the footprint of the displaced spoil mounds. When the grade elevations are sufficiently below high tide elevations, the B. pepper cannot re-establish.

As for the Preserve, the anticipated mangrove enhancement from the proposed activities will exceed the 21 acres designated for mitigation credit. However, the mangroves bordering the north side of Mobbly Creek (Areas #1 & #2 on Figure E) will benefit the most from grading the spoil & ditch matrix and restoration of the adjacent salt-marsh habitats. One of the larger ditches conveying water to Mangrove Enhancement #2 cannot be filled because of potential off-site drainage alterations.

Salt Marsh Restoration & Enhancement (63 acres) – The salt-marsh habitat dominate the central area of the Preserve, is protected from tidal wave action, and transitions into the mangrove swamps. The typical vegetation of this habitat includes black needlerush (*Juncus roemeriananus*), smooth cordgrass (*Spartina alterniflora*), seashore dropseed grass (*Sporobolus virginicus*), salt grass (*Distichlis spicata*), glasswort (*Salicornia virginica*), sea purslane (*Sesuvium portulacastrum*), key grass (*Monanthochloe littoralis*), and saltwort (*Batis maritima*). However due to altered drainage conditions, large expanses of salt marsh are dominated by Brazilian pepper, particularly associated with the spoil mounds and areas of high marsh. Also within the salt marsh habitat, there are a couple acres of ecologically valuable saltern habitat.

One of the main restoration objectives at the Preserve is to restore natural flow patterns and channel geomorphology to the upper reaches of Mobbly Creek. The creation of the main north/south linear ditch redirected the water flow away from the natural creek system, and into the oval oligohaline pond. Hydrologic and vegetative restoration within this area will include backfilling this main ditch with fill obtained from the creation of the oligohaline creek and adjacent marsh system (Figures D & E), and from grading the adjacent spoil mounds to restore elevations consistent with the surrounding salt marsh. In addition, a combination of using bulldozers and hydro-blasting will displace the mounds along the southern ditch located perpendicular to the north/south linear ditch, thus allowing the ditch to naturally silt in with the displaced spoil material.

After the salt marsh areas will have the B. pepper eradicated, spoil mounds removed, and partial filling of mosquito ditches, where necessary, there will be supplemental planting of the same native herb species found in the salt marsh. As with the designated mangrove enhancement, there will be additional salt marsh enhancement than the 63 acres designated for mitigation credit (Figure E). However, the mitigation areas were delineated within the locations that will receive the most ecological benefit from the construction-related restoration activities associated with removing spoil and filling ditches.

Freshwater & Oval Oligohaline Ponds (3 acres) – Restoration within the oligohaline pond will focus on opportunities to restore historic natural flow patterns and channel geomorphology, therefore a channel will be opened up within the pond's western berm. This will allow for increased water flow within the upper reaches of the creek system on the flood and ebb tides. Currently a majority of the ebb and flood tide enters the pond via the north/south linear ditch into the southern opening of the pond, reducing the quantity of water available for flow through the upper reaches of the creek. To further direct flow back through the natural system, the southern opening of the pond will be closed through the construction of a shallow mangrove lined berm. The eastern and western banks will be graded to create a littoral shelf and the exotic

species and hard debris will be removed. There will be a few additional littoral zones constructed in the northern freshwater ponds. All these littoral areas will be planted with appropriate species. Depending on the salinity of each pond, these species could include bulrush (*Scirpus californicus*), saw-grass (*Cladium jamaicense*), and cordgrass (*Spartina patens*, *S. bakerii*). To enhance fisheries habitat, the hard debris excavated from the project area will be placed in the pond to create an artificial reef.

Oligohaline Creek & Marsh Creation (6 acres) – There is an existing ditch parallel to the northeastern boundary of the oval oligohaline pond. Bordered by a dominance of B. pepper, it was determined this location and the two smaller borrow ponds southeast of the oligohaline pond would be a good location to construct a meandering oligohaline creek and adjacent marsh habitat (Figure D & E). The cut material from constructing the northern portion of the creek and marsh system will be used to fill and raise the grade of the two existing ponds southeast of the oval oligohaline pond. Once constructed, the graded area will be planted with appropriate species such as black needlerush, saw-grass, and cordgrass.

This habitat will provide additional water quality treatment and attenuation of water discharging from the oligohaline pond before discharging into Mobbly Creek. Along with the littoral zone creation in the ponds, this creek and marsh creation will provide the opportunity for fish migration between the pond and Mobbly Creek. In turn, the increase in fish and aquatic species will attract other wildlife species that frequent the area such as various wading birds and small mammals.

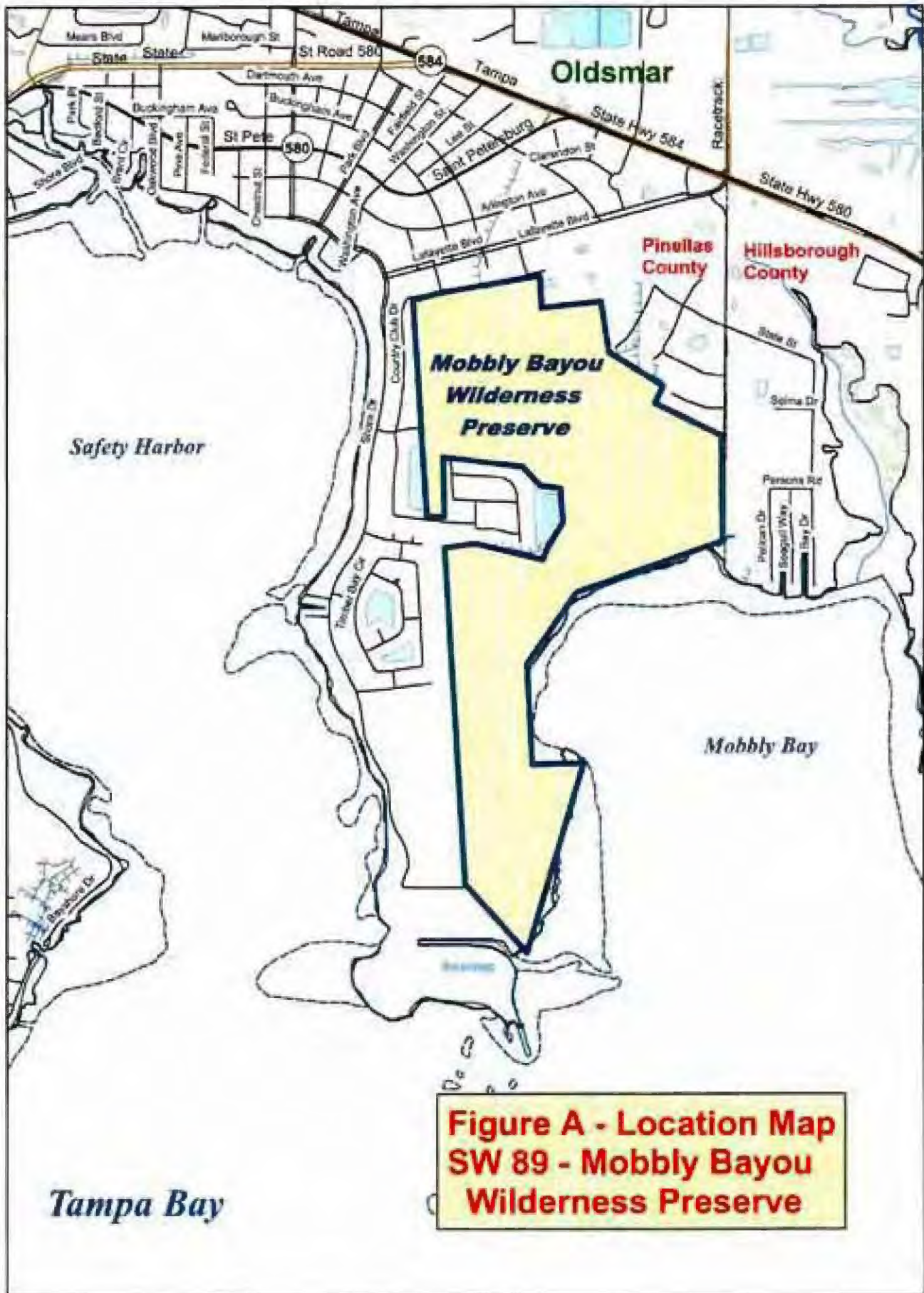
Upland Habitat Enhancement (39 acres) – Enhancement is proposed for two separate upland habitat communities bordering the northern high marsh habitats. As depicted on Figure E, a long and narrow area of the upland enhancement area #1 is technically not within the portion of the Preserve's boundary owned by Pinellas County. Except for a 1.3-acre area in the middle of Upland Enhancement Area #1 (refer to Figure E), this segment is owned and preserved by the City of Oldsmar. But as part of an agreement between the County and the City, the upland will be enhanced as part of the County's enhancement and management of the adjacent upland habitat. Dominant canopy is provided by longleaf pine (*Pinus palustris*) with scattered live oak (*Quercus virginiana*) and cabbage palm (*Sabal palmetto*). Understory includes moderate to dense coverage of saw palmetto (*Serenova repens*). However, there is also moderate coverage of Brazilian pepper that will only continue to recruit and generate without eradication, which will be conducted with herbicide (Garlon) by a licensed applicator. The County will also evaluate the use of either mechanical roller-chopping and/or cool weather prescribed burns to minimize some of the dense palmetto coverage. The remaining 1.3-acre parcel is privately-owned but is being pursued for acquisition by the City. Unless acquired by the City, enhancement of this parcel will not be proposed for FDOT mitigation credit.

ATTACHMENT B – Maintenance & Monitoring Plan, Success Criteria

For estuarine restoration and enhancement projects, with proper construction of appropriate wetland grade elevations to allow for sufficient tidal connectivity and appropriate fluctuations, maintenance-associated activities are typically associated with erosion control of sediment, removing debris, and conducting supplemental planting when and where necessary. Salt water limits the re-establishment of exotic vegetation, particularly B. pepper. The eradication and control of nuisance/exotic vegetation within the project area will be conducted by a licensed herbicide applicator. Maintenance will be conducted as needed, expected to be quarterly for the first few years after construction activities, and at least semi-annually thereafter for a minimum of five years and until success criteria are met. Afterward, maintenance activities will be conducted as part of the perpetual management of the tract to maintain success.

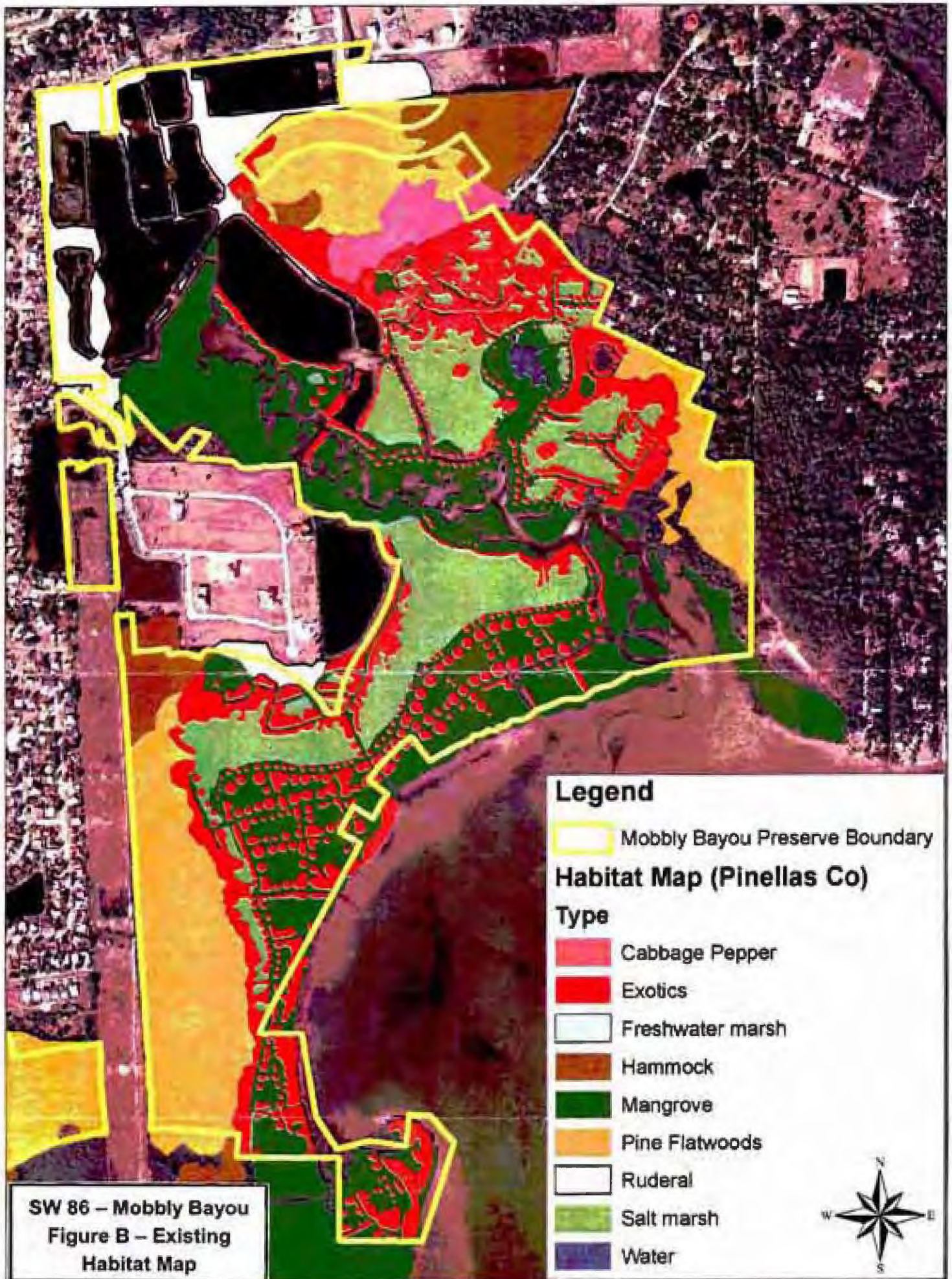
Monitoring for FDOT mitigation credit will be conducted semi-annually for a minimum five years post-construction. The monitoring evaluations will include vegetative and habitat conditions, water level relative to flow regimes and inundation, wildlife use, and coverage of nuisance and exotic vegetation. Annual monitoring reports will be prepared to document conditions and various activities implemented during the previous year. The same designated monitoring stations will be designated throughout the monitoring period for photo references. However habitat conditions will be annually documented for the entire site, not just at the monitoring stations.

Success criteria includes a minimum of 90% survivorship of planted material for a year after planting, and a total 85% coverage of recruited and desirable species. Planted material is proposed for the new pond littoral zones and the created oligohaline creek & marsh. If necessary, within a year post-construction, supplemental plantings within the salt marsh and removed spoil mounds will be conducted if there is not 85% coverage of generated species. Exotic and nuisance species will be limited to less than 5% coverage within the designated mitigation areas. These areas will be limited to B. pepper growing on spoil mounds adjacent to the larger mosquito ditches that cannot be removed due to potential alteration to off-site drainage systems.

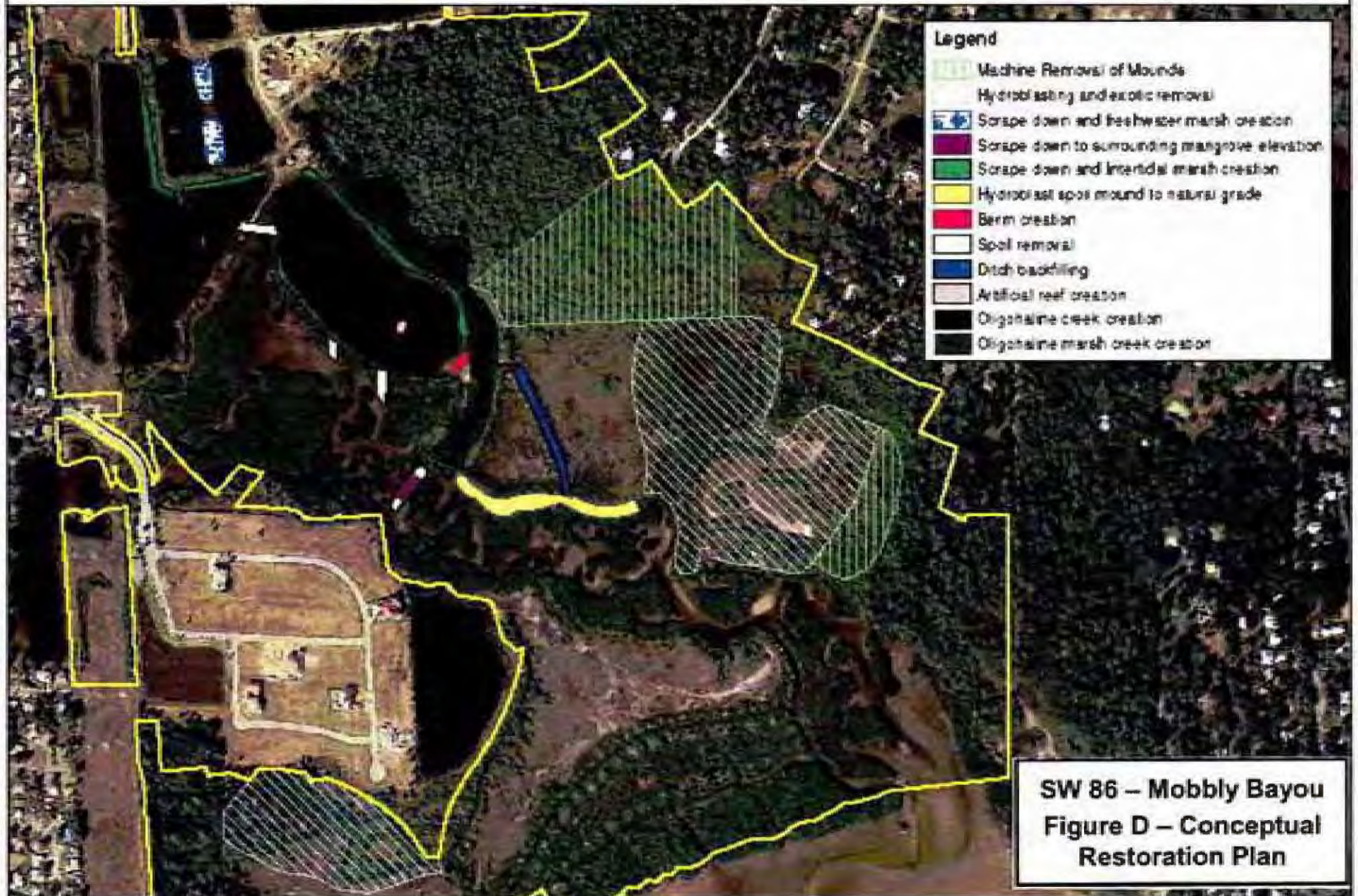




**SW 86 – Mobbly Bayou
Figure C – Target Habitat
Restoration Areas**



Conceptual Restoration Plan





**SW 86 - Mobbly Bayou
Wilderness Preserve
Figure E - Mitigation Areas**



Mobbly Creek meanders through the Preserve from the ponds in the northern portion of the tract to Tampa Bay. The creek is predominately bordered by mangrove habitat.



Filling mosquito ditches will restore and enhance appropriate tidal connectivity, fluctuation and duration to enhance existing salt marsh habitat. Dominant marsh habitat conditions include vegetative cover of salt grass, glasswort, black rush, saltwort, and mangrove saplings.

**FDOT Mitigation Site
(Tampa Bay Drainage Basin)**

**MOBBLY BAYOU
WILDERNESS PRESERVE
(SW 86)**



One of the mosquito ditches proposed for filling by the adjacent spoil mounds. Brazilian pepper has been eradicated to provide construction equipment access to grade the spoil mounds. The remaining cabbage palm on the mounds will be relocated on-site to improve habitat conditions within the Preserve.



An area in the Central Marsh where Brazilian pepper was eradicated in 2006 to provide access to the spoil mounds with dozers and hydroblast equipment. Some salt grass has naturally generated, supplemental planting will be conducted where necessary to provide additional ground cover.

**FDOT Mitigation Site
(Tampa Bay Drainage Basin)**

**MOBBLY BAYOU
WILDERNESS PRESERVE
(SW 86)**



The ditch (left) and cleared area (right) will be graded to create an oligohaline creek and marsh habitat that will provide treatment and attenuation of water discharging from the ponds before flowing into Mobbly Creek. The marsh habitat will be planted with appropriate species such as black needlerush, saw-grass and cordgrass.



The upland habitat of pine flatwoods has areas with moderate sub-canopy coverage of Brazilian pepper that will be eradicated to further enhance the overall habitat conditions of the Preserve.

**FDOT Mitigation Site
(Tampa Bay Drainage Basin)**

**MOBBLY BAYOU
WILDERNESS PRESERVE
(SW 86)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District: Southwest Florida Water Management District

Mitigation Project Name: Alligator Lake Management Area

Project Number: SW 87

Project Manager: Stephen Raymond, Senior Environmental Scientist
Pinellas County Environmental Management

Phone No: 727 – 453 - 6925

County: Pinellas

Location: Sec. 3, 4, 9,10, T29S, R16E

IMPACT INFORMATION (Proposed Construction Date)

(1) FM 2569311 – Gandy Blvd. (SR 694) – US 19 to 4 th Street (Undetermined)	ERP #: _____	COE #: _____
(2) FM 2569312 – Gandy Blvd. (SR 694) – 9 th Street to 4 th Street North (2012)	ERP #: _____	COE #: _____
(3) FM 2558935 – SR 574 (MLK) – Queen Palm Drive to Williams Road (2010)	ERP #: _____	COE #: _____
(4) FM 4209331 – Dale Mabry Ave. – Veteran's Expressway to US 41 (Undeter.)	ERP #: _____	COE #: _____
(5) FM 4168421 – US 301 – Falkenburg to MLK Blvd. (2010)	ERP #: _____	COE #: _____

Drainage Basin(s): Tampa Bay Drainage Basin Water Body(s): Bullfrog Ck., Little Bullfrog Ck. SWIM water body? No

Impact Acres / Habitat Types (FLUCFCS):

(1) FM 2569311	0.5 ac. (530)	(4) FM 4209331	0.3 ac. (621)
	0.1 ac. (641x)		0.3 ac. (630)
	<u>TOTAL 0.6 acre</u>		0.3 ac. (641)

TOTAL 0.9 acre

(2) FM 2571471	0.2 ac. (641)	(5) FM 4168421	0.5 ac. (641)
	<u>TOTAL 0.2 acre</u>		<u>TOTAL 0.5 acre</u>

(3) FM 2558935	0.1 ac. (615)
	0.1 ac. (641)
	<u>TOTAL 0.2 acre</u>

TOTAL – 2.4 acres

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration Enhancement Preservation Mitigation Area: **32 acres**
SWIM project? Aquatic Plant Control project? Exotic Plant Control Project?
Mitigation Bank? Drainage Basin(s): Tampa Bay Drainage Basin Water Body(s): Alligator Lake, Tampa Bay
SWIM water body? Tampa Bay

Project Description

A. Overall project goal: The Alligator Lake Management Area is a 53-acre preserve owned and managed by Pinellas County (Figure A – Location Map). The preserve includes two parcels bordering the 70-acre Alligator Lake. The project goal includes the substantial enhancement, restoration and creation of appropriate wetland and upland habitats within a 31-acre portion of the preserve. This is a particularly valuable and important opportunity to provide ecological benefits for wildlife since the habitat value has been degraded by extensive coverage of exotic and nuisance species, and the majority of surrounding property is dominated by residential land use. The habitat improvements will provide more opportunities for wildlife use within the preserve as well as Alligator Lake, and provide water quality treatment and attenuation of contributing basin runoff before discharging into Alligator Lake and Tampa Bay.

B. Brief description of current condition: The project includes improvements to habitats within the eastern half (22.7 acres) of the "North Parcel" and the entire "South Parcel" (8.7 acres) that border Alligator Lake (refer to Figure B). Existing habitats include upland shrub, live oak hammock, mixed wetland hardwoods, willow shrub wetlands, cabbage palm, exotic wetland forest, and marsh habitat (Figure B – Existing Land Use). Within the upland shrub habitats (total 8.7 acres), the County conducted an initial eradication of some dense Brazilian pepper in 2004; resulting in the generation and establishment of predominantly invasive nuisance species such as ragweed, saltbush, and euthamia (refer to photos). The largest and least disturbed habitat in the project area includes live oak hammocks (total 9.3 acres) within the north parcel. The hammock borders mixed forested wetlands (total 3.9 acres) that have dominant cover provided by water oak with scattered swamp bay and slash pine. Of particular note within the north parcel is a low quality shrub marsh (2.2 acres) that generated vegetation within a borrow pit. Primrose willow and Carolina willow provide dense and dominant cover of the shrub system, with elderberry, buttonbush and wax myrtle along the perimeter. A portion of the channelized Alligator Creek is located through the North Parcel and connects to Alligator Lake. In general, the extensive exotic and nuisance vegetation at the preserve has degraded the ability and opportunity for the habitats to support and sustain many wildlife species. Additional habitat information is provided in Attachment A.

C. Brief description of proposed work: Pinellas County has a proposed habitat restoration plan (Figure C) that focuses on improving the existing upland and wetland habitats that provide some ecological value, while replacing the majority of the low quality upland ruderal, wetland shrub, and exotic hardwood habitat by creating an additional 6.5 acres of marsh and 2.4 acres of mixed forested wetlands. Since there are three documented rookeries adjacent to the project area (Figures B & C), establishing additional marsh habitat provides foraging opportunities for wading birds. By enhancing and creating forested wetland that will buffer the marshes, there will also be more roosting and nesting opportunities. For the low quality willow marsh in the North Parcel, floating tussock and underlying sediments will be dredged and removed, followed by planting of appropriate herb species. To provide additional rookery and resting opportunities for wading birds, clean fill obtained from constructing Wetland #3 will be used to create four small temperate hardwood islands in the constructed marsh (Figure C). Additional temperate hardwoods will be created on both parcels to displace the remaining upland shrub and buffer the adjacent constructed wetlands. To provide additional habitat diversity, the cabbage palm habitat in the south parcel and pine-mesic oak habitat in the north parcel will be enhanced to provide 2.9 acres of appropriate pine flatwood habitat. Additional details on the proposed activities are provided in Attachment A.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority of the proposed wetland impacts designated for mitigation at Alligator Lake include low quality marsh habitats within urban areas in the Tampa Bay drainage basin. The proposed wetland creation and other habitat improvements proposed for Alligator Lake will appropriately compensate for these anticipated impacts; all associated with roadway projects proposed for construction after the habitat construction is conducted in 2008 and 2009.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The only mitigation bank in the basin is the Tampa Bay Mitigation Bank. At the time of selecting mitigation for the proposed wetland impacts, the bank area was under construction and did not have available credits released for purchase.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: The proposed habitat improvements associated with this project is a designated SWIM project.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Private Contractor selected by Pinellas County through competitive bid process.

Contact Name: Stephen Raymond, Pinellas County Senior Environmental Scientist Phone Number: 727 – 453 - 6925

Entity responsible for monitoring and maintenance: Private contractor selected by Pinellas County.

Proposed timeframe for implementation: Commence: Design & Permitting, 2005-2008 Complete: Construction, 2008-2009, followed by minimum 5 years maintenance & monitoring

Project cost: \$1.8 million (total)

Design & Permitting	\$150,000
Construction & Planting	\$1,500,000
Maintenance & Monitoring (minimum 5 years)	\$150,000

Attachments

- 1. Detailed description of existing site and proposed work. Refer to Attachment A.
- 2. Recent aerial photograph with date and scale. Refer to Figures B & C (2005 aerials).
- 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (location map), Figure B (existing condition), and Figure C (proposed condition).
- 4. Detailed schedule for work implementation, including any and all phases. Refer to previous schedule.
- 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.
- 6. Long term maintenance plan. Refer to Attachment B.
- 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

Attachment A – Background, Site Conditions & Proposed Activities

The Alligator Lake Management Area covers approximately 53 acres adjacent to the City of Safety Harbor in northeastern Pinellas County. There are two parcels associated with the management area, both bordering the 70-acre, man-made freshwater Alligator Lake. Alligator Lake outfalls into Tampa Bay, a state-designated Surface Water and Improvement and Management (SWIM) priority waterbody.

The project planning, evaluation and design discussions between various entities included but not limited to Pinellas County, SWFWMD – SWIM, the design consultant (Birkitt Environmental) and various members of the public. Consensus was reached that major elements of ecosystem restoration and management of the Alligator Lake Management Area should include:

- Enhancement, restoration and/or creation of wetland and upland habitats surrounding Alligator Lake.

- Identify key target biotic groups – avifauna, flora, macro-invertebrates, herpetofauna – and prepare a detailed restoration and management plan focused on proposed biotic benefits of the restoration project.
- Creation of a public access park that will include the development of detailed construction plans and specifications. The park may include a boardwalk, observation platform and asphalt parking area accessed from Arlie Avenue (south parcel – refer to Figure C).
- As feasible, improvement of the area's water quality via polishing of storm water draining to Alligator Lake at various locations.

The following information summarizes the various existing and proposed habitat features of the two portions of the property included in this restoration project. This information can be cross-referenced with Figures B and C, as well as the site photographs.

FLUCCS #329 – Other Shrubs & Brush – prior to roller-chopping in 2004, the upland shrub areas (total 8.7 acres) were previously dominated by Brazilian pepper (*Schinus terebinthifolius*). The combination of dense pepper mulch and the removal of the canopy opened the area for extensive recruitment and establishment of invasive and nuisance species. Ragweed (*Ambrosia artemesiifolia*) has become very dense and dominant. Other common species include herbs such yellow nutgrass (*Cyperus esculentus*), hairy indigo (*Indigofera hirsuta*), and guineagrass (*Panicum maximum*); and shrubs such as elderberry (*Sambucus Canadensis*), salt-bush (*Baccharis halimifolia*), lantana (*Lantana camara*) and wax myrtle (*Myrica cerifera*).

The habitat value is very low quality for the shrub areas. With the nuisance species seed source already present in the soil, attempting to restore all these areas into appropriate upland habitat would not provide the ecological benefits for wildlife habitat that can be achieved by constructing and creating wetland habitat, and buffering those habitats with some appropriate upland habitat.

As a result, the creation of Marsh Areas #1 (1.1 acres), #2 (0.6 acre) and #3 (1.5 acres) will displace the majority of the ruderal shrub habitat. The marshes (FLUCCS #641) will have gradual slopes of 8:1 to 10:1, providing zonation for establishing diverse marsh habitat suitable for a variety of wading bird species. Steeper slopes (4:1) are proposed near the center of the marshes in order to provide small open-water components. This will provide both a refuge for fish and concentrated foraging opportunities for wading birds during the dry season. Marshes #1, #3, and #4 will be hydrologically connected to Alligator Lake. Marsh #2 has a smaller contributing watershed and will have a higher upland overflow elevation to the lake, providing the opportunity to establish a slightly more obligate marsh condition. Common herb species proposed for planting include spikerush (*Eleocharis interstincta*), soft rush (*Juncus effusus*), maidencane (*Panicum hemitomon*), pickerelweed (*Pontederia cordata*), arrowhead (*Sagittaria lancifolia*), giant bulrush (*Scirpus californicus*), sand cordgrass (*Spartina bakeri*), and fireflag (*Thalia geniculata*).

The remaining upland shrub areas will be restored as temperate hardwood habitat (FLUCCS #425 - 4.3 acres) and the creation of mixed wetland hardwoods (FLUCCS #617 - 1.3 acres). The temperate hardwood habitat will be primarily buffering the marsh and forested wetland creation areas on both parcels. Proposed hardwood habitat plantings include red-cedar (*Juniperus virginiana*), live oak (*Quercus virginiana*), beauty-berry (*Callicarpa americana*), seagrape (*Coccoloba uvifera*), Florida swamp privet (*Forestiera segregate*), firebush (*Hamelia patens*), yaupon (*Ilex vomitoria*), wax-myrtle (*Myrica cerifera*), chickasaw plum (*Prunus angustifolia*), tough buckthorn (*Sideroxylon tenax*), bluestems (*Andropogon* spp.), chaffhead (*Carphephorus* spp.), Florida tickseed (*Coreopsis floridana*), Elliott's lovegrass (*Eragrostis elliottii*), blanket flower (*Gaillardia pulchella*), beach sunflower (*Helianthus debilis*), blazing star (*Liatris* spp.), spotted bee-balm (*Monarda punctata*), hairawn muhly (*Muhlenbergia capillaries*), seaside goldenrod (*Solidago sempervirens*), climbing aster (*Symphotrichum carolinianum*), and gamagrass (*Tripsacum dactyloides*). Common tree species proposed for planting in the mixed wetland hardwoods include red maple (*Acer rubrum*), pop ash (*Fraxinus caroliniana*), dahoon holly (*Ilex cassine*), sweetgum (*Liquidambar styraciflua*), sweet bay (*Magnolia virginiana*), swamp bay (*Persea palustris*), laurel oak (*Quercus laurifolia*), water oak (*Quercus nigra*) and

bald cypress (*Taxodium distichum*). Understory vegetation will include the same herb species proposed for the marsh creation areas.

FLUCCS #617 - Mixed Wetland Hardwoods – This habitat is delineated within four separate areas of the project area (total 4 acres). Dominant canopy coverage is provided by water oak (*Quercus nigra*), laurel oak (*Quercus laurifolia*) and swamp bay (*Persea palustris*); with scattered slash pine (*Pinus elliotii*), cabbage palm (*Sabal palmetto*), and live oak (*Quercus virginiana*). There is some variation of subcanopy and understory vegetation within the various wetland hardwood locations. Oak and bay saplings are common, along with wax myrtle, smaller cabbage palm and scattered buttonbush (*Cephalanthus occidentalis*). However, nuisance/exotic canopy-forming species such as Brazilian pepper, Carolina willow, and carrotwood (*Cupaniopsis anacardioides*) are frequently interspersed. The hardwood habitat in the southwest corner of the North Parcel has the highest quality of the four delineated areas, with a groundcover dominated by Virginia chain fern (*Woodwardia virginica*) and cinnamon fern (*Osmunda cinnamomea*). The remaining wetland hardwood areas have a mixture of coverage provided by swamp fern (*Blechnum serrulatum*) and various vine species.

The proposed enhancement of the forested wetlands will be primarily associated with eradication of B. pepper and improving the conditions of the adjacent upland and wetland habitats. As previously mentioned, there will also be additional forested wetland habitat created (1.3 acres) on the North Parcel to displace some of the upland shrub habitat. This created forested wetland will form a buffer along the northern and eastern edge of Marsh #4, providing a habitat transition between the upland and marsh habitat.

FLUCCS #414 – Pine – Mesic Oak – The habitat is located within one area of the North Parcel (total 1.3 acres). Several large longleaf pine (*Pinus palustris*) provide canopy over a sub-canopy dominated by water oak and camphor (*Cinnamomum camhora*). Other sub-canopy species include cabbage palm, swamp bay and Chinaberry (*Melia azedarach*). The dominant groundcover species is saw palmetto (*Serenoa repens*) which provides approximately 30% coverage. Air potato (*Dioscorea bulbifera*) and grave vine (*Vitis munsoniana*) are abundant in all vegetative strata. Severe fire suppression of this community is evident by the remnant saw palmetto cover, and dense accumulations of needle litter surrounding the longleaf pine. The smaller-diameter water oaks and camphor trees have become well-established since fire exclusion.

Enhancement of this habitat will be conducted by eradication of nuisance and exotic vegetation, followed by cool-season prescribed burn to minimize some of the pine needle and bark litter. Supplemental plantings will be provided by longleaf pine and saw palmetto.

FLUCCS #618 – Willow and Elderberry (Shrub Marsh) – The 2.2-acre shrub marsh on the north parcel has very dense coverage of primrose willow (*Ludwigia peruviana*) and some Carolina willow (*Salix caroliniana*). This low quality habitat will be enhanced by removing the vegetation and some of the underlying muck sediments. Marsh #4 habitat will be established with the same plant species referenced under the previously discussed marsh creation areas. Clean fill resulting from constructing Marsh #3 will be used to construct four hummocks of temperate hardwood habitat.

An existing ditched Alligator Creek meanders through the site and discharges directly into Alligator Lake. This ditch banks are covered with dense B. pepper that will be eradicated. The water flow from the ditch will be diverted by a weir to equally discharge into Marshes #3 and #4 (Figure C). This will provide water quality treatment before both marshes discharge into Alligator Lake.

FLUCCS #427 – Live Oak – At 10.0 acres, the live oak hammocks account for the largest proportion of land area in the north parcel. Though composition and habitat quality vary considerably, all areas mapped as this habitat are dominated by live oak, occupy the highest elevations of the parcel, and exhibit varying amounts of fire suppression. Other canopy species include laurel oak, water oak, longleaf pine and southern magnolia (*Magnolia grandiflora*). Saw palmetto and live oak saplings co-dominate the subcanopy/shrub layer, with additional coverage provided by cabbage palm and American beautyberry (*Callicarpa americana*).

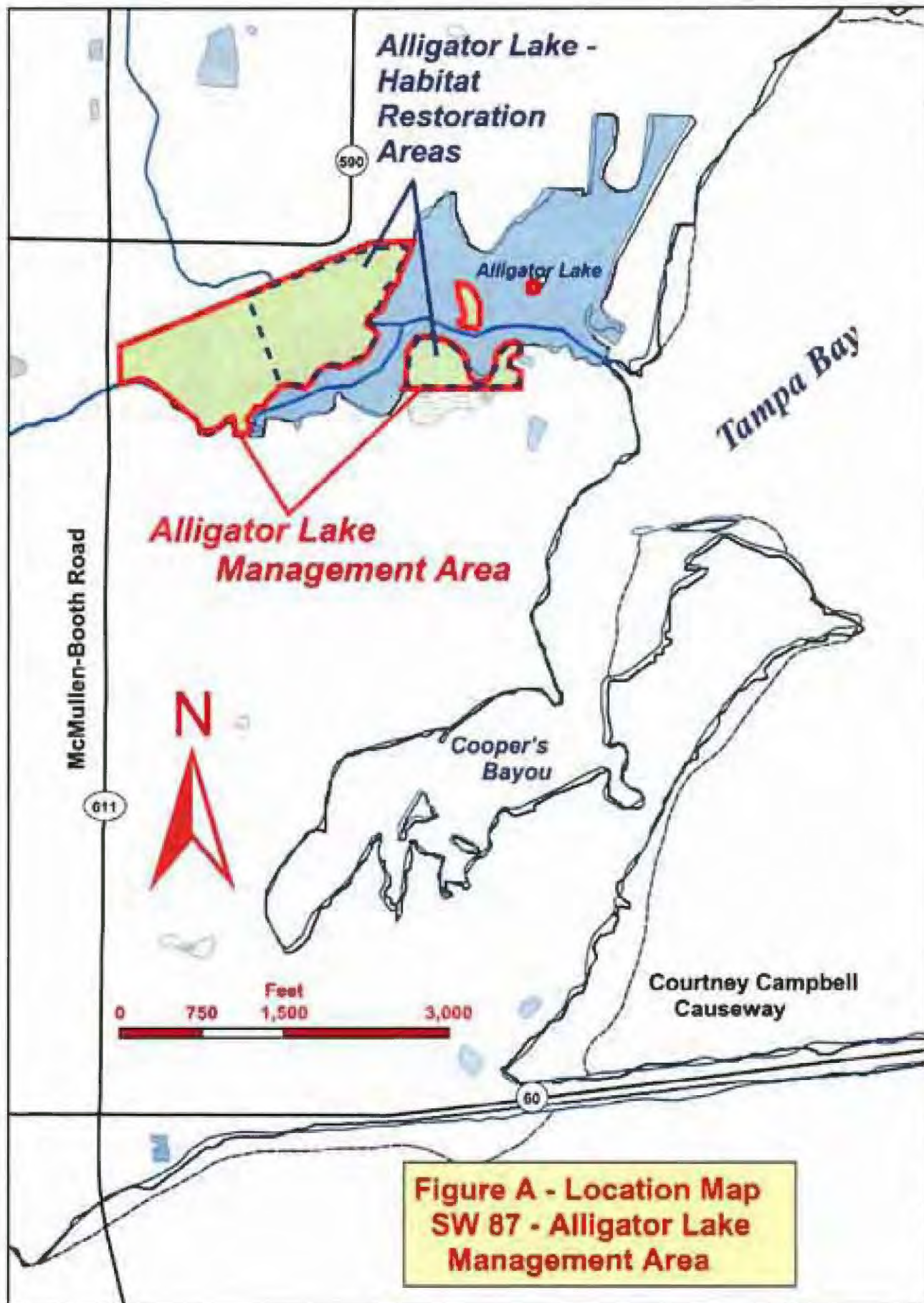
There are exotic and nuisance species such camphor tree (*Cinnamomun camphora*) and various vine species have become a problem in the oak hammocks, so occasional thinning and possible burning will open up some of the canopy and understory to provide more opportunity to establish more ground cover vegetation. This will be valuable for the gopher tortoise (*Gopherus polyphemus*) located in the north parcel. Their foraging opportunities are primarily limited to the bahia grass lawn surrounding the on-site residence.

Attachment B – Maintenance & Monitoring, Success Criteria

The eradication and control of nuisance/exotic vegetation within the project area will be conducted by a licensed herbicide applicator. Maintenance will be conducted as needed, expected to be quarterly for the first few years after construction activities, and at least semi-annually thereafter for a minimum of five years and until success criteria are met. Afterward, maintenance activities will be conducted as part of the perpetual management of the tract to maintain success.

Monitoring for FDOT mitigation credit will be conducted semi-annually for a minimum five years post-construction. The monitoring evaluations will include vegetative and habitat conditions, water level relative to flow regimes and inundation, wildlife use, and coverage of nuisance and exotic vegetation. Annual monitoring reports will be prepared to document conditions and various activities implemented during the previous year. The same designated monitoring stations will be designated throughout the monitoring period for photo references. However habitat conditions will be annually documented for the entire site, not just at the monitoring stations.

Success criteria includes a minimum of 90% survivorship of planted material for a year after planting, and a total 85% coverage of recruited and desirable species. Exotic and nuisance species will be limited to less than 5% coverage. For the lake littoral area bordering the north and south parcels, the exotic and nuisance species coverage will not exceed 20%.



**FIGURE B
EXISTING LAND USE
SW 87 - ALLIGATOR
LAKE MANAGEMENT
AREA**

**Alligator Lake:
EXISTING
LAND USE**



Project Boundary	Existing Wetland Boundary
Existing Lake	Riparian Buffer
20' Buffer	Utility

South Parcel FLUCCS Codes

- 011 - Unimproved Land with Non-Tree (20 acres)
- 020 - Other Shrub and Grass (10 acres)
- 030 - Bamboo Thicket (20 acres)
- 037 - Low Oak (20 acres)
- 038 - Cabbage Palm (20 acres)
- 039 - Wood Wetland Scrubland (20 acres)
- 040 - Cedar Wetland Forest (10 acres)

North Parcel FLUCCS Codes

- 010 - Hard Shrub Thicket (10 acres)
- 020 - Other Shrub and Grass (200 acres)
- 030 - Pine Hammock (10 acres)
- 037 - Low Oak (20 acres)
- 040 - Shrub and Openwood (200 acres)
- 047 - Wood Wetland Scrubland (20 acres)
- 050 - Other wet Shrubland (10 acres)
- 051 - Grass Wetland Forest (20 acres)
- 052 - Transition Area with Shrub, Grass & Water (10 acres)
- 053 - Emergent Shrub Wetland (20 acres)

Map created by: [unreadable]
 Date: [unreadable]
 Scale: 1 inch = 100 feet



FIGURE C – PROPOSED HABITAT CONDITIONS SW 87 – ALLIGATOR LAKE

**Figure 1.8
CONCEPTUAL RESTORATION DESIGN
(60% DESIGN)**
Alligator Lake Habitat Restoration Project
Pinaloa County, Florida

1	1	1	1
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100	100	100	100



View of the 70-acre Alligator Lake and Rookery #1 from the South Parcel.



The eradicated Brazilian pepper on the South Parcel has been replaced with extensive generated coverage of nuisance species such as ragweed, dog fennel, saltbush and euthamia.

**FDOT Mitigation Site
(Tampa Bay Drainage Basin)**

**ALLIGATOR LAKE
MANAGEMENT AREA
(SW 87)**



*Alligator Creek meanders through the North Parcel.
Dominant cover is provided by extensive and dense Brazilian pepper.*



*The least disturbed habitats include the live oak hammocks in the North Parcel.
Enhancement will primarily include eradication of Brazilian pepper
and other exotic and nuisance species;
as well as adopting appropriate land management activities.*

**FDOT Mitigation Site
(Tampa Bay Drainage Basin)**

**ALLIGATOR LAKE
MANAGEMENT AREA
(SW 87)**



The area of the proposed creation of Marsh #3 is low quality conditions of exotic and nuisance species, including cut Brazilian pepper and mimosa trees. Proposed conditions will remove vegetation and lower the grade elevations to create high quality marsh habitat.



The shrub wetland within the North Parcel has low quality habitat with extensive coverage of primrose willow and Carolina willow that generated within an historic borrow pit. The proposed conditions will include dredging this area to create Marsh #4 and bordered by forested wetlands. Fill material from constructing Marsh #3 will create hammock islands in the marsh.

**FDOT Mitigation Site
(Tampa Bay Drainage Basin)**

**ALLIGATOR LAKE
MANAGEMENT AREA
(SW 87)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Curry Creek Regional Mitigation Area (ROMA)

Project Number: SW 88

Project Manager: Kris Fehlberg, Environmental Specialist III
Sarasota County Natural Resources Dept.

Phone No: 941- 861 - 0764

County: Sarasota

Location: Sec. 5, T39S, R19E

IMPACT INFORMATION

1 – <u>FM 1979421 – SR 789-Ringling Causeway Bridge</u>	ERP #: <u>4418555.01</u>	COE #: <u>199500210 (IP-TF)</u>
2 – <u>FM 1980051 – US 41–Venice Ave. to US 41 Bypass</u>	ERP #: <u>4402099.02</u>	COE #: <u>199905145 (IP-PB)</u>
3 – <u>FM 4063143 – I-75 – N. River Road to SR 681*</u>	ERP #: _____	COE #: _____

Drainage Basin(s): Lower Coastal Water Body(s): Sarasota Bay SWIM water body? Yes

Impact Acres / Habitat Types (FLUCFCS):

(1) FM 1979421 0.07 ac. (911) (seagrass – fill impacts)
 0.20 ac. (911) (seagrass – shade impacts)
 TOTAL 0.27 acre

(2) FM 1980051 0.32 ac. (612)
 TOTAL 0.32 acre

(3) FM 4063143* 0.6 ac. (612)
 TOTAL 0.6 acre

TOTAL 1.19 acres

* Note – the majority of the anticipated wetland impacts associated with this I-75 segment include non-forested wetlands in the Lower Coastal basin. Those impacts will be compensated by purchasing appropriate freshwater marsh credits from Sarasota County's Fox Creek ROMA (SW 79). Additional minor impacts associated with this segment may occur within the Myakka River basin; designated mitigation for these impacts is the Myakka Mitigation Bank (SW 89).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation X Restoration X Enhancement Preservation Mitigation: **Estimate 1.19 credits**
SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? Y Mitigation Bank? N
ROMA? Y WMD ERP# 44027089 ACOE # SAJ-2004-5565-MEP Drainage Basin(s): Lower Coastal Water Body(s):
Curry Creek SWIM water body? N

Project Description

A. Overall project goal: The Curry Creek ROMA is located within an ecologically significant 95-acre tract known as the Curry Creek Preserve (Figures A & B). Since the property was one of the largest remaining areas of native habitat in the basin, Sarasota County purchased the property to preserve and enhance for wildlife habitat. Within the Preserve, the County designated and permitted a 19-acre portion to provide a regional mitigation opportunity to compensate for proposed wetland impacts associated with public infrastructure projects. Due in large part to the impacts associated with canal dredging, the western half of the ROMA represented the most disturbed habitat on the Preserve (Figures C & D). The primary goal of this portion of the ROMA includes the enhancement, restoration and creation of saltwater wetland habitat. Upland habitat enhancement is the primary objective for the eastern half of the ROMA.

B. Brief description of current condition: The Preserve is located along the north side of the City of Venice. The tract includes various habitats, including one of the largest areas (36 acres) of remaining intact longleaf pine habitats in western Sarasota County. Other dominant habitats within the Preserve include xeric oak (16 acres), stream swamp (12 acres), streams and waterways (9 acres), saltwater marsh (6 acres), and minor acreages of other habitats such as mangrove, mixed hardwood wetland, and cabbage palm. The actual Curry Creek was historically dredged into a canal to provide regional drainage improvements. This east-west canal follows along the southern boundary of the Preserve, with a hydrologic connection to Roberts Bay approximately one mile west of the Preserve. Three additional north-south canals within the Preserve connect to the Curry Creek canal (Figure C). Two of the canals are within the limits of the ROMA. The western portion of the ROMA also has a mangrove pocket (Polygon 6 on Figure E) and leather fern marsh (Polygon 12); both habitats are preserved and enhanced as part of the ROMA plan. A couple small areas of upland habitat in the ROMA border the north side of the Curry Creek canal, with dominant vegetation provided by slash pine, saw palmetto and cabbage palm. The remaining area of the ROMA's western portion was primarily exotic vegetation such as Australian pine and Brazilian pepper. The eastern portion of the ROMA is dominated by pine flatwoods, with a meandering creek that outfalls into the Curry Creek canal.

C. Brief description of proposed work: The general plan of the western portion of the ROMA includes preserving and enhancing the native habitat, while grading the exotic vegetated area to create saltwater wetland habitat. These plans are depicted on Figure D, and with the earthwork finished in early 2006, the post-construction aerial view is evident on Figures B&C and the initial monitoring photos. The two north-south canals were modified to create a meandering creek that provides tidal connectivity to the Curry Creek canal. This creek provides appropriate hydrology for the preserved mangrove and leatherfern wetlands, as well as the created mangrove and salt marsh habitat. An extensive planting effort included a dominance of red mangrove (*Rhizophora mangle*), white mangrove (*Laguncularia racemosa*), black mangrove (*Avicennia germinans*), buttonwood (*Conocarpus erectus*), needle rush (*Juncus roemerianus*), leather fern (*Acrostichum aureum*), cordgrass (*Spartina alterniflora*, *Spartina patens*, *Spartina bakeri*), needle rush (*Juncus roemerianus*), and bulrush (*Scirpus robustus*). The eastern half of the ROMA includes upland enhancement activities, primarily eradication of exotic and nuisance vegetation and implementation of appropriate prescribed burning program. The combination of habitat improvements within the ROMA as well as appropriate land management activities within the remaining Preserve provides a mosaic of inter-related upland and wetland habitats that benefit a wide diversity of wildlife species. Even though the created habitat is in the early stages of establishment, extensive quantity and diversity of wildlife documented at the ROMA includes over 20 bird species, bobcat (*Lynx rufus*), raccoon (*Procyon lotor*), otter (*Lontra canadensis*), alligator (*Alligator mississippiensis*), black racer (*Coluber constrictor priapus*), cottonmouth (*Agkistrodon piscivorus*), mullet (*Mugil cephalus*), and blue crab (*Callinectes sapidus*).

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The current mitigation credits available at Curry Creek include tidal creek, salt-marsh, and mangrove. The minor saltwater wetland impacts can be adequately and appropriately compensated by the creation and enhancement of these habitats at the Curry Creek ROMA. The following information indicates the wetland impact, habitat type (FLUCFCS), and estimated mitigation habitats & credits proposed for mitigation at Curry Creek:

- (1) FM 1979421 – Impact 0.27 ac. (911) – Mitigation 0.27 credit of tidal creek habitat
- (2) FM 1980051 – Impact 0.32 ac. (612) – Mitigation 0.32 credit of mangrove habitat
- (3) FM 4063143 – Impact 0.6 ac. (612) – Mitigation 0.6 credit of mangrove habitat

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: There is currently no existing or proposed mitigation banks in the Lower Coastal watershed basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time of mitigation selection, there were no SWIM projects proposed in the Lower Coastal basin that could provide appropriate mitigation for the proposed wetland impacts.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Construction finished in 2006.

Contact Name: Kris Fehlberg, Environmental Specialist III
Sarasota County Natural Resources Dept.

Phone: 941 – 426 - 7878

Entity responsible for monitoring and maintenance: Sarasota County or designee

Proposed timeframe for implementation: Commence: Construction & Planting, 2006 Complete: Mitigation Maintenance & Monitoring (2006-2011, minimum 5 years), followed by perpetual maintenance & land management activities.

Anticipated cost for FDOT credits: \$281,841 **

- (1) FM 1979421 – estimated 0.27 credit x \$236,841 per credit = \$63,947 (purchased September, 2007)
- (2) FM 1980051 – estimated 0.32 credit x \$236,841 per credit = \$75,789 (purchased September, 2007)
- (3) FM 4063143 – estimated 0.6 credit x \$236,841 per credit = \$142,105 (estimated purchase – Fall, 2008)

Note: these credits and associated costs are based on estimated UMAM ratings, and that all proposed wetland impacts are regulated and required mitigation by both the SWFWMD and USACOE. Purchase dates are based on anticipated issuance schedule of the ERP and Section 404 permits. Additional roadway project wetland impacts may be proposed for mitigation at Curry Creek in the future.

Attachments

X 1. Detailed description of existing site and proposed work. Refer previous discussion, SWFWMD ERP #44027089, ACOE #SAJ-2004-5757-MEP, attached site photos.

X 2. Recent aerial photograph with date and scale. Refer to Figures B & C., 2006 aerial.

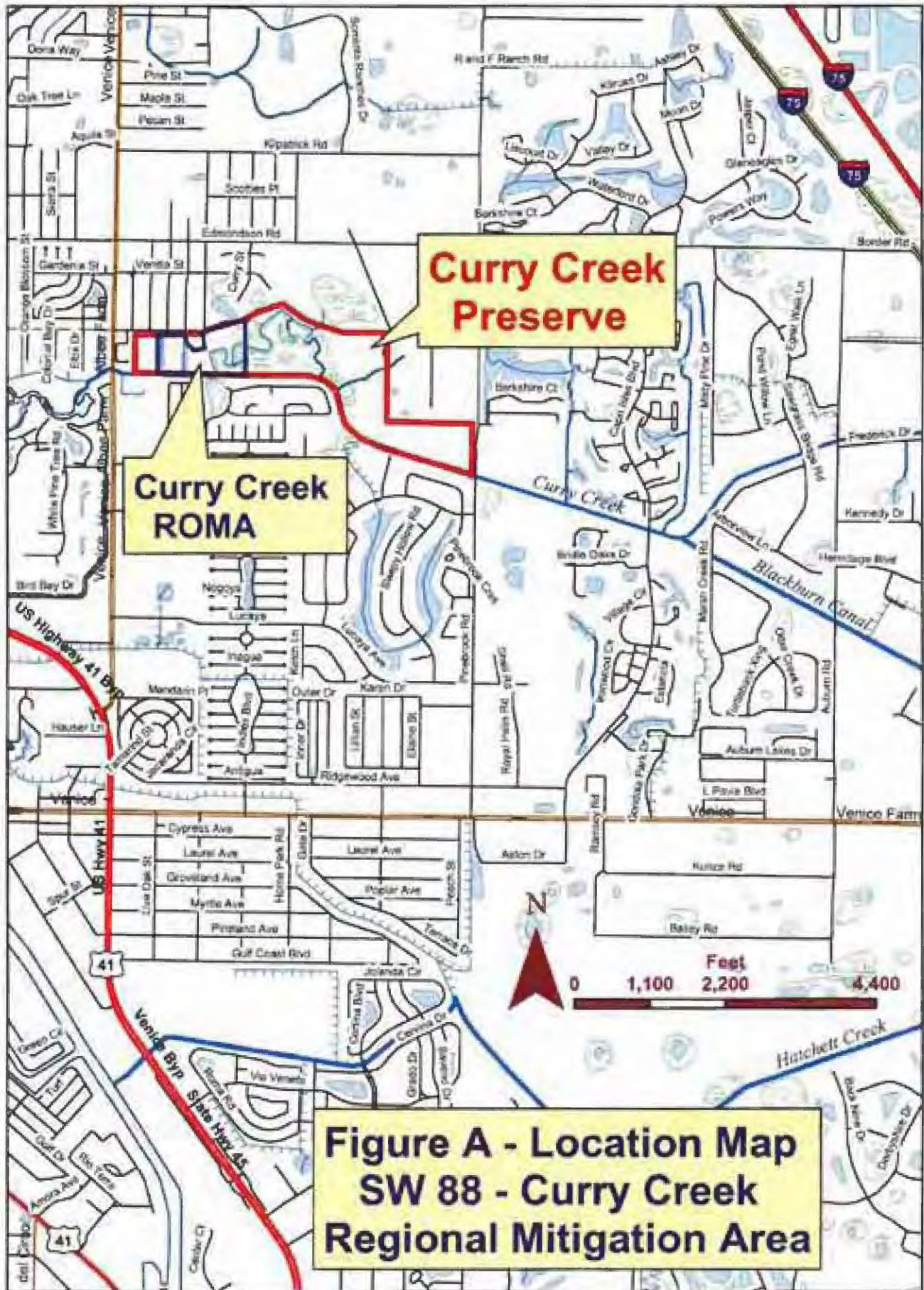
X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (location map), Figure C (pre- and post- construction aerial), Figure D (proposed habitat).

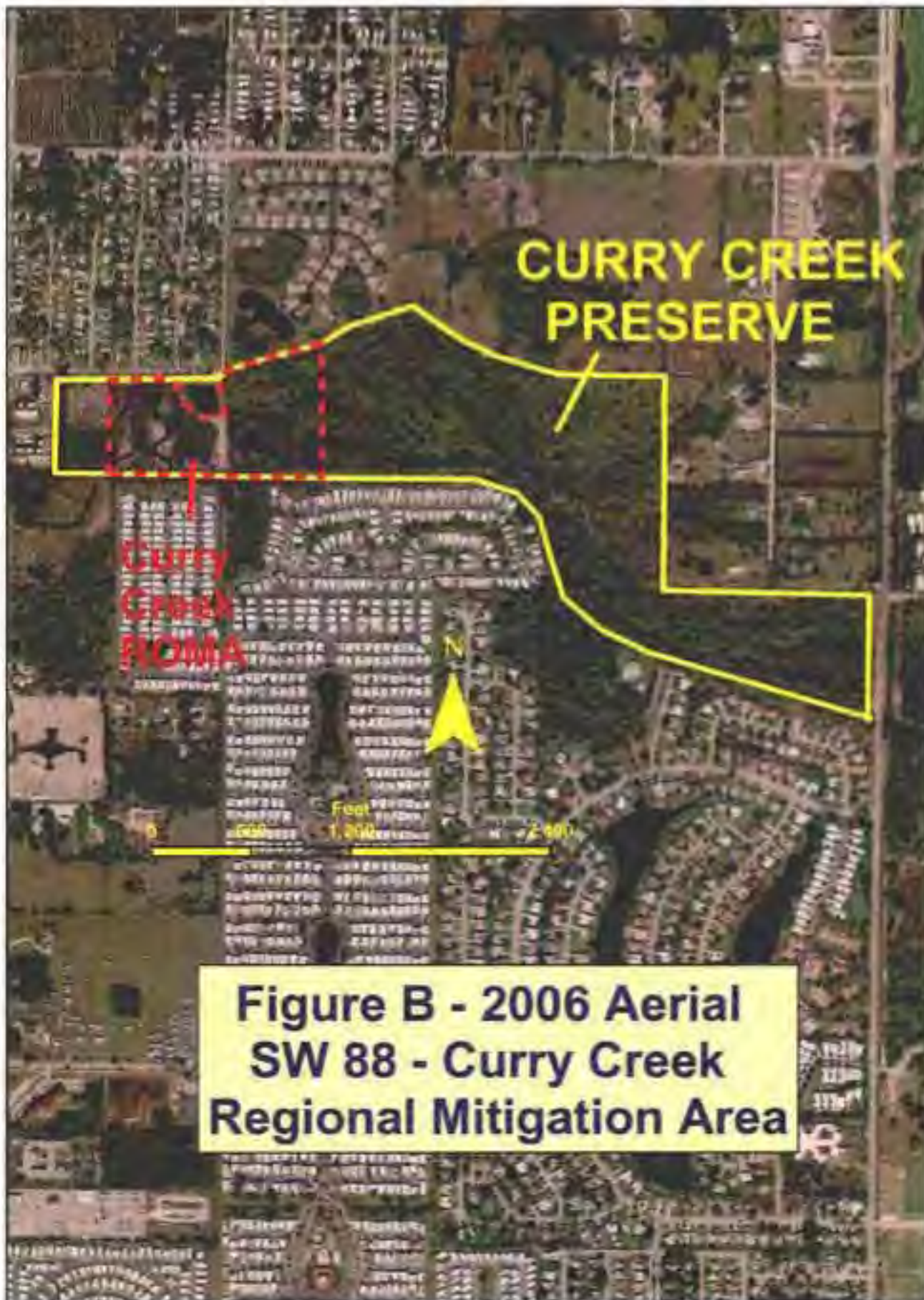
X 4. Detailed schedule for work implementation, including any and all phases. Refer to previous implementation discussion.

X 5. Proposed success criteria and associated monitoring plan. Monitoring and success criteria for habitat enhancement are specified in the issued permits; refer to Figure E for the monitoring photo stations and the photos taken during the initial monitoring inspection.

X 6. Long term maintenance plan. A perpetual maintenance and land management plan has been prepared that addresses vegetative maintenance and prescribed fire management of the Preserve.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.









**Figure D – Habitat Plan
SW 88 – Curry Creek
Regional Mitigation Area**

CURRY CREEK
 SARASOTA COUNTY
 SARASOTA COUNTY, FL
 MITIGATION CONCEPT

Category	Color	Pattern
Existing Juncus and Mangroves	Light Green	Dotted
Mangrove Habitat	Light Green	Cross-hatched
Salt Marsh (Juncus roemerianus)	Light Green	Stippled
Spartina patens/Baccharis	Light Green	Diagonal Lines
Spartina alterniflora	Light Green	Horizontal Lines
Open Water	Light Blue	Wavy
Dams	Yellow	Solid

Curry Creek Monitoring Points and Transects

Legend

Points

Type #

- Photograph Station
- Vegetation Quadrats
- Soil Profile
- Priority 2

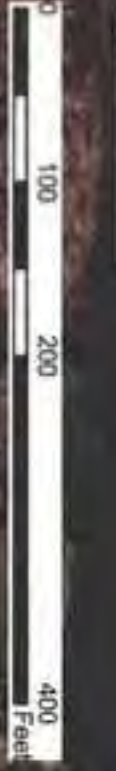


Figure E – Monitoring Plan
SW 88 – Curry Creek
Regional Mitigation Area



Photo Station 5- Southeast (150 degrees)



Photo Station 6- North Northeast (65 degrees)



Photo Station 7- Southeast (160 degrees)



Photo Station 8- North Northwest (270 degrees)

**Time Zero Baseline
Monitoring Photos
SW 88 - Curry Creek
Regional Mitigation Area**

**APPENDIX A
Photo Stations**



Photo Station 1- South Southeast (150 degrees)



Photo Station 2- Due North



Photo Station 3- South (195 degrees)



Photo Station 4- West (265 degrees)

**Time Zero Baseline
Monitoring Photos
SW 88 – Curry Creek
Regional Mitigation Area**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Myakka Mitigation Bank**

Project Number: **SW 89**

Project Manager: Wade Waltmyer, Senior Biologist
EarthBalance, Corporation

Phone No: 941- 426 - 7878

County: Sarasota

Location: Sec. 33, T38S, R22E

IMPACT INFORMATION (Proposed Construction Date)

1 – FM 4063143 – I-75 – N. River Road (CR 577) to SR 681(2010)*

ERP #: _____ COE #: _____

Drainage Basin(s): Myakka River Basin Water Body(s): None SWIM water body? No

Impact Acres / Habitat Types (FLUCFCS)

(1) FM 4063143 0.3 ac. (510) **TOTAL – 0.3 Acre**

* Note – the majority of the anticipated wetland impacts associated with this I-75 segment will be within the Lower Coastal Basin. Those impacts will be compensated by purchasing appropriate wetland credits from Sarasota County's Fox Creek ROMA (SW 79). It is possible that this I-75 segment may not have any wetland impacts in the Myakka basin.

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration Enhancement Preservation Mitigation Area: **Estimate 0.3 credit**
SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? Y Mitigation Bank? Y
Mitigation Bank Permits, WMD ERP# 43003997.005 ACOE # SAJ-2003-75594-IP-MGH Drainage Basin(s): Myakka River Basin Water Body(s): None SWIM water body? N

Project Description

A. Overall project goal: The location of the Myakka Mitigation Bank (MMB) is regionally significant because it provides tributary flow to the Myakka River, adds to an extensive habitat corridor effort to connect Myakka River State Park to the Peace River, and the various habitats proposed for enhancement and restoration provide rare ecosystem diversity in the basin. The primary goal of the MMB includes the restoration, enhancement and preservation of historic herbaceous and forested wetland habitat, as well as the associated uplands, throughout the site's 380 acres.

B. Brief description of current condition: The MMB is situated within the core of a 3,800-acre conservation area on the Longino Ranch, a +/- 8,000-acre mixed-use ranch (Figure B). The tract has high diversity of both wetland and upland habitats. Prior to restoration construction in 2006, the upland vegetative communities (total 224-acres) consisted of improved pasture, pine flatwoods, pine-mesic oak, laurel oak-palm mesic hammock, live oak hammock, and live oak forest/improved pasture. Wetland communities (156 acres) included ditches, willow heads, hydric pasture, and herbaceous marsh. A high percentage of the marsh habitat was historically drained by agricultural ditching, resulting in improved pasture for cattle operations. Subsequently, some exotic and nuisance species coverage established over the years. In particular, along with bahia grass, limpoglass (*Hemarthria altissima*) was introduced and generated primarily within the historic outer zones of drained marshes to convert into wet pastures.

C. Brief description of proposed work: The general strategy of the MMB includes a three stage approach to (1) preserve and protect the property through placing the property into a conservation easement, (2) restore the natural habitat conditions and process, and (3) manage the habitat recovery until desired changes have occurred and are stabilized. Stage 1 is complete, and Stage 2 earthwork activities were conducted in 2006 to reverse the hydrological degradation of past management practices, and the restored wetland hydroperiod has lead to the eradication of exotic and nuisance plant species that were enabled by the altered drainage patterns. The earthwork included four main components: (1) the elimination of the adverse effects of the agricultural ditch system by the strategic placement of fill to bring the ditches up to the historic wetland elevation, (2) the restoration of a raised trail and adjacent borrow area to wetland grade; (3) the construction of a berm/weir system along the southern boundary of the project area to restore historic wetland hydroperiods (refer to photos); and (4) the construction of a narrow ditch to maintain current hydrologic conditions in an adjacent off-site wetland that has been ditched through the site. Just prior to the hydrological restoration, exotic and nuisance species eradication were conducted by sod stripping the pasture grasses and selective herbicide application. With the completion of the initial eradication efforts and hydrologic restoration, follow-up herbicide treatments is being intensively conducted to provide the maximum stress possible to inappropriate plants. This is particularly critical to minimize the opportunity for limpgrass regeneration since this species has demonstrated the ability to survive if the plant material can achieve and maintain heights above surface water elevations. Stage 3 includes a monitoring and maintenance program to correct any problems, and follow-up eradication of exotic and nuisance species. These on-going activities are expected to be frequent after the initial infrastructure improvements, and adjusted to an as-needed basis as the natural recruitment of desirable species progresses. Specific provisions in the perpetual maintenance and management plan include regularly scheduled maintenance to include remove of exotic and nuisance species, assessment of vegetative health, diversity and zonation in each habitat, and prescribed fire management.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The MMB provides appropriate and adequate habitat conditions to compensate for wetland impacts in the Myakka basin, and is within close proximity of the anticipated wetland impacts associated with Interstate-75 expansion.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The MMB is a mitigation bank in the Myakka River watershed basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: There are currently no SWIM projects planned in the Myakka River basin that can appropriately compensate for the proposed wetland impacts.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Myakka River Mitigation Bank

Contact Name: Wade Waltmyer, EarthBalance, Corporation

Phone Number: 941 – 426 - 7878

Entity responsible for monitoring and maintenance: EarthBalance, Corporation

Proposed timeframe for implementation: Commence: Stage 1 – 2005, Stage 2 – 2005 –2006, Stage 3 – 2005 – 2008.
Complete: Perpetual maintenance & land management plan.

Project cost: \$40,500 (total estimate through 2007 FDOT Mit. Plan) – Note, credit estimate will be based on the UMAM assessment of the proposed wetland impact areas. These estimated costs are only associated with potential impacts associated with the referenced I-75 segment. It is unknown until roadway permitting in 2007 whether these impacts will be proposed. However, additional roadway projects and associated wetland impacts are anticipated for mitigation at the MMB in the future.

1 – FM 4063143 – 0.3 acre of forested wetland (estimated 0.3 forested wetland credits x \$135,000 = \$40,500)

Attachments

X 1. Detailed description of existing site and proposed work. Refer previous discussion, SWFWMD ERP #43003997.005, ACOE #SAJ-2003-7594-IP-MGH, attached site photos.

X 2. Recent aerial photograph with date and scale. Refer to Figures B & C.

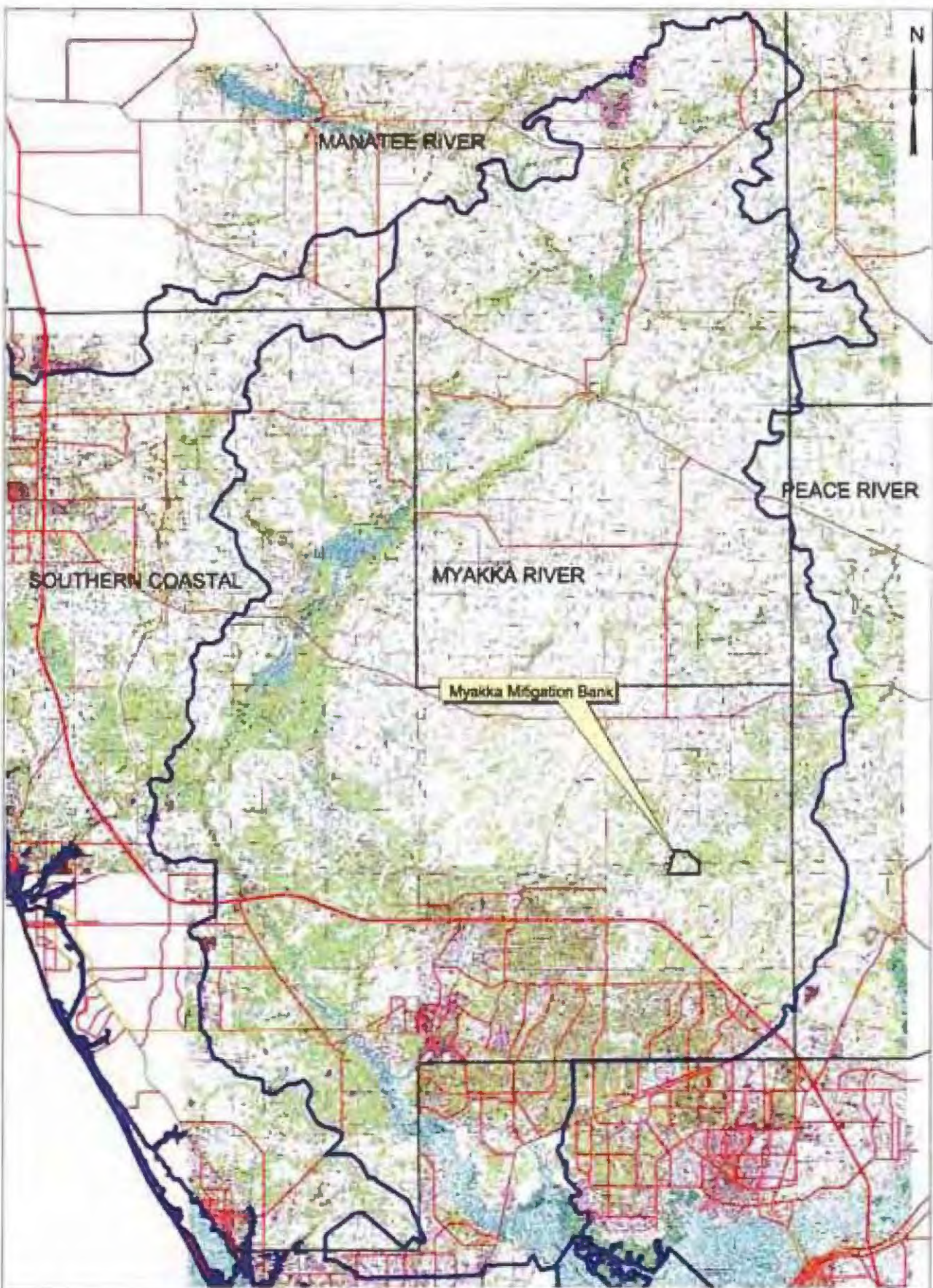
X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (location map), Figure B (existing conditions), and Figure C (proposed habitat).

X 4. Detailed schedule for work implementation, including any and all phases. Refer to previous implementation discussion.

X 5. Proposed success criteria and associated monitoring plan. Monitoring and success criteria for habitat enhancement are specified in the issued permits.

X 6. Long term maintenance plan. A perpetual maintenance and land management plan has been prepared (reference Figure D) that addresses vegetative maintenance and fire management.

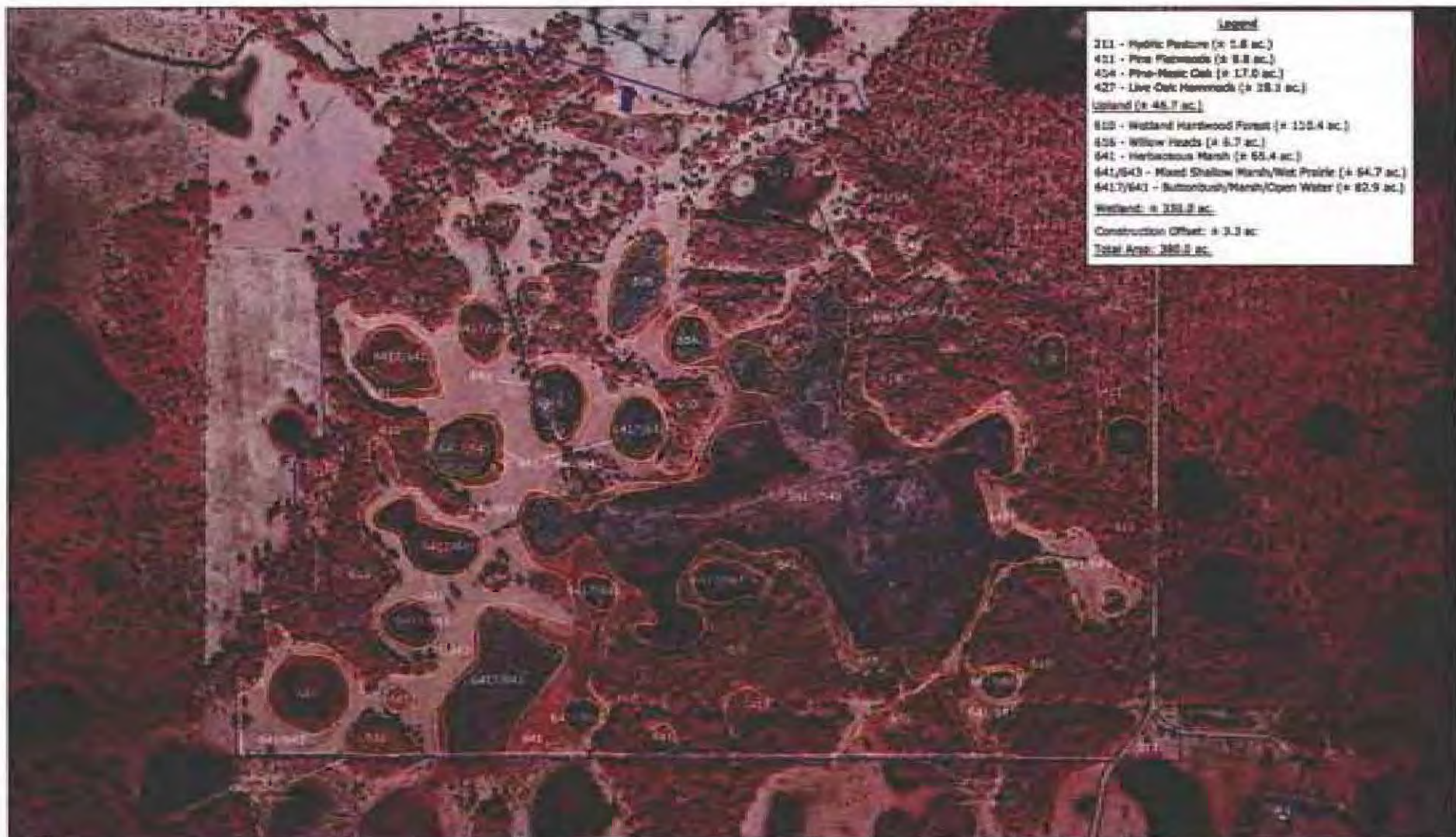
X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.



DATE: 6-17-03
FILE: researchmyakka.apr
SCALE: 1" = 15,000'
PROJECT NO: 00019
AERIAL: USGS Quad

Myakka Mitigation Bank
Regional Watershed Map

**FIGURE A – LOCATION MAP
SW 89 – MYAKKA
MITIGATION BANK**

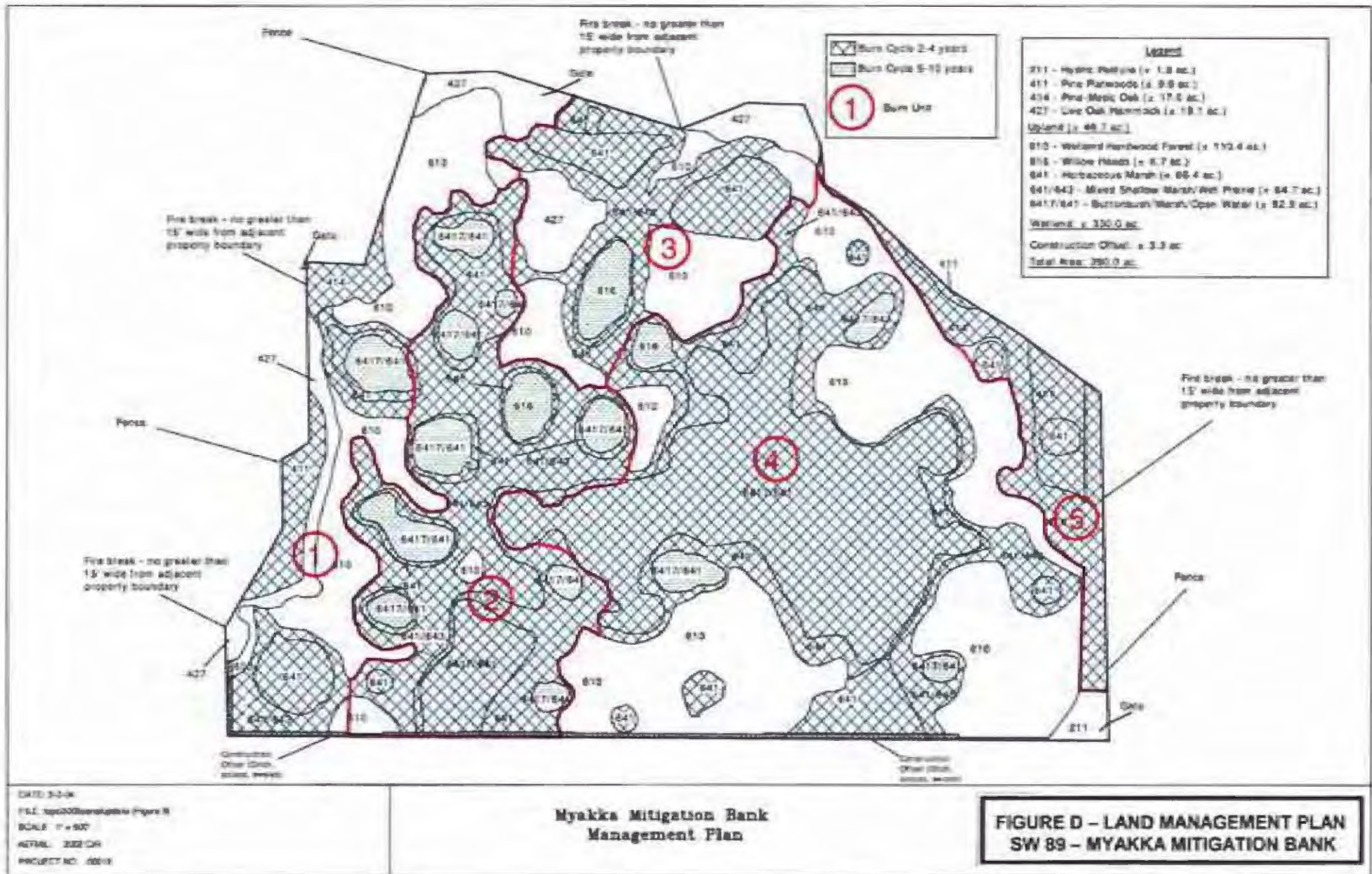


Legend	
211	- Hydric Pasture (± 1.8 ac.)
411	- Pine Flatwoods (± 8.8 ac.)
424	- Pine-Nest Oak (± 17.0 ac.)
427	- Live Oak Hammock (± 28.2 ac.)
<u>Upland (± 46.7 ac.)</u>	
810	- Wetland Hardwood Forest (± 122.4 ac.)
825	- Willow Heads (± 6.7 ac.)
841	- Herbaceous Marsh (± 65.4 ac.)
841/843	- Mixed Shallow Marsh/Wet Prairie (± 84.7 ac.)
841/841	- Buttonbush/Marsh/Open Water (± 82.9 ac.)
<u>Wetland: ± 258.2 ac.</u>	
Construction Offset: ± 3.3 ac.	
Total Area: 365.2 ac.	

DATE: 2-2-04
 FILE: Isp020204.mxd (Plan # 04)
 SCALE: 1" = 80'
 AERIAL: 2000 OR
 PROJECT NO: 00016

**Myakka Mitigation Bank
 Vegetative (FLUCCS) Map - Proposed Conditions**

**FIGURE C - PROPOSED SITE CONDITIONS
 SW 89 - MYAKKA MITIGATION BANK**





As the rainy season progresses, surface water rises and flows over the widest portions of the weir. Wetland vegetation such as fireflag (above) naturally regenerated and recruits through the slough.



As appropriate wetland hydrology restores within the sloughs, mortality of pasture grasses occur (foreground), and replaced with regeneration and recruitment of hydrophytic vegetation..

**FDOT Mitigation Site
(Myakka River Basin)**

**MYAKKA MITIGATION BANK
(SW 89)**



An 810-ft. long discharge weir was constructed to detain surface water, thus restoring the natural hydroperiod of a large slough wetland.



The discharge weir has a combination of two lower discharge elevations constructed with concrete, as seen above at the water overflow in the center of the weir. The broad "overflow" portion of the weir has limerock anchored within 6-inch geoweb containment system. A geotextile liner was placed under the rock to provide additional stability.

FDOT Mitigation Site
(Myakka River Basin)

MYAKKA MITIGATION BANK
(SW 89)



Achieving appropriate wetland hydroperiod has not only resulted in the natural generation of desirable vegetation, but has also minimized the ability of the limpoglass to regenerate.



The restored surface water has not only extended to the outer facultative zones to eradicate the pasture grasses and restore marsh habitat (center), but also restores appropriate hydrology for the mixed wetland hardwood systems (left).

**FDOT Mitigation Site
(Myakka River Basin)**

**MYAKKA MITIGATION BANK
(SW 89)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Brooker Creek Buffer Preserve**

Project Number: **SW 90**

Project Manager: Ross Dickerson, Bernie Kaiser, Richard Ross
Hillsborough County - Conservation Services
Mark Brown, SWFWMD

Phone No: 813- 672 - 7876
813- 264 - 8512
352- 796 – 7211, ext. 4488

County: Hillsborough County

Location: Sec. 18, 19, T27S, R17E

IMPACT INFORMATION (Proposed Construction Date)

1 – FM 4061511 – Veteran's Expressway – Memorial Hwy. to Anderson Rd. (2010)
2 – FM 4061511 – Veteran's Expressway – Anderson Road to Gunn Highway (2010)

ERP #: _____ COE #: _____
ERP #: _____ COE #: _____

Drainage Basin: Tampa Bay Drainage Water Body(s): None SWIM water body? No

Impact Acres / Habitat Types (FLUCFCS):

(1) FM 4061511	0.17 ac. (630)	(2) FM 4061511	6.61 ac. (621)	
	0.81 ac. (631)		1.07 ac. (630)	
	<u>2.45 ac. (641)</u>		0.42 ac. (631)	
TOTAL	3.43 acres	TOTAL	<u>3.13 ac. (640)</u>	TOTAL – 14.66 Acres
			11.23 acres	

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation X Restoration X Enhancement Preservation Mitigation Area: **78 acres**
SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N
Drainage Basin: Tampa Bay Water Body(s): Brooker Creek SWIM water body? N

Project Description

A. Overall project goal: The Brooker Creek Buffer Preserve (Preserve) is a 423-acre tract located in northwest Hillsborough County, along the Pinellas County boundary (Figure A). The Preserve was purchased through Hillsborough County's Environmental Lands Acquisition and Protection Program (ELAPP) to restore, protect, connect and "buffer" the on-site habitat resources with the adjacent 7,500-acre Brooker Creek Preserve in Pinellas County. Approximately half of the Preserve is comprised of wetland habitat, with much of this habitat hydrologically and vegetatively altered by large upland-cut ditches constructed along the perimeter of the wetlands (Figure B and photos). The primary mitigation activities include minor earthwork grading of sufficient upland fallow field surficial soil material to fill the adjacent ditches to an elevation appropriate to create forested wetland habitat. The ditch filling will aid in restoring appropriate contributing hydraulic and hydrologic water flow conditions of the created and existing wetlands. The graded uplands parallel to the filled ditches will be restored to upland habitat, providing a forested buffer for the created and enhanced wetland habitat. The combination of created wetland and restored upland habitat will provide a valuable resource for wildlife access and use, including vegetation cover and corridor connection to other habitats within the property and adjacent Brooker Creek Preserve.

B. Brief description of current condition: In addition to the wetland habitat, the majority of the remaining portion of the Preserve is comprised of upland fallow fields and ruderal pasture (Figure B, photos). The soil characteristics and topography indicate the upland fields adjacent to the wetlands were historically flatwood habitat, with the majority of the higher grade elevations historically comprised of sandhill and scrub ecosystems. The majority of historic upland habitats were converted to citrus groves, then the grove was converted to pasture before being acquired by the County. These fallow fields are dominated by bahia grass, however ruderal and nuisance herb species are common. The majority of wetlands include mixed forested habitat; dominated by bald cypress, red maple, black gum, and loblolly bay. Common sub-canopy vegetation include the same hardwood species and buttonbush, with groundcover dominated by Virginia chain fern and swamp fern. Marsh habitat is not as prevalent in the Preserve; the majority of the acreage is located within the interior of the large wetland in the southeast portion of the Preserve (Figure B). The rim ditches were constructed within the upland perimeter adjacent to the wetlands. The ditches are typically 20 feet wide at the top-of-bank, depth ranging 4-6 feet, and sideslopes steeper than 2:1. The sideslopes and bottom grade of the ditches typically have minimal vegetative coverage in areas where there is dense shade provided from trees along the upland top-of-bank. Ditch segments with minimal canopy shade typically have moderate to dense coverage of peppervine and grapevine along the banks. The large ditch dimensions reduce the quantity and rate of ground and surface water contributing from the uplands to the wetlands; retaining and diverting flow around the wetland perimeter that historically seeped into the wetlands. When the groundwater table does rise in the wetlands, the hydraulic gradient of the ditches also act to draw down and divert the flow away from wetland zones. The drawdown of the surficial and ground water table has resulted in minimal and short duration hydroperiods for the wetland habitats, and subsequently resulted in oxidation of organics from the hydric soils, some toppling of cypress (photos), and the natural recruitment and generation of more facultative hardwood species and nuisance vine species. For the large southeast wetland, historic aerials indicate that the combination of water table drawdown from the rim ditches, extended drought periods and potentially the lack of appropriate outfall conditions has resulted in more unstable and variable fluctuations in the depth and duration of surface water than other wetlands in the Preserve. Over an 8-10 year period of low rainfall quantities, red maple encroached and generated within the marsh interior. When rainfall quantities almost doubled in 2004 for the vicinity around the Preserve, an extended hydroperiod resulted in maple mortality (photo), Surface water from this wetland flows north through a culvert under the access road to a forested wetland (Figure C – Wetland #5). There may be culvert restrictions (i.e. quantity, size, elevation) that limit contributing flow to Wetland #5. There may be another potential flow restriction from a constructed geoweb crossing along the north side of Wetland #5. This crossing is located in an area that was historically wetland habitat connecting the Brooker Creek wetland floodplain (Wetland #1) and Wetland #5. However there hasn't been evidence of sufficient surface water elevations in Wetland #5 to result in overflow to Wetland #1. To provide mitigation credit for wetland impacts associated with a transmission line relocation project, Tampa Electric (TECO) filled a portion of one ditch at the Preserve in 1998 (Figure C). The TECO mitigation project resulted in the successful creation of 1.8 acres of forested wetland habitat within the filled ditch, 12 acres of hydrologic enhancement in the adjacent forested wetland, and 2 acres of upland buffer creation within the adjacent upland that was graded to provide the ditch fill material (photos). Overall, the site's wetlands represent moderate quality however the rim ditching has resulted in altered and variable hydraulic and hydrologic conditions, and noticeable changes of the vegetative and habitat conditions. The ditches also hinder wildlife use, access and mobility between the upland and wetland habitats.

C. Brief description of proposed work: The proposed activities primarily include filling the remaining ditches (approximately 3 miles in length) within the Preserve by grading the adjacent upland fallow field areas parallel to the ditches. The bottom ditch grades will be elevated to a depth approximating the same topography of the adjacent natural wetland. This will result in the opportunity to create at least 7 acres of forested wetland habitat. In turn, the hydrologic restoration associated with filling the ditches will enhance 34 acres of existing forested wetland habitat and 15 acres of non-forested wetland habitat. Specific hydrologic and topographic data of the wetlands will be incorporated into a surface water modeling effort conducted for the Brooker Creek watershed. Depending on the results of the model, there may be additional hydrologic restoration and enhancement from incorporating culvert additions and/or revisions under the access road. This could result in the enhancement of an additional 30-50 acres of the wetland habitat south of the access road; with the particularly effort toward achieving a more stable water level for the wetland. There are many trees along the upland top-of-slope bordering the ditches; primarily live oak, laurel oak, slash pine and red maple. Earthwork grading will be conducted beyond the canopy dripline of larger individual trees proposed for preservation. Timbered trees will be cut and removed beyond the construction zone to stockpile and burn in the fallow fields. The created wetlands displacing the ditches will be planted with herb species (3 ft. spacings) such as maidencane, pickerelweed, arrowhead, soft rush, and sand cordgrass. Planted nursery-stock tree species (1 gallon stock, 10 ft. spacings) will primarily include cypress, tupelo and pop ash; with red maple and laurel oak along the upper slopes as the habitat transitions into the restored upland habitat. Shrub species (1 gallon stock, 20 ft. spacings) will primarily include buttonbush, with wax myrtle planted along the slopes above the SHWT elevation. As evident by the constructed wetland present at the Preserve, hydrophytic vegetation from the adjacent wetland habitat will also recruit and generate in the filled ditches. The adjacent upland will be graded to create a gradual slope of 8:1 to 10:1. With the variation in depth and dimension of the ditches, the distance of upland grading will range 40-80 feet from the top-of-bank. With an average clearing and grading of 60 feet, there will be a minimum 22 acres of upland restoration after earthwork. Initial seeding options and combinations will be evaluated to establish ground cover vegetation. This seeding will probably include use of winter rye or brown-top millet to establish quick cover for soil stabilization. In addition, commercially available native seed collected from approved donor sites will be utilized in the upland buffer. This could include seed collected and supplied by the USDA – Natural Resources Conservation Service's Plant Material Center. The NRCS has been successful at seeding species that would appropriate at the Preserve, such as blue maidencane (*Amphicarpum muhlenbergianum*). Supplemental planting of nursery-stock native herbs will be considered while evaluating the herb generation, recruitment and coverage from the seeding activities. Nursery stock shrub and tree species planted in the restored upland will primarily include slash pine and wax myrtle, providing good vegetative coverage transitioning into the adjacent created and enhanced wetlands. This vegetative coverage will encourage more use and access for wildlife that utilize the habitats associated with public lands in the vicinity. Along with proposed activities associated with the FDOT mitigation effort, Hillsborough County's land management plan for the Preserve propose restoration of the remaining upland fallow areas to sandhill and flatwood habitat. The combination of the upland restoration activities along with mitigation-related activities will result in a variety of inter-dependent ecosystems that will benefit the Buffer Preserve as well as the adjacent Brooker Creek Preserve.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The mitigation activities at the Preserve are proposed to provide compensation for anticipated freshwater forested and non-forested wetland impacts associated with the expansion of two segments of the Veteran's Expressway. These Expressway segments are located 5-10 miles from the proposed mitigation activities, with anticipated wetland impacts

that closely match the wetland habitat activities and improvements proposed at the Preserve. The combination of proposed upland and wetland habitat improvements not only assist with some of the County's goals for the Preserve, but adequately and appropriately compensate for the anticipated wetland impacts associated with expansion of the Veteran's Expressway.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: During the 2007 nomination and selection of mitigation options for wetland impacts associated with the Veteran's Expressway, the Tampa Bay Mitigation Bank (TBMB) is the only existing or proposed mitigation bank within the Tampa Bay Drainage Basin. In 2007, the TBMB was under construction and no mitigation credits were available for purchase.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: There are several SWIM / County co-sponsored projects in the Tampa Bay Drainage Basin that have been and will be selected and funded through the FDOT mitigation program. At the time of mitigation selection, the Preserve provided the most appropriate mitigation alternative to compensate for the anticipated wetland impacts associated with the Veteran's Expressway. Like the SWIM projects in the basin, the proposed activities at the Preserve will also provide improvements to Brooker Creek and ultimately to Tampa Bay, which is a designated SWIM water body. However due to workload projections and priorities, it was decided this project would not be managed through the SWIM section.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Private contractor working for Hillsborough County
Contact Name: Mark Brown, SWFWMD Phone Number: 352-796-3057 (ext. 4488)
Entity responsible for monitoring and maintenance: Private contractor working for Hillsborough Co. and/or SWFWMD

Proposed timeframe for implementation: Commence: Design & Permitting: 2008-2009 Complete: Construction anticipated in 2009-2010, followed by minimum 5 years maintenance & monitoring

Project cost: estimates - \$590,000 - \$710,000 (total estimate through 2008 FDOT Mitigation Plan)
Design & Permitting - \$50,000 - \$60,000
Construction & Planting - \$500,000 - \$600,000
Maintenance & Monitoring (minimum 5 years) - \$40,000 - \$50,000

Attachments

X 1. Detailed description of existing site and proposed work. Refer to previous discussion, additional details will be provided in the annual updates of the FDOT mitigation plan to include information gathered from the surface water model and design.

X 2. Recent aerial photograph with date and scale. Refer to Figures B & C, 2006 aerials.

X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A for location map, Figure B for existing conditions, and Figure C for proposed conditions.

X 4. Detailed schedule for work implementation, including any and all phases. Refer to previous implementation discussion. Additional details will be provided in the annual updates of the FDOT mitigation plan as the project proceeds through various phases and activities. The following is a tentative schedule:

Site Evaluation, Surface Water Modeling, Design & Permitting – 2008 - 2009
Construction & Planting – 2009 - 2010
Maintenance & Monitoring – 2010 – 2015 (minimum)

X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment A.

X 6. Long term maintenance plan. Refer to Attachment A.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

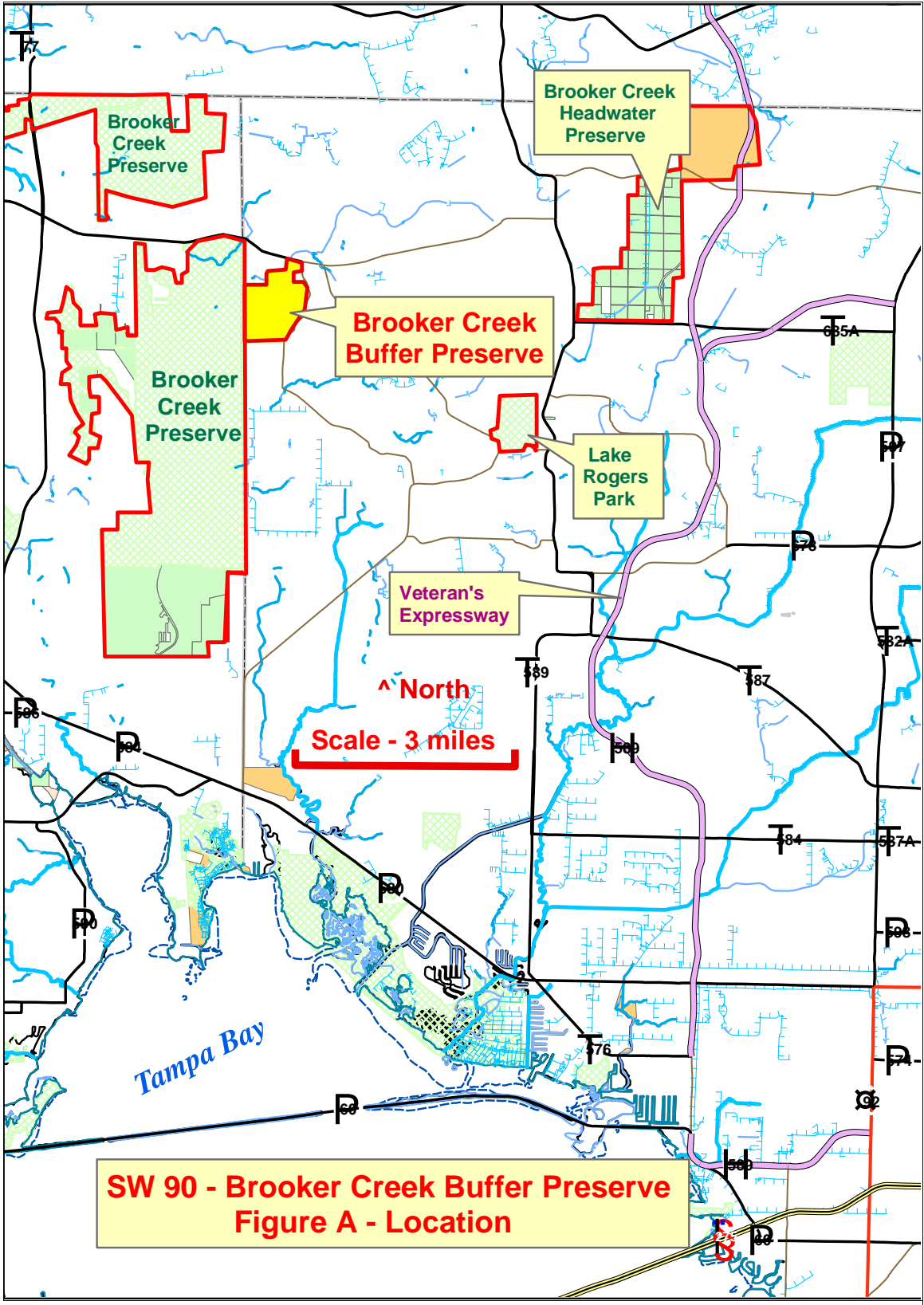
Attachment A – Schedule, Maintenance & Monitoring, Success Criteria

The proposed schedule includes contracting for engineering, surveying and environmental services to obtain additional site information, conduct the necessary surface water modeling, and prepare a design plan in 2008. The permitting is anticipated in 2008-2009 with construction planned within 2009-2010; which will be in advance of the anticipated wetland impacts associated with the proposed 2010 construction of the Veteran's Expressway.

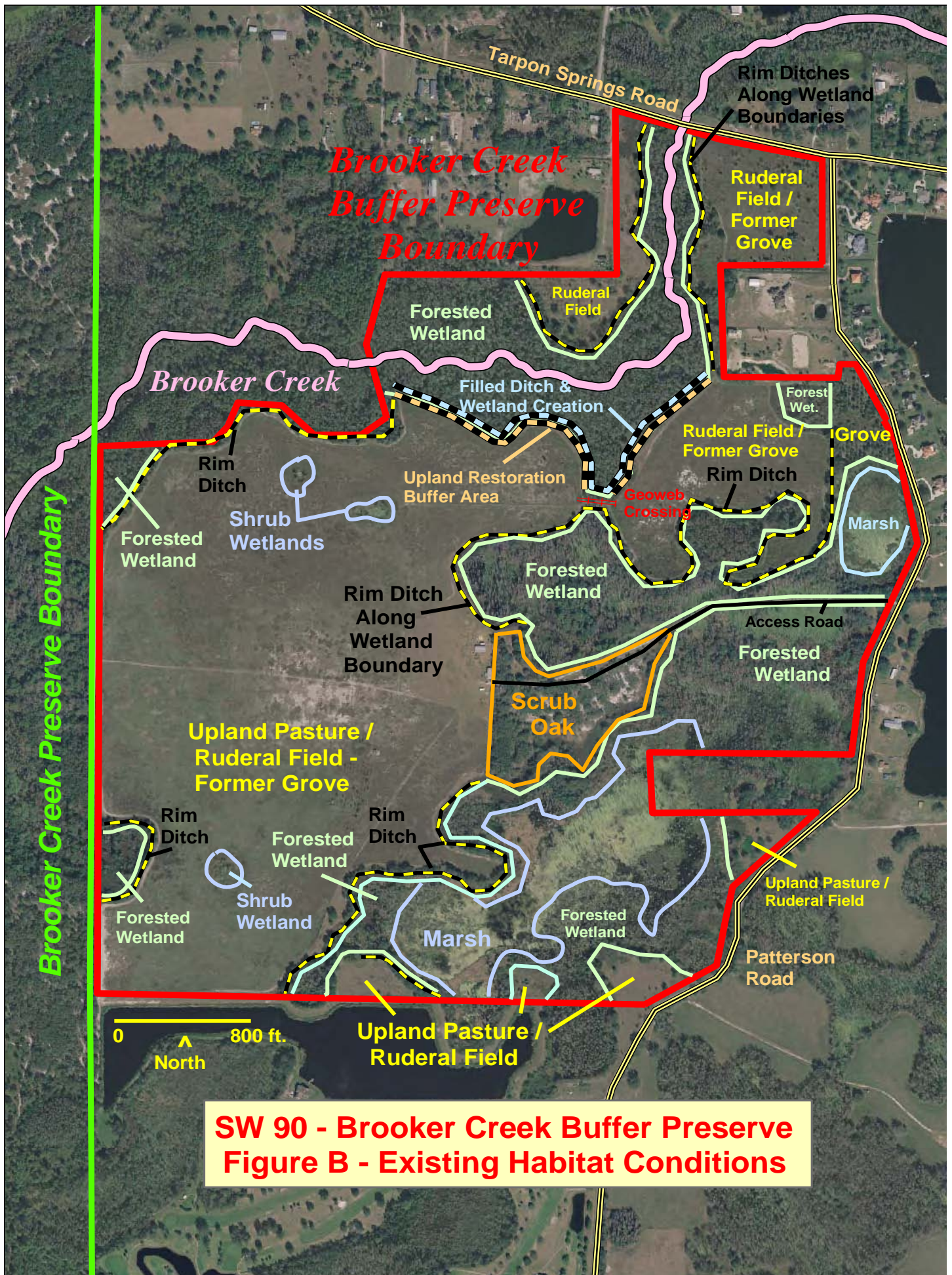
After the mitigation construction, there will be a minimum five years of maintenance activities to guarantee success criteria. Maintenance will be a more extensive effort during the first couple years after seeding and planting to allow for vegetation establishment as well as to aid with the natural recruitment of desirable species from the adjacent wetlands. Anticipated treatment events will include every two months for the first two years post-construction and quarterly thereafter for a minimum five years, however additional maintenance events will be conducted when necessary to ensure success criteria is achieved and maintained. Based on the conditions of the various habitats and status of seeding and planting efforts, supplemental planting will be conducted when and where necessary. Herbicide treatments will be conducted by a licensed herbicide applicator on contract through the SWFWMD. After a minimum of five years and achieving the desired habitat conditions and success criteria, the mitigation areas will continue to be managed through the Hillsborough County's Conservation Section as part of normal land management activities conducted at the Preserve. The anticipated management practices are primarily associated with periodic herbicide treatments of undesirable and exotic vegetation, and the potential inclusion of the upland restoration areas into a prescribed burn program if desired. The Conservation Dept. has a full-time herbicide spray crew to conduct periodic treatments on ELAPP property.

Monitoring will be conducted by a consulting firm on contract with the SWFWMD on a semi-annual basis for a minimum of five years and until achieving success criteria. Monitoring will include a comprehensive qualitative assessment of the habitat components associated with the upland restoration, wetland creation, and wetland enhancement areas. That assessment includes evaluating plant health & survivorship, recruited plant species, cumulative vegetative coverage, percentage of exotic & nuisance species coverage, wildlife use & opportunities, and any recommended activities to ensure and further enhance habitat conditions. Annual monitoring reports will be prepared, and the first report will include photo documentation of pre-construction habitat conditions, construction-related activities, and initial post-construction habitat conditions at designated monitoring locations. The additional annual reports will utilize the same monitoring locations to document the transition of habitat conditions. However, habitat conditions will be annually documented for the entire site. The reports will be prepared and submitted to the SWFWMD-Tampa Regulation and the USACOE Enforcement Branch to document the habitat conditions, any problems and solutions, and anticipated activities for the following year.

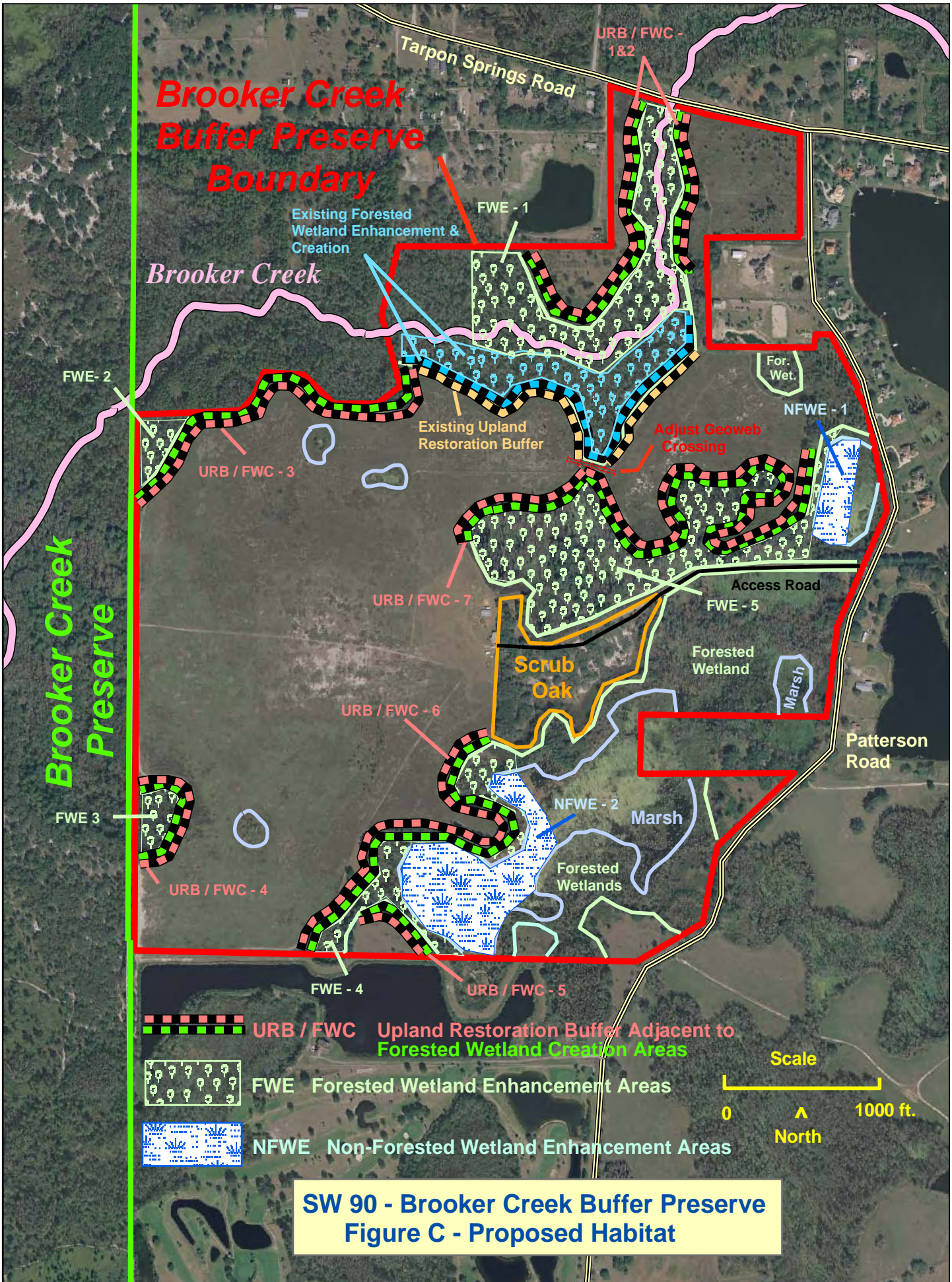
Mitigation success criteria will be finalized as part of the design process but is expected to include a minimum of 90% survivorship of planted material for a minimum of one year from the selected nursery contractor(s). Plant mortality will be replaced with appropriate species to be agreed upon with Hillsborough County and the SWFWMD. Ground coverage requirements for the created wetland and restored upland areas will include a minimum 90% coverage of planted and recruited desirable species, and minimum of 30% canopy coverage of shrubs and trees. Exotic and nuisance vegetation eradication will be conducted and limited within the planted wetland and upland areas to as minimum coverage as possible, with maximum coverage limits of less than 5% within the wetland and 10% in the upland necessary to achieve success criteria. Additional conditions and criteria will be evaluated and added as the project progresses into the design phase to further ensure successful habitat improvements are achieved for the project.



**SW 90 - Brooker Creek Buffer Preserve
Figure A - Location**



**SW 90 - Brooker Creek Buffer Preserve
Figure B - Existing Habitat Conditions**





The majority of the upland acreage at the Preserve includes fallow fields dominated by bahia grass with additional coverage provided by ruderal species such as dog fennel, ragweed, goldenrod, broomsedge and natal grass. Hillsborough County plans to restore these upland areas into pine flatwood and sandhill habitat.



Upland-cut rim ditches have altered the adjacent wetland hydrology, resulting in the establishment of nuisance vegetation, vines and hardwood species within the wetlands. Herbicide application of the vines along the ditches will be conducted prior to earthwork activities.

**FDOT Mitigation Site
(Tampa Bay Drainage Basin)**

**BROOKER CREEK BUFFER PRESERVE
(SW 90)**



The majority of the perimeter rim ditches are 4-6 feet deep and 15-20 feet wide between top-of-banks. Ditches under tree canopy typically have minimal ground cover vegetation; ditches with minor canopy have moderate to dense coverage of peppervine and grapevine. These ditches draw down the surficial and ground water elevations of the adjacent upland and wetland habitat, diverting contributing flow away instead of the historic seepage into wetlands.



The forested wetland habitat value varies relative to degree of hydrologic alteration from the ditches. This is the interior of the forested wetland bordering the north side of the access road (FWE - 5); water table drawdown and diversion has resulted in shorter and minimal hydroperiods, organic soil oxidation, and subsequently unstable and toppling of cypress. The canopy becomes more open to expose the understory; allowing nuisance vegetation and facultative hardwood species to recruit and generate.

**FDOT Mitigation Site
(Tampa Bay Drainage Basin)**

**BROOKER CREEK BUFFER PRESERVE
(SW 90)**



The forested wetland floodplain (FWE – 1) bordering Brooker Creek is dominated by cypress, tupelo, bays and maple over ferns. Filling the adjacent rim ditches will help restore the groundwater seepage flow through the wetland to the creek.



The marsh interior (NFWE – 2) of the wetland in the southeast portion of the Preserve. This wetland's unstable hydroperiod has resulted in maple generation followed by mortality (tree snags, right side of photo). The proposed activities will help restore a more stable and natural hydroperiod for the marsh as well as the outer forested zone (FWE- 4) of this wetland.

**FDOT Mitigation Site
(Tampa Bay Drainage Basin)**

**BROOKER CREEK BUFFER PRESERVE
(SW 90)**



The TECO mitigation area includes a ditch portion filled in 1998 to create forested wetland habitat. Dominant vegetation includes planted cypress, red maple, pop ash, wax myrtle and maidencane; as well as vegetation naturally recruited from the adjacent Brooker Creek floodplain wetland.



The TECO mitigation includes a designated upland creation area that buffers the adjacent filled ditch. Dominant canopy coverage is provided by planted slash pine.

**FDOT Mitigation Site
(Tampa Bay Drainage Basin)**

**BROOKER CREEK BUFFER PRESERVE
(SW 90)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Upper Coastal Mitigation Bank

Project Number: SW 91

Project Manager: Wade Waltmyer, Senior Biologist
EarthBalance, Corporation

Phone No: 941- 426 - 7878

County: Citrus County

Location: Sec. 28, 33, T19S, R17E

IMPACT INFORMATION (Proposed Construction Date)

- 1 – FM 4058222 – US 19 – Green Acres to Jump Court (2015)
- 2 – FM 4058223 – US 19 – Jump Court to Ft. Island Trail (2014)
- 3 – FM 4079513 – SR 50 – US 19 to Mariner (2011)
- 4 – FM 4079512 – SR 50 – Mariner to Suncoast (2014)

ERP #: _____ COE #: _____
ERP #: _____ COE #: _____
ERP #: _____ COE #: _____
ERP #: _____ COE #: _____

Drainage Basin: Upper Coastal Water Body(s): None SWIM water body? No

Impact Acres / Habitat Types (FLUCFCS):

(1) FM 4058222	0.20 ac. (617)	(3) 4079513	0.2 ac. (641)
	0.01 ac. (621)		
	<u>0.03 ac. (641x)</u>		
TOTAL	0.24 acre	(4) 4079512	0.1 ac. (641)
(2) FM 4058223	1.0 ac. (617)		
	1.5 ac. (621)		
	<u>0.3 ac. (641)</u>		
TOTAL	2.8 acres	TOTAL – 3.34 Acres	

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration X Enhancement X Preservation Mitigation Area: **2-3 credits**
SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? Y
Mitigation Bank Permits WMD ERP# 44031543, ACOE # not issued yet Drainage Basin(s): Upper Coastal
Water Body(s): None SWIM water body? N

Project Description

A. Overall project goal: The Upper Coastal Mitigation Bank (UCMB) is a 148.8-acre tract located in northwest Citrus County (Figure A). The UCMB is located within a regionally significant and critical habitat and wildlife corridor; representing a key parcel in the only remaining habitat that can provide a terrestrial connection between the expansive Chassahowitzka National Wildlife Refuge/Withlacoochee State Forest to the south, and the Crystal River State Buffer Preserve system to the north (Figure B). Due to the high value and functions of habitat and water resources, the tract was previously targeted for public land acquisition through the State's Florida Forever program. The primary goals of the UCMB include the preservation and enhancement of ecologically significant forested wetland and upland habitat, and provide protection of the on-site spring that discharges to the Homosassa River. Protection and enhancement of this tract benefits the expansive and valuable preserved public lands to the north and south by providing improved connectivity of habitat.

B. Brief description of current condition: The UCMB has a mosaic of upland and wetland habitat (Figure C). The dominant wetland community includes 83.6 acres of mixed hardwood forest wetlands (FLUCFCS #617). The swamp habitat is primarily within the eastern and northwestern portion of the property, and includes a diverse mix of hydrologic regimes and associated vegetative communities. The diverse canopy coverage includes American elm, pignut hickory, red maple, sweet bay, popash, sweet gum, black gum, water oak, laurel oak, and cabbage palm. The subcanopy contains numerous seedlings of the same tree species as well as wax myrtle and saw palmetto. Sparse groundcover in the wetland includes a dominance of various fern species. A unique feature within this wetland includes a pristine spring that emerges from a deep, rocky pool that discharges through a spring run for 600 feet before disappearing into another deep pool at the northern end of the property (photo). Mixed hardwood upland habitat (FLUCFCS #438, 36.5 acres) provides a buffer transition between the hardwood swamp and the mixed hardwood-conifer upland habitat. The canopy is comprised of a mix of upland and transitional hardwood species including red cedar, magnolia, cabbage palm, sweet gum, various oak species, and occasional slash pine. The understory is comprised of immature cabbage palm, wax myrtle, viburnum, beautyberry, coontie, Virginia chain fern, and occasional saw palmetto. The hardwood-conifer mixed habitat (24.3 acres) is dominated by slash pine and live oak, with additional coverage provided by transitional species such as cabbage palm, cedar, and magnolia. In many areas of this upland community, there is also a xeric subcanopy of coastal plain staggerbush, myrtle oak, and sand live oak. The understory is dominated by dense saw palmetto, while subdominant coverage is provided by fetterbush, wax myrtle, and bracken fern. It appears that some damage occurred to the tree canopy across the site as a result of recent active hurricane seasons. The reduced canopy has allowed the opportunity for invasion by nuisance and exotic species, particularly vines. Overall, exotic coverage is low and patchy except along the north and south edges of the site. The habitat functions of the site, provided by mature hardwood swamp, diverse upland habitat, and a unique spring run, include food, cover, denning, and water sources for wildlife using the area as well as a corridor connection to adjacent public lands.

C. Brief description of proposed work: The primary goals of the UCMB mitigation plan are: 1) to preserve 148.8 acres of intact wetland and upland ecosystems to establish a corridor link for Florida black bears and other wildlife species; 2) to enhance natural community functions; and 3) to protect the integrity of the on-site spring system and headwaters of the Homosassa River. The plan includes restricting site access, eliminating nuisance and exotic species, restoring the upland communities by selectively reducing shrub coverage, and preserving the site in perpetuity by conveying a conservation easement to the SWFWMD. Establishment of a management trust fund will ensure ecological values and benefits are maintained in the long term.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The anticipated wetland impacts proposed for mitigation at the UCMB include wetlands within the northern portions of the Upper Coastal watershed. The majority of these impacts will be associated with US Highway 19 expansion in Citrus County, located within a few miles of the UCMB. The mitigation bank can provide adequate and appropriate compensation within proximity of the proposed wetland impacts.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The UCMB is a mitigation bank in the Upper Coastal basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time of mitigation selection, there were no SWIM-sponsored restoration projects in the Upper Coastal basin that could appropriately compensate for the anticipated wetland impacts.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Upper Coastal Mitigation Bank

Contact Name: Wade Waltmyer, EarthBalance, Corporation

Phone Number: 941 – 426 - 7878

Entity responsible for monitoring and maintenance: EarthBalance, Corporation

Proposed timeframe for implementation: Commence: Design & Permitting: 2006 Complete: No construction required, routine land management, maintenance & monitoring

Project cost: \$340,750 (total estimate through 2008 FDOT Mitigation Plan) – Note, estimate will be based on the UMAM assessment of the proposed wetland impact areas.

1 – FM 4058222 – 0.24 acre (estimate 0.2 credit x \$145,000 = \$29,000)

Roadway Construction Commencement – November, 2015; Estimated Permit & Credit Purchase, Spring, 2012

2 – FM 4058223 – 2.8 acres (estimate 2.0 credits x \$145,000 = \$290,000)

Roadway Construction Commencement – July, 2014; Undetermined Permit Schedule, Credit Purchase, Winter, 2013

3 – FM 4079513 - 0.2 acre (estimate 0.1 credit x \$145,000 = \$14,500)

Roadway Construction Commencement – October, 2011; Estimated Permit & Credit Purchase, Summer, 2009

4 – FM 4079512 – 0.1 acre (estimate 0.05 credit x \$145,000 = \$7,250)

Roadway Construction Commencement – July, 2014; Estimated Permit & Credit Purchase, Summer, 2012

Attachments

X 1. Detailed description of existing site and proposed work. Refer previous discussion, SWFWMD ERP #44029983 is available for review, attached site photos.

X 2. Recent aerial photograph with date and scale. Refer to Figure C, 1999 infrared aerial.

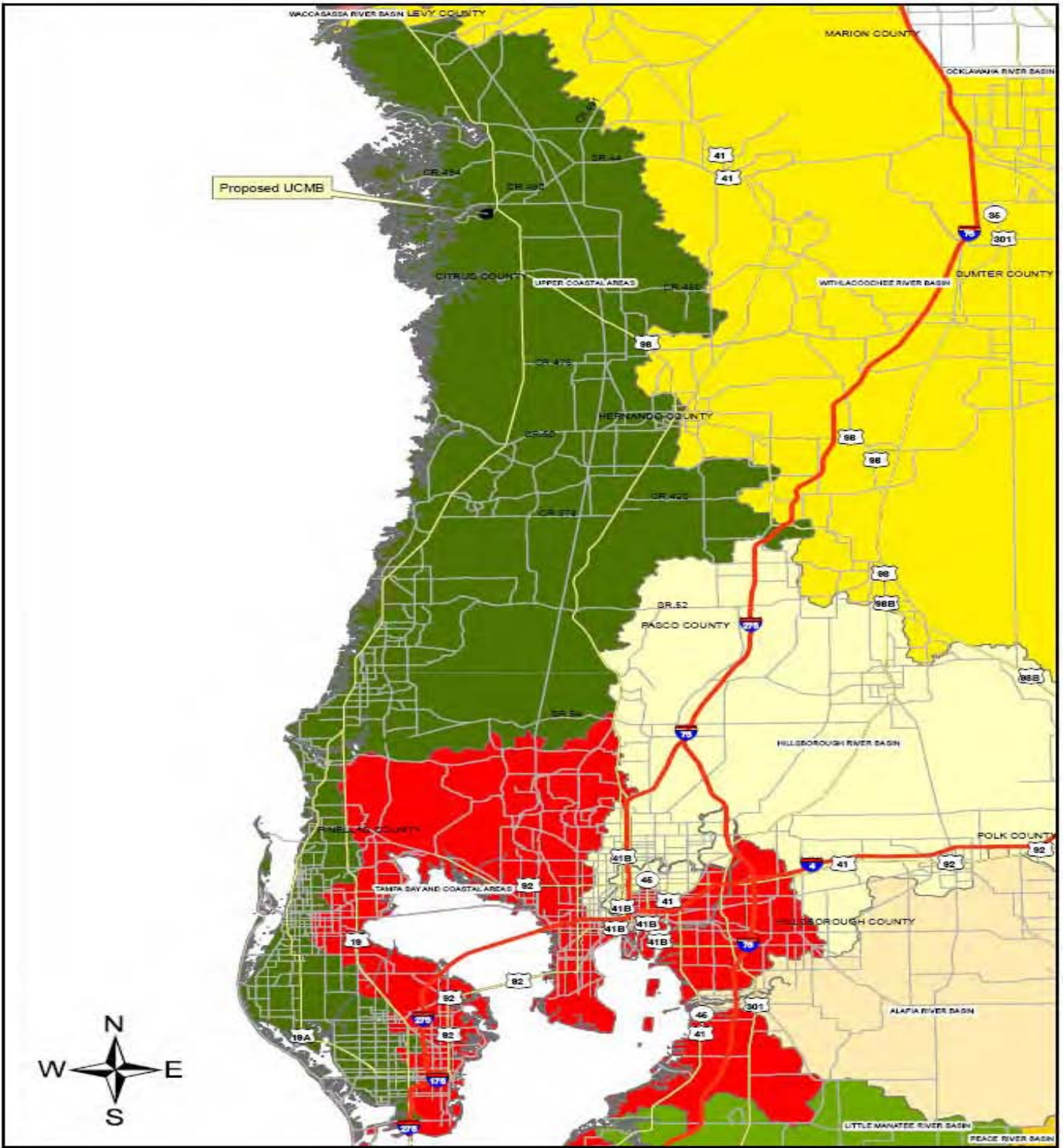
X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (location map), Figure C (existing & proposed habitat).

X 4. Detailed schedule for work implementation, including any and all phases. Refer to previous implementation discussion. No construction activities required, currently within the land management, maintenance & monitoring activities.

X 5. Proposed success criteria and associated monitoring plan. Monitoring and success criteria for habitat enhancement are specified in the ERP. Since the site is proposed as a mature preservation and enhancement parcel, typical monitoring methods will not be required to document vegetative and hydrological success. Success criteria for the bank will therefore be evaluated as "events." These events include recording the conservation easement to restrict use and access, funding the management trust fund, strategic fencing and signage along the bank perimeter, eradication of inappropriate plant species to 5% total coverage, eradication of exotic plant species to 1% coverage or less, and completion of the initial shrub reduction event in uplands.

X 6. Long term maintenance plan. The long-term management plan that addresses vegetative maintenance, fire management, site security, access, and approved activities will be recorded with the conservation easement. The location of these planned activities are depicted on Figure C. The mitigation banker will remain the responsible entity for site management and plans to retain fee-simple ownership of the parcel. At some point, the land may be transferred to an appropriate public agency or private owner who will be responsible to maintain the habitat conditions.

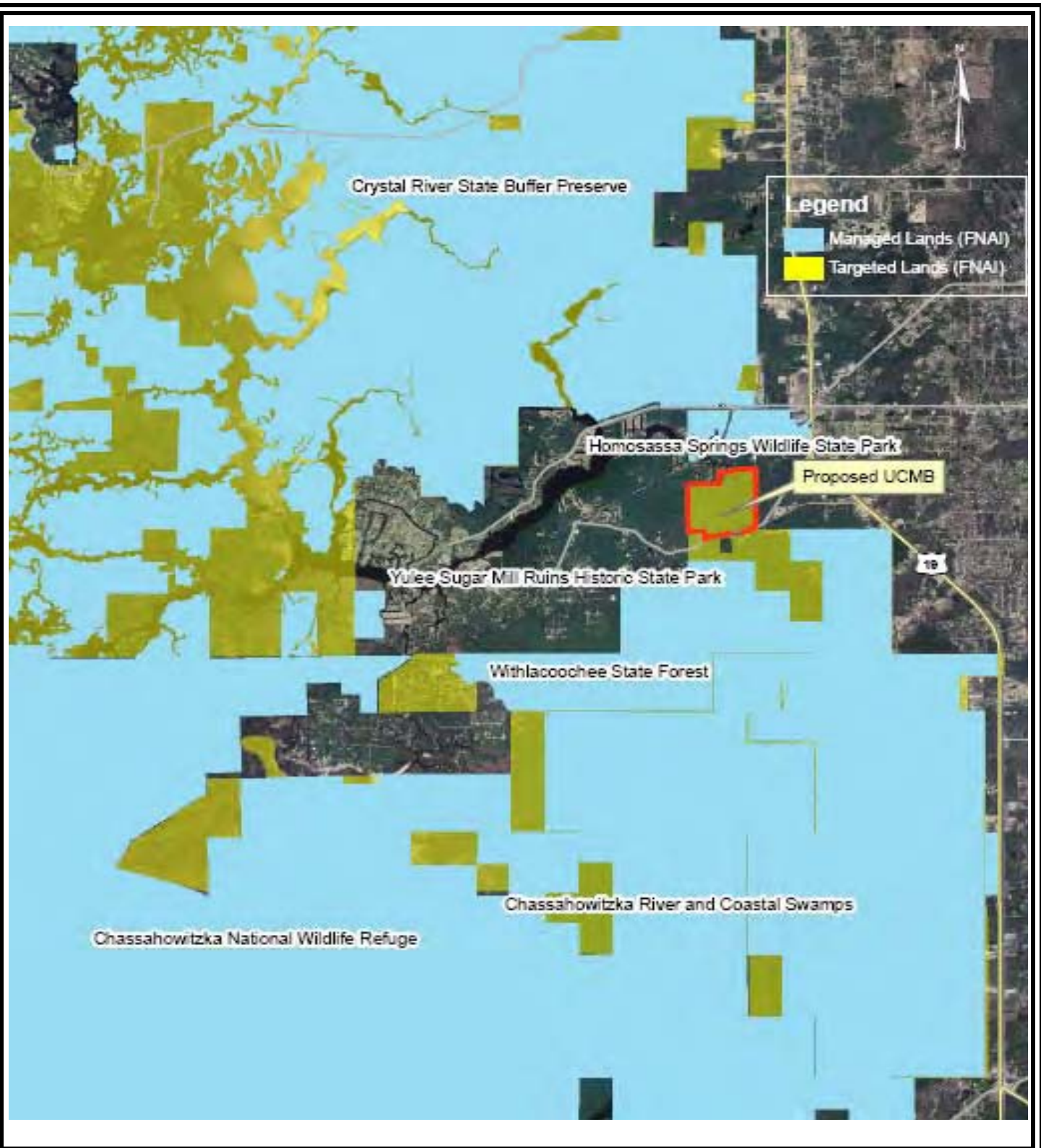
X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussions.



**FDOT
MITIGATION SITE
(Upper Coastal Basin)**

**UPPER COASTAL
MITIGATION BANK
(SW 91)**

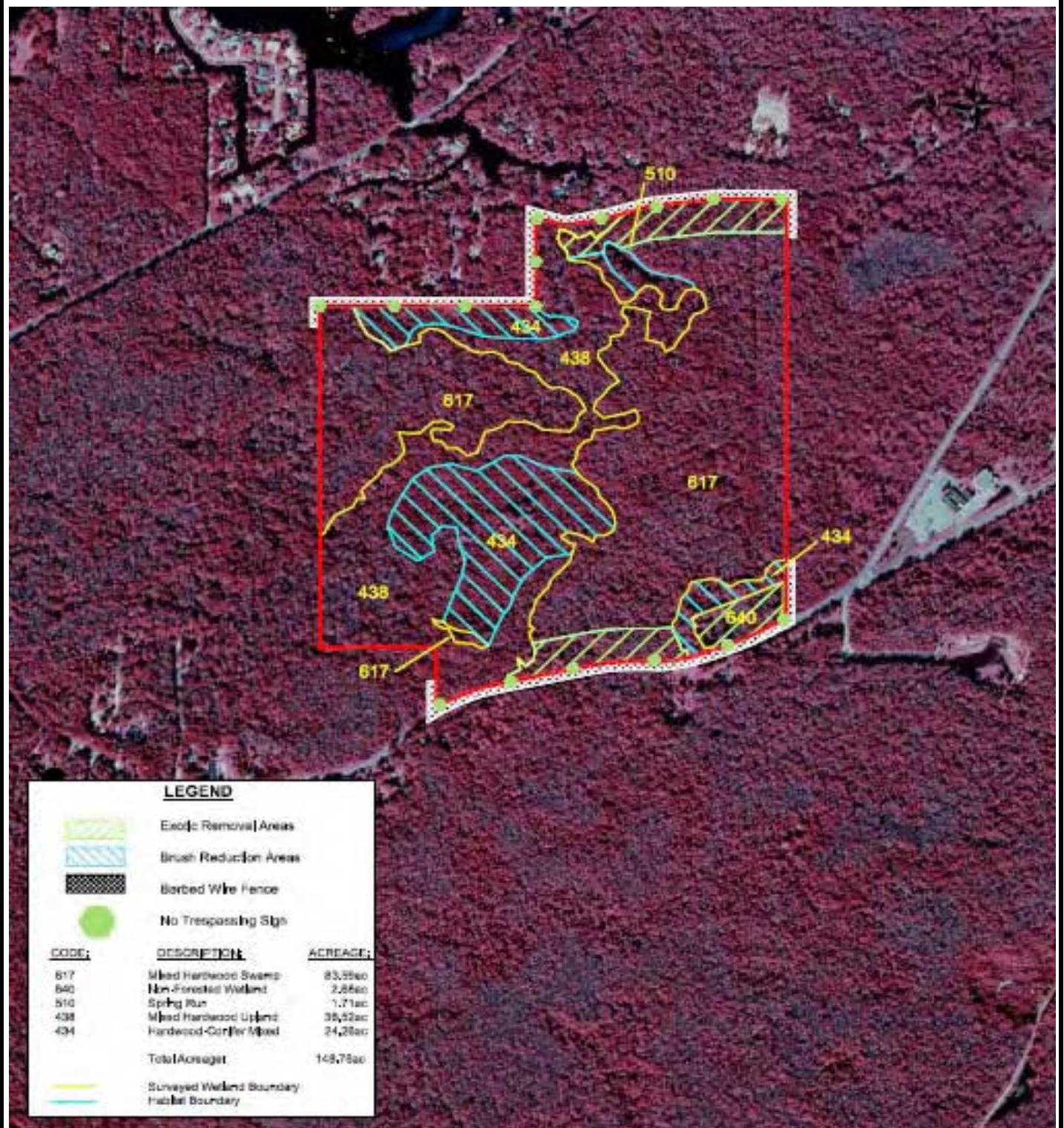
**FIGURE A
PROJECT LOCATION,
WATERSHED MAP &
MITIG. SERVICE AREA**



**FDOT
MITIGATION SITE
(Upper Coastal Basin)**

**UPPER COASTAL
MITIGATION BANK
(SW 91)**

**FIGURE B
PROJECT LOCATION,
ADJACENT EXISTING &
PROPOSED PUBLIC LANDS**



**FDOT
MITIGATION SITE
(Upper Coastal Basin)**

**UPPER COASTAL
MITIGATION BANK
(SW 91)**

**FIGURE C
EXISTING HABITAT,
ENHANCEMENT &
MANAGEMENT PLAN**



View of the spring surrounded by mixed hardwood wetland habitat. The forested wetland has diverse coverage of many tree species including red maple, sweet bay, American elm, popash, sweet gum, black gum, water oak, laurel oak and cabbage palm.



The hardwood-conifer mixed habitat is dominated by live oak and slash pine, with transitional species such as cabbage palm, cedar and magnolia. The understory has dense coverage of saw palmetto, with additional coverage provided by fetterbush, wax myrtle, and bracken fern.

**FDOT Mitigation Site
(Upper Coastal Drainage Basin)**

**UPPER COASTAL MITIGATION BANK
(SW 91)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Halpata Tastanaki Preserve

Project Number: SW 92

Project Manager: Denise Tenuto, SWFWMD Environmental Scientist

Phone No: 352-796-7211, ext. 4404

County: Marion County

Location: Sec. 13, 24, T17S, R19E

IMPACT INFORMATION (Proposed Construction Date)

(1) FM 2571882 – SR 200 - US 41 to Marion County Line (2016)

ERP #: _____ COE #: _____

(2) FM 2571651 – US 41 (SR 45) – SR 44 to SR 200 (2014)

ERP #: _____ COE #: _____

Drainage Basin: Withlacoochee River Water Body(s): Withlacoochee River SWIM water body? No

Impact Acres / Habitat Types (FLUCFCS):

(1) FM 2571882	2.0 ac. (641)	(2) FM 2571651	0.5 ac. (617)
	0.5 ac. (643)		<u>0.2 ac. (618)</u>
	0.3 ac. (644/641)		0.7 acre
	<u>0.3 ac. (530/641)</u>		
TOTAL	3.1 acres	TOTAL – 3.8 Acres	

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation ___ Restoration X Enhancement ___ Preservation Mitigation Area: **103 acres**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin: Withlacoochee River Water Body(s): Withlacoochee River SWIM water body? N

Project Description

A. Overall project goal: The Halpata Tastanaki Preserve (Halpata) is an 8,090-acre tract located adjacent to the Withlacoochee River, along the boundary between Marion and Citrus Counties (Figures A & B). The tract is owned and managed by the SWFWMD (District), and adjacent to and within the vicinity of thousand of acres of other public lands comprised of native habitat. Halpata has a variety of upland and wetland ecosystems, including mixed forested wetland floodplain habitat extending from the banks of the Withlacoochee River (Figure B). To provide vehicular access, an elevated berm was historically constructed through the floodplain wetland. The berm dimensions and culverts have altered the historic surface water drainage patterns and contributing flow to the adjacent wetland habitat upstream and downstream of the berm. An access road is still necessary for the public and District land management staff, and the berm is primarily used by wildlife as a corridor connection. However, portions of the berm and the majority of the culverts could be removed and replaced with wet road crossing facilities. Removal of some fill material will retain necessary and important access through the wetland, however still result in the desired goal of restoring surface water hydrology to enhance the ecological value and benefits of the adjacent wetland habitat.

B. Brief description of current condition: The delineated project area within Halpata is dominated by mixed forested wetland habitat (Figures B & C). Portions of the Withlacoochee River have substantial surface water fluctuation ranging several feet between base flow and flood elevations, and this directly correlates to the adjacent upland and wetland habitat characteristics and functions.

There are variable grade elevations, resulting in a variety of hydroperiod and associated vegetative species in the wetland habitat (refer to site photos). The lower elevations have more obligate species; an overstory dominated by bald cypress with scattered tupelo, red maple and pop ash. The subcanopy includes the same tree species along with scattered buttonbush, however the dense canopy shade and high flood elevations (ranging 4-6 ft. above grade) associated with this portion of the wetland have substantially limited the coverage of understory and ground vegetation. The infrared aerial photograph (Figure C) depicts the locations where the cypress (gray tone) is more prevalent. The wetland grade elevations are predominantly higher and more variable adjacent and east of the access road; resulting in more facultative hardwoods and less cypress. Red maple, sweet gum, water hickory, water oak, laurel oak and cabbage palm are common. With shorter frequency, depth and duration of surface water inundation of this habitat, there is more ground cover vegetation including dwarf palmetto (*Sabal minor*), and various low panicums and sedges where the canopy shade is not as prevalent. The highest grade elevations are within a hardwood hammock located in the southeast portion of the wetland. This transitional habitat has dominant overstory coverage provided by laurel oak, water oak, scattered large live oak, loblolly pine, cabbage palm, and dwarf palmetto provides minor to moderate ground coverage. There is minimal coverage of non-forested wetland habitat within the project area, primarily limited to five borrow pits (each covering less than 0.5 acre) dredged to provide the necessary fill material for the original berm construction. These ponds have predominant coverage of spatterdock, duckweed, and floating pennywort, and they provide a valuable dry season water source for wildlife in the vicinity. The depth of berm fill material for the roadway portion crossing the hardwood hammock averages 1-2 feet above natural grade, compared to the lower elevation obligate zone where the berm material ranges 2-4 feet above grade (photos). Six of the 10 culverts were installed within a 500 ft. long segment of the road that crosses the obligate zone. The berm diverts and concentrates the contributing upstream flow from the east to the lower elevation obligate zone. Then four culverts located within a 50 ft. length of the berm (photo) concentrate the outfall into a meandering creek that discharges into the Withlacoochee River. Historically the contributing basin flow from east of the berm would include more ground water seepage and wider sheet flow characteristics to the wetland floodplain west of the berm, versus the concentrated creek channel. This same but reverse groundwater and sheet flow condition existed when the river would overflow the banks and contribute flow to the wetlands east of the berm. Now that the flood waters are blocked by the berm and concentrated through the four main culverts, it limits important and valuable flood waters from reaching and attenuating in the wetland area east of berm.

C. Brief description of proposed work: Prior to nominating Halpata to the FDOT mitigation program in 2007, an extensive hydraulic and hydrologic analysis was necessary to determine if a restoration project could be constructed to benefit the wetland floodplain and confirm no potential of any off-site drainage alterations. This analysis was conducted in 2006-2007 to evaluate the degree of wetland hydrologic impacts caused by the berm and culverts, and alternatives to restore flow conditions to benefit the wetland habitat while still maintaining a modified access road. The results of the modeling effort found that wetlands could hydrologically benefit from removing at least portions of the berm and the majority of culverts. A couple construction options are being further evaluated by the District before proceeding with the final design in 2008. The most likely option proposes removing 2,600 cubic yards of berm material at three separate locations to match adjacent natural grade for a total distance of 1,000 feet (Figure D). After berm removal, an additional 4-6 inches of material will be excavated below grade, followed by installation of Geoweb fabric and 6-8 inches of #57 rock. The Geoweb and rock will provide a stable access road while allowing water to sheet flow over the road; thus restoring hydrologic connectivity to slightly higher wetland elevations during normal seasonal high water levels as well as flood events.

This includes an isolated cypress dome within the northwest portion of the project area that doesn't receive the historic flood waters due to the berm. A segment of berm material will be retained through the obligate zone however the associated six culverts will be replaced with three wedge-shaped breaches lined with geotextile fabric and filled with rip-rap rubble to match the original berm height. Replacing the culverts with rubble rip-rap will slow the rate of surface water discharging from the east side of the berm to the creek channel. This will result in extending the hydroperiod for the wetland east of the berm, thus enhancing the habitat and provide more water for wildlife use. The remaining 4 culverts will have sumps and riprap placed at each end to reduce water velocity and minimize scouring. A second option is similar to the first, with the primary difference including the removal of approximately 7,000 cubic yards of the berm material over the obligate zone to match the adjacent wetland grade for a distance of 2,100 feet. This second option improves the conveyance of the water and results in removing more fill material in the floodplain, however there is minimal anticipated increase in the quality and quantity of additional wetland enhancement. No matter which construction option is selected, seeding of winter rye or brown-top millet will be placed on exposed soil after grading, followed by any necessary supplemental herb plantings such as maidencane. Figure D depicts the 103 acres of wetland habitat that are anticipated to receive enhancement by the proposed activities. An additional 110-150 acres of the same wetland will also receive secondary enhancement by the project. However the degree of enhancement for the hardwood hammock and the obligate zone closer to the river are considered minor and not included in the total mitigation acreage.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The activities at Halpata are primarily proposed to provide mitigation for an anticipated few acres of wetland impacts associated with widening a SR 200 segment that terminates close the southeast boundary of Halpata. Figure A depicts the SR 200 segment that extends from US Highway 41 to the Withlacoochee River bridge crossing. The proposed Halpata construction activities are scheduled in 2009-2010, as opposed to the SR 200 expansion that is not scheduled for construction until 2016. Therefore the Halpata project will provide appropriate mitigation years in advance of when the anticipated wetland impacts will occur.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: During the 2007 nomination and selection of mitigation options for wetland impacts, there are no existing or proposed private mitigation banks in the Withlacoochee River watershed.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: The Withlacoochee River is classified an Outstanding Florida Waters and not a SWIM-designated water body. The only SWIM-sponsored project in the Withlacoochee River watershed involves sediment removal from Lake Panasoffkee; a project that has previously received mitigation funding to compensate for FDOT wetland impacts associated with expanding the I-75 bridge over Lake Panasoffkee.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Private contractor working for the SWFWMD

Contact Name: Denise Tenuto, SWFWMD

Phone Number: 352-796-7211 (ext. 4404)

Entity responsible for monitoring and maintenance: Monitoring activities will be conducted as part of general site review by the SWFWMD Land Resource staff, maintenance will be initially conducted by the private contractor responsible for construction, then the SWFWMD Operations Dept. will be responsible for any necessary post-construction maintenance activities.

Proposed timeframe for implementation: Commence: Design & Permitting: 2006-2008 Complete: Construction anticipated in 2009-2010, followed by periodic review to ensure structures are properly functioning, and maintenance on any problem areas such as erosion control and rock stabilization.

Project cost: Estimates - \$315,000 - \$390,000 (total estimate through 2008 FDOT Mitigation Plan)

Design & Permitting - \$80,000

Construction & Planting - \$185,000 - \$260,000

Maintenance - \$50,000

Attachments

X 1. Detailed description of existing site and proposed work. Refer to previous discussion; additional details and the associated surface water modeling is available for review at the SWFWMD.

X 2. Recent aerial photograph with date and scale. Refer to Figures A & B, 2006 aeriels; and 1994 infrared photograph (Figures C & D)

X 3. Location map and design drawings of existing and proposed conditions. Refer to Figures A & B for location map, Figure C for existing conditions, and Figure D for proposed conditions.

X 4. Detailed schedule for work implementation, including any and all phases. Refer to previous implementation discussion. Additional details will be provided in the annual updates of the FDOT mitigation plan as the project proceeds through various phases and activities. The following is a tentative schedule:

Site Evaluation, Surface Water Modeling, Design & Permitting – 2006 - 2008

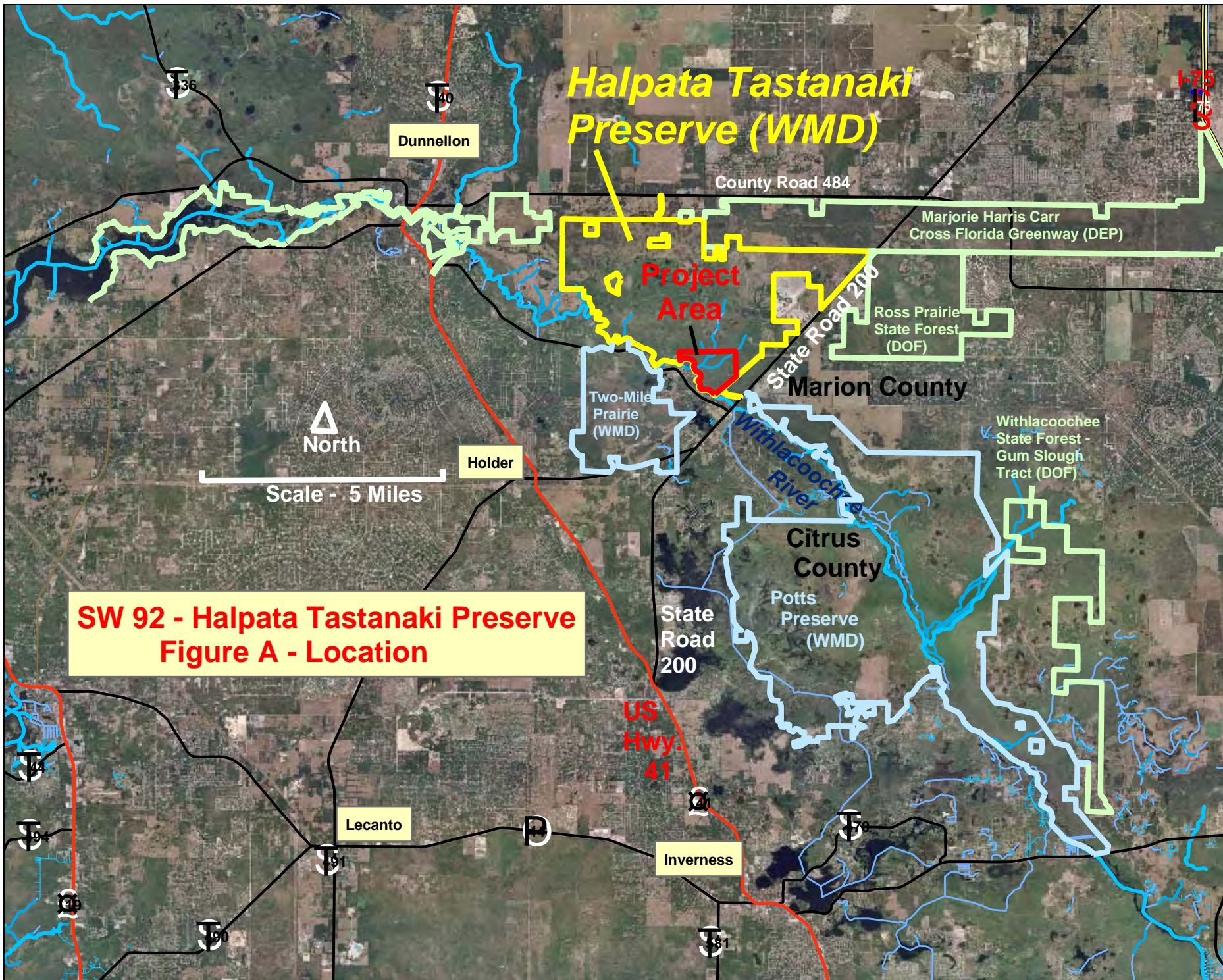
Construction & Planting – 2009 - 2010

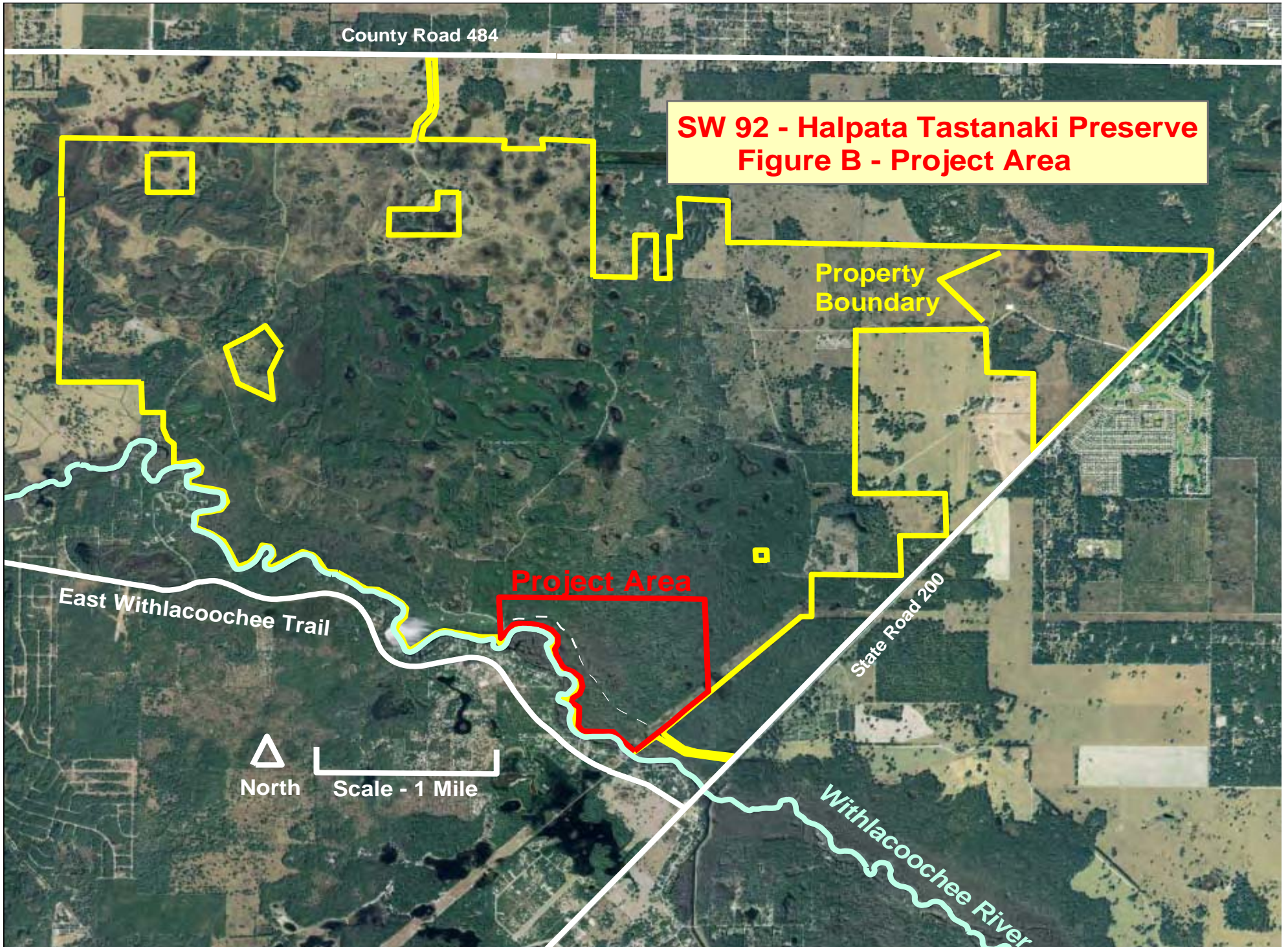
Maintenance – Periodic semi-annual reviews and routine maintenance to ensure structures are properly functioning with no erosion. Additional reviews will be conducted as necessary when floodwaters are flowing over the wet crossings of the access road.

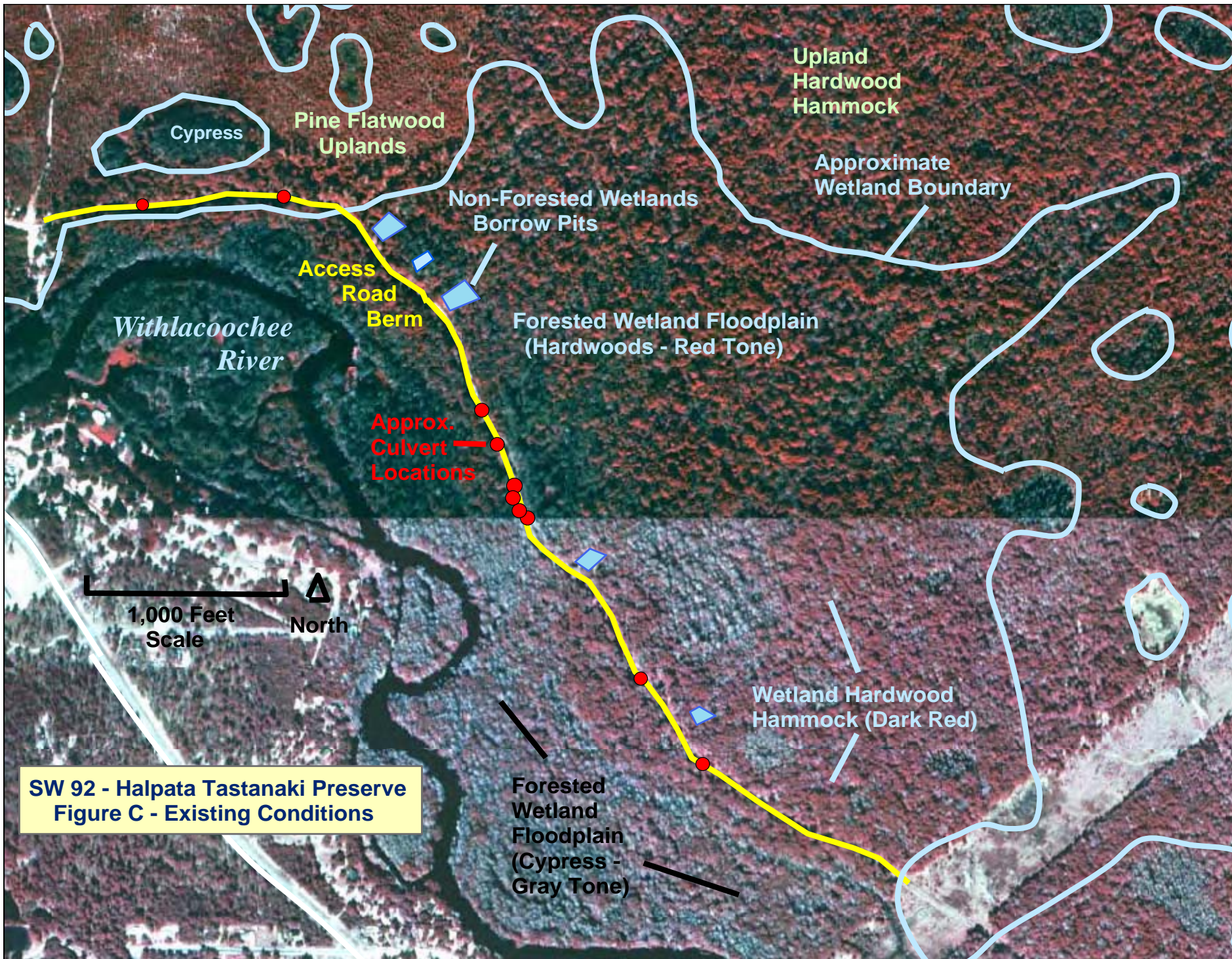
X 5. Proposed success criteria and associated monitoring plan. Monitoring will be periodically conducted concurrently with review and associated maintenance of the access road. This monitoring activity and associated success criteria will be conducted to ensure that the wet crossing and rubble rip-rap allows desired flow conditions. The WMD maintains a water level monitoring station where SR 200 crosses the Withlacoochee River, so it will be known in advance of when flood waters breach over the wet crossings. Success includes ensuring the structures are functioning as proposed and any maintenance activities conducted as quickly as possible.

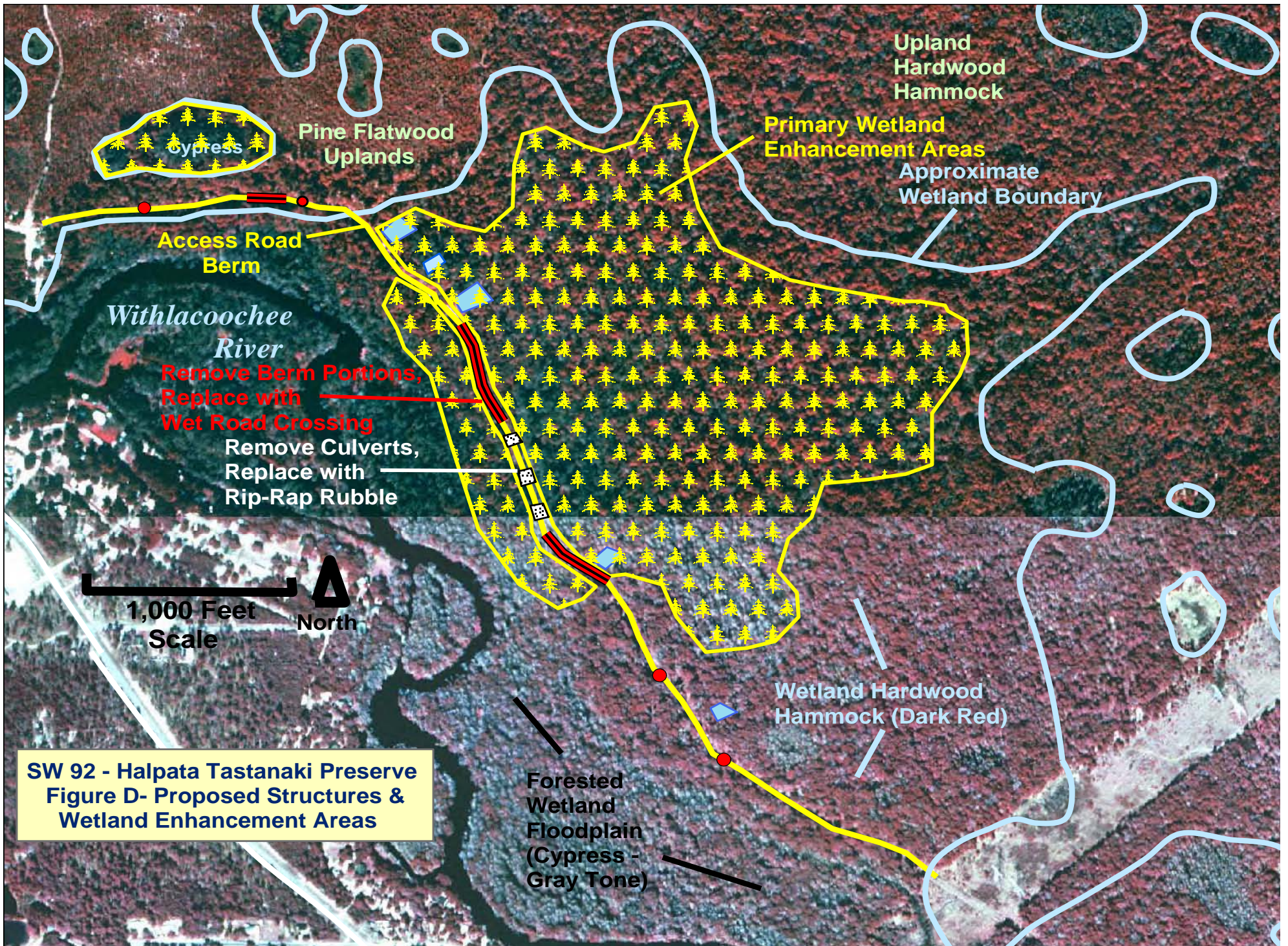
X 6. Long term maintenance plan. The road is periodically used by SWFWMD Land Resource staff to access the site. Any maintenance activities to maintain the flow connectivity will be conducted when necessary.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.











The Withlacoochee River meanders along the southern boundary of the Halpata Tasthanaki Preserve.



The obligate areas of the wetland floodplain have dominant coverage provided by bald cypress and hardwood species such as tupelo, pop ash, water hickory and red maple. The dark stains of the lower 6 ft. on the trees represent a flood water elevation from the river.

**FDOT Mitigation Site
(Withlacoochee River Basin)**

**HALPATA TASTANAKI PRESERVE
(SW 92)**



The wetland floodplain grade elevation rises and habitat conditions transition to include less cypress and more facultative species such as laurel oak, red maple, sweet gum, and American elm; as well as more ground coverage of low panicums and sedges where the canopy is more open than the obligate zone.



The highest grade elevations are within the southeast portion of the wetland; a hardwood hammock with water oak, cabbage palm, laurel oak, live oak, American elm, and ground coverage of dwarf palmetto and sedges. Flood water elevation indicators are evident within two feet of the surface grade.

**FDOT Mitigation Site
(Withlacoochee River Basin)**

**HALPATA TASTANAKI PRESERVE
(SW 92)**



Downstream end of two culverts that discharge water into a creek channel. The culverts will be removed and replaced with rip-rap rubble that will allow gradual seepage into the channel; extending the hydroperiod and attenuation of surface water in the wetland portion on the upstream side of the berm.



Four of the culverts will remain, however sumps and rip-rap will be placed at the culvert ends to aid in maintaining flow and minimize scouring and undermining of the culverts.

**FDOT Mitigation Site
(Withlacoochee River Basin)**

**HALPATA TASTANAKI PRESERVE
(SW 92)**



Portions of the access road berm will be removed and replaced with Geoweb material and small limerock to maintain a wet road crossing for vehicle access. The cleared path will also continue to provide a beneficial wildlife corridor connector through the forested wetland.



Small borrow ponds exist adjacent to the road; with dominant coverage of spatterdock and duckweed. The ponds provide a valuable water source for wildlife, particularly during the dry season. The proposed berm modifications will allow contributing flood waters to reach, recharge and flush the ponds more often than the current conditions.

**FDOT Mitigation Site
(Withlacoochee River Basin)**

**HALPATA TASTANAKI PRESERVE
(SW 92)**