Southwest Florida
Water Management District

FDOT Mitigation Plan
January 24, 2006

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

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Section 373.4137 (F.S.) - DOT Mitigation Program Statute

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

Cover: Cattle Dock Point (SW 31). The property is owned by FDEP and the SWFWMD, design conducted through the SWFWMD – SWIM Department and funded through the FDOT mitigation program. Photo taken in early 2005 with Phase II under construction. Phase I was constructed in 2001 and includes successfully created wetland habitats on the peninsula to the left. The construction includes the grading and subsequent creation of intertidal marsh habitat from historically filled upland areas, and the graded material is placed in the dredged boat basin to create salt-marsh habitat. A few upland islands were constructed to create a mosaic of inter-related habitats.

ATTACHMENTS - FDOT MITIGATION PROJECTS

Yellow – Existing Projects, Blue – New Projects for 2006)

1 - SW 31 - Cattle Dock Point, Phase II (FDEP / WMD – SWIM)

2 - SW 34 - Lake Thonotasassa (WMD – SWIM)

3 - SW 38 - Quick Point Preserve (City of Longboat Key)

4 - SW 45 - Gateway Restoration (Pinellas Co. / WMD – SWIM)

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11 - SW 54 - Anclote Parcel (WMD – Land Resources)

12 - SW 55 - Upper Hillsborough 4&5 (WMD – Land Resources)

13 - SW 56 - Cockroach Bay, Freshwater (Hills. Co. Parks / WMD – SWIM)

14 - SW 57 - Lk. Panasoffkee Restoration (WMD - SWIM)

15 - SW 58 - Ledwith Lake (Alachua County)

16 - SW 59 - Hampton Tract (WMD – Land Resources)

17 - SW 60 - Serenova Extension (WMD - Land Resources)

18 - SW 61 - Cypress Ck. Preserve, Jennings Tract (Hills. County Parks)

19 - SW 62 - Tappan Tract (City of Tampa / WMD – SWIM)

20 - SW 63 - Hillsborough River Corridor (WMD - Land Resources)

21 - SW 64 – Withlacoochee State Forest, Baird Tract (FDEP / FDOF)

22 - SW 65 - Rutland Ranch (WMD - Land Resources)

23 - SW 66 - Lk. Hancock Reserve (Polk County / WMD – Land Resources)

24 - SW 67 – Apollo Beach (Hills Co. Parks / WMD – SWIM)

25 - SW 69 – Peace River Bridge Restoration (FDOT/ WMD)

26 - SW 70 – Fort DeSoto Park (Pinellas County / WMD – SWIM)

27 - SW 71 – Boyd Hill Nature Park (City of St. Petersburg)

28 - SW 72 – Cypress Creek Preserve, Greer Tract (Hills. County Parks)

29 - SW 73 – Hillsborough River State Park (FDEP-Parks / WMD)

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ATTACHMENTS - FDOT MITIGATION PROJECTS (Cont.)

31 - SW 75 – Cockroach Bay – Saltwater (Hills. Co. Parks / WMD-SWIM)

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33 - SW 77 - Conner Preserve (WMD – Land Resources)

34 - SW 78 – Bahia Beach (Hills. Co. Parks & EPC / WMD-SWIM)

35 - SW 79 - Fox Creek Regional Mitigation Project (Sarasota County)

36 – SW 80 – Hidden Harbor (Manatee County / WMD)

37 – SW 81 – Ekker Tract (Hills. Co. Parks / WMD-SWIM)

38 – SW 82 - Balm Boyette (Hills. Co. Parks & EPC / WMD-SWIM)

INTRODUCTION

This mitigation plan has been developed by the Southwest Florida Water Management District (SWFWMD) to provide regional, long-range mitigation planning for Florida Department of Transportation (FDOT) projects in accordance with Section 373.4137, Florida Statutes. The statute language is located after the listing of FDOT projects and before the Figures.

The FDOT has provided an annual statewide inventory of projected construction impacts to wetlands since 1996. In May, 2005 the FDOT identified and provided projected impacts for construction projects planned in Fiscal Years 2006 through 2011 and information regarding modifications to previously identified projects. In addition, advance notice 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 FDOT project, information was provided regarding the acreage and type of wetland impacts anticipated from construction.

Based on the information provided by the FDOT, mitigation projects were included in this plan to offset those 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.

Selection of mitigation projects is conducted in consultation with staff from the Florida Department of Environmental Protection (FDEP), Florida Fish & Wildlife Conservation Commission (FFWCC), Florida Department of Transportation (FDOT), U.S. Environmental Protection Agency (USEPA), U.S. Army Corps of Engineers (USACOE), U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Commission (NMFC). 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 determined a mitigation project was suitable and sufficient mitigation was available 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 made 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 157 construction projects with wetland impacts be mitigated through the program. These include FDOT projects with anticipated construction schedules through at least 2011. Distributed over 13 drainage basins and covering 16 counties, the total wetland impact acreage projected by FDOT by all these projects is 554 acres. These impacts are associated with all the construction projects currently on the impact inventory (Table 1). Figure 1 portrays the 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 23 new projects with an anticipated 85 acres of wetland impacts. With the impact revisions of previously submitted FDOT projects, there is a cumulative wetland impact increase of 70 acres compared to last year's plan. Tables 4-6 list the amended, new, and future anticipated wetland impacts; as well as the associated funds requested from FDOT for implementing the mitigation projects. Mitigation nominations for 15 of the 23 new FDOT projects are being developed and selection will be deferred until future mitigation plans.

MITIGATION PROJECTS

The District mitigation plan incorporates mitigation projects developed by various agencies, including various 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 WMD, 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 generally include the FDEP, County Governments, and private mitigation banks. These potential mitigation options are reviewed by the previously mentioned environmental agencies as to whether they appropriately compensate for the loss of the wetland functions and values associated with the FDOT construction projects.

There are three new mitigation projects adopted in the 2006 mitigation plan. **Hidden Harbour (SW 80)** includes 70-acres of habitat improvements conducted on a 229-acre tract acquired by Manatee County in December, 2004. This tract was an important acquisition since it protected habitat along the Manatee River and the property was proposed for residential development. Various habitat improvements proposed for the tract including forested wetland enhancement, marsh creation, and upland habitat restoration. The majority of the forested wetland enhancement includes the eradication of exotic and nuisance species that have generated on unique narrow peninsula delta formations that have naturally generated due to flow patterns of the Manatee River.

The **Balm Boyette Scrub Preserve (SW 81)** is a 4,933-acre tract owned by the Hillsborough Parks Department. A portion of the property was mined for phosphate ore and partially reclaimed in the 1960's. Part of the mining activity removed two former forested wetland tributaries associated with **Stallion Hammock**. The tributaries were reclaimed with a series of open water pits bordered by steep upland slopes transitioning into rolling terrain of fallow fields. The proposed restoration plan includes backfilling approximately 60-acres of the pits to restore portions of the forested wetland tributaries. In addition, the surrounding contributing watershed includes enhancing 265-acres of fallow fields by planting appropriate tree species.

The **Ekker Tract (SW 82)** is an 85-acre tract purchased by the SWFWMD in 2001. The tract represents one of the few large undeveloped tracts in Gibsonton and is located adjacent to Bullfrog Creek. The design and construction is being managed through the SWFWMD – SWIM Section. The project includes the conversion of over 150 tropical fish ponds into appropriate wetland habitats and buffering the created wetlands with enhanced and restored upland habitats. After construction and achieving mitigation success criteria, the tract will be managed through the Hillsborough Parks, Recreation and Conservation Department.

Since inception of the program, the FDOT program has funded six mitigation projects in the Hillsborough River Basin. As noted with green highlights on Table 1, there are several future roadway projects proposed in this basin. Unfortunately, this basin is recognized as one of the most difficult basins in the state to acquire additional public lands necessary to fulfill FDOT's mitigation needs. The resource agencies can only offer appraised value for property and with the substantial residential and commercial development in the basin, recent land acquisition negotiations have not been successful. Both public land acquisitions and private mitigation bank options are currently being evaluated in this basin but they're not within a phase sufficient for nomination and selection into the FDOT mitigation program. With the substantial traffic associated with the roadways in this basin, FDOT has accelerated the funding and schedule of many projects. As a result, the SWFWMD has been collaborating with FDOT and other agencies to evaluate opportunities for FDOT to conduct mitigation

separate from the mitigation program. This issue and opportunities will be updated in subsequent FDOT mitigation plans.

The District is currently conducting feasibility studies to evaluate habitat enhancement opportunities on 10 public land tracts in the region. These studies will be complete in 2006 and 2007, and will provide valuable information as to whether a portion or all of these tracts can be nominated for restoration through the mitigation program. There are also a few potential private mitigation banks as various stages of evaluation and planning. If and when any of these mitigation banks are permitted, the District will evaluate the ecological benefits these projects can possibly provide to compensate for the wetland impacts.

As noted on Table 3, to date the mitigation projects propose a cumulative 9,569 acres and 30 mitigation bank credits of various mitigation activities to compensate for 444 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 list the various mitigation activities and acreage proposed for each mitigation project. Information (narratives, location maps, aerials, designs) concerning the 38 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. In most cases, 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 projected 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 that can be incorporated into the mitigation projects. Since inception of the program in this region, over 30 FDOT projects with very minor wetland impacts (generally less than 0.1 acre for each project) were designated mitigation but were ultimately dropped by FDOT from the mitigation program since the impacts were either avoided and/or mitigation was not required during the permitting process. In many cases, the mitigation credit available for those dropped roadway projects could be designated for mitigating 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 that was designated toward SWIM

projects. 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 are credited toward the advance funding.

The advanced funding is required reimbursement to FDOT. Through 2005, the SWFWMD has officially closed sufficient FDOT projects to reimburse $4 million of the program's debt. This is more than twice the $1.9 million of advanced funding received by the SWFWMD and approximately twice the reimbursement provided by any of the other four WMD's to date. As of December, 2005, there is approximately $3.8 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):

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Technical Services Department – M. Brown
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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 roadway construction dates, wetland impact acreage, associated mitigation projects, and any project revisions from the previous 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 2008
Impacts: 5.30 acres
Mitigation: Balm Boyette – Stallion Hammock Restoration (SW 81)
Status: No revisions, new mitigation project for 2006

Charlotte Harbor Drainage Basin

Project: CR 765A Bridge Replacement
FM#: 1120082
Date: October 2005
Impacts: 0.14 acre
Mitigation: Little Pine Island Mitigation Bank (SW 52)
Status: No revisions, impacts may not require mitigation

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: 14.20 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: 1.10 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: 2.10 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: 2.60 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: SR 93 (Interstate-275), US 41 to Pasco County Line
FM# 2584131
Date: November, 2007
Impacts: 7.60 acres
Mitigation: Jennings Tract, Cypress Ck. Preserve (West) (SW 61)
Status: no revisions

Project: I-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: US 301 (SR 41) at McIntosh Road
FM# 4037601
Date: October, 2007
Impacts: 0.50 acre (additional 0.3 acre mitigated off-the-program)
Mitigation: Hillsborough River State Park (SW 73),
Off Program – On-site mitigation by FDOT
Status: No revisions

Project: SR 39 (Alexander St.), I-4 to Knights Griffin Road
FM# 2555851
Date: December, 2007
Impacts: 4.9 acres (additional 9.3 acres mitigated off- the-program)
Mitigation: On Program – Greer Tract, Cypress Ck. Preserve (West) (SW72),
Off Program – On-site mitigation by FDOT at Alexander Street and Vicker's Swamp
Status: No revisions

Project: I-75 (SR 93A),CR 581(BB Downs) to SR 54
FM# 4084593
Date: November, 2009
Impacts: 1.90 acres
Mitigation: Defer mitigation selection to future years,
Potential off-the-program mitigation by FDOT
Status: No revisions

Project: I-75 (SR 93A), Fowler Ave. to CR 581
FM# 4084592
Date: November, 2009
Impacts: 5.10 Acres
Mitigation: Defer mitigation selection to future years,
Potential off-the-program mitigation by FDOT
Status: No revisions

Project: I-4 (SR 400) Weigh Station
FM# 4067381
Date: April, 2007
Impacts: 1.7 acres
Mitigation: Defer mitigation selection to future years,
Potential off-the-program mitigation by FDOT
Status: No revisions

Project: US 301 (SR 41), Tampa Bypass to Fowler
FM# 2557931
Date: August, 2009
Impacts: 0.40 acre – Hillsborough Basin, 0.1 acre – Tampa Bay Basin
Mitigation: Hillsborough Impact – Cypress Ck. Preserve - Greer Tract (SW 72)
Tampa Bay Impact – Ekker Tract (SW 82)
Status: No revisions

Project: US 92 – Eureka Springs to Thonotasassa Road
FM# 4113371
Date: July, 2007
Impacts: 2.69 acres – Hillsborough Basin, 0.57 acre – Tampa Bay Basin
Mitigation: Hillsborough - Cypress Creek Preserve – Greer Tract (SW 72)
Tampa Bay – Ekker Tract (SW 82)
Status: +1.09 acres from 2004

Project: SR 39 @ Hillsborough River
FM# 4089321
Date: May, 2008
Impacts: 1.80 acres
Mitigation: Defer mitigation selection to future years,
Potential off-the-program mitigation by FDOT
Status: No revisions

Project: I-75 (SR 93A), Hills./Pasco Co. Line to CR 54
FM# 4084594
Date: October, 2011
Impacts: 10.6 acres
Mitigation: Defer mitigation selection to future years
Potential off-the-program mitigation by FDOT
Status: No revisions

Project: I-75 (SR 93A), CR 54 to SR 52
FM# 2587362
Date: October, 2012
Impacts: 5.2 acres
Mitigation: Defer mitigation selection to future years,
Potential off-the-program mitigation by FDOT
Status: No revisions

Project: Park Road, I-4 to Sam Allen Road
FM# 2478622
Date: August, 2009
Impacts: 0.50 acre
Mitigation: Defer mitigation selection to future years, Potential off-the-program mitigation by FDOT
Status: New project for 2005

Project: US 301 (SR 41), SR 39 to South of CR 54
FM# 2569961
Date: January, 2012
Impacts: 0.10 acre
Mitigation: Defer mitigation selection to future years, Potential off-the-program mitigation by FDOT
Status: New project for 2005

Project: SR 52, CR 581 to Old Pasco Road
FM# 2478622
Date: July, 2014
Impacts: 0.80 acre
Mitigation: Defer mitigation selection to future years, Potential off-the-program mitigation by FDOT
Status: New project for 2005

Project: Sam Allen Road, Alexander St. to Park Rd.
FM# 2578623
Date: January, 2014
Impacts: 1.70 acres
Mitigation: Defer mitigation selection to future years, Potential off-the-program mitigation by FDOT
Status: New project for 2005

Project: SR 54, I-75 to US 301
FM# 4165611
Date: Construction not yet determined
Impacts: Impact acreage not available
Mitigation: Defer mitigation selection to future years, Potential off-the-program mitigation by FDOT
Status: New project for 2005

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: I-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

Project: US 27 Weigh-in-Motion Station
FM# 4067401
Date: October, 2007 (probably will be delayed until 2008)
Impacts: 25.00 acres
Mitigation: Defer mitigation selection to 2007
Status: New project for 2005

Little Manatee River Basin

Project: SR 674 – CR 579 to Katie Stanaland Road
FM# 4113331
Date: June, 2008
Impacts: 0.50 acre
Mitigation: Defer mitigation selection to 2007
Potential off-the-program mitigation by FDOT
Status: New project for 2005

Lower Coastal Basin

Project: SR 789 - Ringling Causeway Bridge
FM# 1979421
Date: June, 2001
Impacts: 0.27 acre
Mitigation: Quick Point Nature Preserve (SW 38)
Status: No revisions

Project: US 41 Bus. (SR 45) - Venice Ave. to Bypass
FM#: 1980051
Date: September, 2000
Impacts: 0.32 acre
Mitigation: Quick Point Nature Preserve (SW 38)
Status: No revisions

Project: I-75 – N. River Road (CR 577) to SR 681
FM#: 4063143
Date: October, 2009
Impacts: 18.20 acres - Lower Coastal Basin, 0.3 acre – Myakka Basin
Mitigation: Fox Creek Tract (SW 79) for the Lower Coastal Basin,
Myakka basin impacts deferred to future plans
Status: +3.5 acres from 2004

Project: US 301 – Wood Street to University Avenue
FM#: 1980101
Date: October, 2006
Impacts: 0.12 acre
Mitigation: Fox Creek Tract (SW 79)
Status: No revisions

Project: Englewood Connector, Charlotte C.L. to I-75
FM#: 2006101
Date: Undetermined Construction Date
Impacts: 2.01acres - Lower Coastal basin, 9.88 acres – Myakka River Basin
Mitigation: Lower Coastal - Myakka State Forest (anticip. nomination, 2007)
Myakka – Probable on-site mitigation by Sarasota County
Status: No revisions

Project: US 41 (Venice Bypass), Center Road to US Bus. 41 North
FM#: 1980172
Date: October, 2010
Impacts: 0.2 acre
Mitigation: Myakka State Forest (anticipated nomination, 2007)
Status: New project

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

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

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

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

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

Project: Upper Manatee River Road – SR 64 to US 301
FM#: 1996682
Date: September, 2008
Impacts: 6.30 acres
Mitigation: Hidden Harbour (SW 80), new mitigation project
Status: No impact revisions, new mitigation project

Myakka River Basin

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

Project: SR 72, Deer Prairie to Big Slough
FM#: 1980131
Date: September, 1999
Impacts: 0.87 acres
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: 6.50 acres
Mitigation: Myakka River State Park (SW 51)
Status: +1.5 acres from 2004

Ocklawaha River Basin

Project: SR 40, CR 225a to SW 52nd Ave
FM#: 238762
Date: December, 2004
Impacts: 0.20 acre
Mitigation: Ledwith Lake (SW 58)
Status: No revisions

Project: SR 500 (US 27) - Levy Co. Line to CR 326
FM#: 238641
Date: September, 2002
Impacts: 2.37 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: 0.45 acre - Ocklawaha, 1.50 acres - Peace Basin
Mitigation: Ocklawaha - Lake Lowery Tract (SW 76)
Peace – Lake Hancock 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, 5.7 acres - Peace Basin
Mitigation: Ocklawaha – Defer to future, Potential Nomination – Lk. Lowery (SW 76)
Peace – Lake Hancock Reserve (SW 76)
Status: No revisions

Peace River Basin

Project: I-4, US 98 to SR 33 (Section 3-5)
FM#: 2012092
Date: October 2002
Impacts: 1.78 acres – Peace, 18.95 acres - Withlacoochee
Mitigation: Peace - Tenoroc/Saddle Creek Restoration (SW 47),
Withlacoochee – Hampton Tract (SW 59)
Status: -0.9 acre from 2004

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

Project: SR72 - 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: CR 633 (Ft. Green/Ona Rd.), Vandolah Rd. (Segment 2)
FM#: 1986381
Date: October 2000
Impacts: 7.22 acres
Mitigation: Boran Ranch Mitigation Bank (SW 53)
Status: No revisions

Project: CR 633 (Ft. Green/Ona Rd.),SR 64 to Vandolah (Seg. 3)
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 Widen Bridge over Peace River
FM#: 4046971
Date: January, 2002
Impacts: 3.55 acres
Mitigation: Peace River Rest. (SW 69), on-site mitig. for 0.8 imp. ac.
Little Pine Island Mit.Bank (SW 52), 2.75 impact ac.
Status: No revisions

Project: US 27 – Towerview Rd. to SR 540
FM#: 1975331
Date: June, 2003
Impacts: 3.99 acres
Mitigation: Lake Hancock Reserve (SW 66)
Status: +0.44 acre from 2004

Project: US 17 (SR 35) - Peace River to Tropicana Rd.
FM#: 1940931
Date: October 2002
Impacts: 4.42 acres
Mitigation: Lake Hancock 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: Lake Hancock Reserve (SW 66)
Status: No Revisions

Project: SR 60A (Van Fleet Drive), CR 555 to Broadway Avenue
FM#: 1971681
Date: September, 2002
Impacts: 0.46 acres
Mitigation: Lake Hancock Reserve (SW 66)
Status: No Revisions

Project: US 27 - SR 544 to Blue Heron Bay
FM#: 1976791
Date: June, 2003
Impacts: 1.5 acres, additional impacts in the Ocklawaha basin
Mitigation: Lake Hancock Reserve (SW 66)
Status: No revisions

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

Project: US 27 – SR 542 to CR 546
FM#: 1977071
Date: October, 2010
Impacts: 3.8 acres
Mitigation: Lake Hancock 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: Lake Hancock Reserve (SW 66)
Status: No revisions

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

Project: SR 559 – SR 655 (Recker Hwy.) to US 92
FM#: 1977012
Date: April, 2009
Impacts: 0.7 acre
Mitigation: Lake Hancock Reserve (SW 66)
Status: No revisions

Project: US 27 – CR 546 to SR 544
FM#: 4110391
Date: October, 2010
Impacts: 5.70 acres
Mitigation: Lake Hancock Reserve (SW 66)
Status: No revisions

Project: US 98 – Manor Drive to CR 540A
FM#: 4082682
Date: October, 2011
Impacts: 4.0 acres
Mitigation: Lake Hancock Reserve (SW 66)
Status: New project in 2005

Project: US 98 – CR 540A to SR 540
FM#: 4082683
Date: November, 2010
Impacts: 1.9 acres
Mitigation: Lake Hancock Reserve (SW 66)
Status: New project in 2005

Project: US 17 – Charlotte C.L. to SW Collins
FM#: 4154901
Date: June, 2009
Impacts: 4.42 acres
Mitigation: Lake Hancock Reserve (SW 66)
Status: New project in 2005

Project: US 17 – CR 760A to Heard Street
FM#: 1938982
Date: July, 2013
Impacts: 8.80 acres
Mitigation: Lake Hancock Reserve (SW 66)
Status: New project in 2005

Project: US 17 – SW Collins to CR 760A
FM#: 4178761
Date: July, 2014
Impacts: 1.70 acres
Mitigation: Lake Hancock Reserve (SW 66)
Status: New project in 2005

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: SR 55 (US 19) - 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 acres
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 62-5.1 Ac.), Cockroach Bay-Fresh (SW 56-0.8 Ac.), Cockroach Bay-Salt (SW 75-5.4 Ac.), Apollo Beach (SW 67-5.3Ac.)
Status: No revisions

Project: Interstate-275, Howard Franklin to Himes Avenue
FM#: 2583981 and 2583982
Date: December, 2006 & December, 2008
Impacts: 1.50 acres
Mitigation: Gateway Tract (SW 49)
Status: -1.1 acres from 2004

Project: SR 60, Courtney Campbell to Fish Creek
FM#: 2556301
Date: August, 2004
Impacts: 12.2 acres
Mitigation: Gateway Restoration (SW 45)
Status: 0.2 acre of seagrass impacts has on-site mitigation by DOT

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 – 8.3 acres), Cockroach Bay – Freshwater (SW 56 – 3.0 acres)
Status: +0.2 acre from 2004

Project: Ulmerton Road – US 19 to 49th Street
FM#: 2571391
Date: August, 2005
Impacts: 0.10 acre
Mitigation: Cockroach Bay – Saltwater (SW 76)
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: October, 2006
Impacts: 0.10 acre
Mitigation: Boyd Hill Nature Park (SW 71 – 0.1 ac.)
Status: No revisions

Project: CR 296 Connector, 40th St. to 28th St.
FM#: 2569941
Date: April, 2007
Impacts: 0.7 acre
Mitigation: Cockroach Bay – Freshwater (SW 56 – 3.1 ac.)
Status: No revisions

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 – 1.2 acres)
Boyd Hill Nature Park (SW 71 – 0.2 acre)
Status: -2.5 acres from 2004

Project: CR 296 at I-275 Interchange
FM#: 2569981
Date: November, 2007
Impacts: 3.0 acres
Mitigation: Transfer wetland impacts and associated mitigation from Cockroach Bay (SW 56) to Ekker Tract (SW 82)
Status: +1.9 acres from 2004

Project: Gandy Blvd. (SR 694), US 19 to 4th Street
FM#: 2569311
Date: December, 2013
Impacts: 0.6 acre
Mitigation: Boyd Hill Nature Park (SW 71)
Status: DOT transferred remaining acres to FM 2569312

Project: Tampa International Airport (TIA), Runway 17-35
FM#: 4143481
Date: November, 2007
Impacts: 27.90 acres
Mitigation: Bahia Beach (SW 78)
Status: -0.5 acre from 2004

Project: US 19 (SR 55) – Seville Dr. to SR 60
FM#: 2569491
Date: March, 2009
Impacts: 0.50 acre
Mitigation: Cockroach Bay- Freshwater (SW 56)
Status: No revisions

Project: SR 686 (Roosevelt) – Ulmerton Rd. to 40th St.
FM#: 2569951
Date: February, 2013
Impacts: 2.10 acres
Mitigation: Boyd Hill Nature Park (SW 71)
Status: No revisions

Project: I-75 (SR 93A) – SR 60 to I-75/I-4 Interchange
FM#: 2586621
Date: June, 2006
Impacts: 1.0 acre
Mitigation: Transfer wetland impacts and associated mitigation from Bahia Beach (SW 78) to Ekker Tract (SW 82)
Status: No revisions

Project: CR 296 Connector – Northbound I-275 (Ramp P) to Westbound SR 692
FM#: 2569942
Date: May, 2007
Impacts: 1.1 acres
Mitigation: Transfer wetland impacts and associated mitigation from Bahia Beach (SW 78) to Ekker Tract (SW 82)
Status: -0.4 acre from 2004

Project: US 19 (SR 55) – Whitney Rd. to Seville Drive
FM#: 2568811
Date: November, 2008
Impacts: 0.8 acre
Mitigation: Bahia Beach (SW 78)
Status: No revisions

Project: SR 686 (Roosevelt) – 49th St. Bridge to Ulmerton Rd.
FM#: 2569971
Date: October, 2009
Impacts: 0.3 acre
Mitigation: Defer mitigation selection to future years
Status: No revisions

Project: SR 688 (Ulmerton Rd.) – Long Branch to Wild Acres
FM#: 4091551
Date: January, 2013
Impacts: 1.8 acres
Mitigation: Transfer wetland impacts and associated mitigation from Boyd Hill Nature Park (SW 71) to Ekker Tract (SW 82)
Status: -0.5 acre from 2004

Project: Interstate-4 @ Selmon Expressway
FM#: 2584151
Date: October, 2009
Impacts: 1.4 acres
Mitigation: Bahia Beach (SW 78)
Status: +0.5 acre from 2004

Project: Dale Mabry Sidewalks
FM#: 4152341
Date: March, 2007
Impacts: 0.5 acre
Mitigation: Ekker Tract (SW 82)
Status: New project for 2005

Project: US 41, 15th Terrace to Bull Frog Creek
FM#: 4133991
Date: October, 2007
Impacts: 0.20 acre
Mitigation: Bahia Beach (SW 78)
Status: New project in 2005

Project: SR 60 (Adamo Drive) – US 301 to East of Falkenberg
FM#: 4055252
Date: October, 2011
Impacts: 2.0 acres
Mitigation: Ekker Tract (SW 82)
Status: New project in 2005

Project: Roosevelt Blvd. and 49th Street
FM#: 2569961
Date: December, 2011
Impacts: 3.11 acres
Mitigation: Defer mitigation selection to future years
Status: New project in 2005

Project: US 301, Sun City Center to Gibsonton Drive
FM#: 4154891
Date: August, 2008
Impacts: 5.0 acres
Mitigation: Ekker Tract (SW 82)
Status: New project in 2005

Project: Gandy Blvd. (SR 694), 9th Street to 4th Street North
FM#: 2569312
Date: June, 2014
Impacts: 4.3 acres
Mitigation: Ekker Tract (SW 82)
Status: New project in 2005

Project: Veteran's Expressway, Memorial Hwy. to Linebaugh Ave.
FM#: 4061511
Date: June, 2010
Impacts: 7.0 acres
Mitigation: Defer mitigation selection to future years
Status: New project in 2005

Project: Veteran's Expressway, Linebaugh Ave. to Dale Mabry
FM#: 4061511
Date: Undetermined, possibly 2014
Impacts: 5.0 acres
Mitigation: Defer mitigation selection to future years
Status: New project in 2005

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: November, 2007
Impacts: 0.30 acre
Mitigation: Ft. DeSoto Park (SW 70)
Status: No revisions

Project: US 19 (SR 55) – CR 490 (Yulee) to CR 44
FM#: 2571931
Date: October, 2006
Impacts: 0.09 acre
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: US 41 (SR 45) – Tower Rd. to Ridge Road
FM#: 2563241
Date: March, 2009
Impacts: 12.3 acres
Mitigation: Conner Preserve (SW 77)
Status: +3.7 acres from 2004

Project: SR 699 (Gulf Blvd.) – 192nd Avenue to Walsingham/Ulmerton Road
FM#: 2570831
Date: October, 2011
Impacts: 0.1 acre
Mitigation: Ft. DeSoto Park (SW 70)
Status: No revisions

Project: SR 688 (Ulmerton Rd.) – Wild Acres to El Centro/Ranchero Road
FM#: 4091541
Date: September, 2011
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: July, 2013
Impacts: 0.4 acre
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: US 98 – CR 485 (Cobb Rd.) to CR 491 (Citrus Way)
FM#: 4050172
Date: September, 2011
Impacts: 0.1 acre
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: CR 485 (Cobb Rd.) - SR 50 to US 98
FM#: 2572992
Date: December, 2016
Impacts: 12.00 acres
Mitigation: Conner Preserve (SW 77)
Status: No revisions, impacts anticipated to substantially decrease

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 along SR 54
Status: No revisions

Project: CR 578 (County Line Rd.) – Suncoast Parkway to US 41
FM#: 2572985
Date: October, 2009
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: September, 2013
Impacts: 4.2 acres
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: US 41 (SR 45) – Gowers Corner to CR 578
FM#: 4113341
Date: November, 2007
Impacts: 0.5 acre
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: US 19 (SR 55) – Green Acres to Jump Ct.
FM#: 4058222
Date: November, 2012
Impacts: 0.24 acre
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: CR 578 (County Line Rd.) – US 19 to East Rd.
FM#: 2572982
Date: Undetermined construction
Impacts: 0.5 acres
Mitigation: Conner Preserve (SW 77)
Status: No revisions

Project: US 19 (SR 55) – Sunray Blvd. to Mariner Blvd.
FM#: 4064741
Date: March,2007
Impacts: 0.10 acre
Mitigation: Conner Preserve (SW 77)
Status: New project for 2005

Project: US 19 (SR 55), West Jump Court to CR 44
FM#: 4059223
Date: September, 2013
Impacts: 2.80 acres
Mitigation: Defer mitigation selection to future years
Status: New project for 2005

Project: SR 50, Mariner to Suncoast
FM#: 4079512
Date: April, 2014
Impacts: 0.10 acre
Mitigation: Defer mitigation selection to future years
Status: New project for 2005

Project: Suncoast Parkway 2
FM#: 4052701
Date: July, 2011
Impacts: 16.0 acres
Mitigation: Defer mitigation selection to future years
Status: New project for 2005

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

Project: SR 45 (US 41) – 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: January, 2013
Impacts: 0.70 acre
Mitigation: Baird Tract (SW 64)
Status: No revisions

Project: SR 200 – US 41 to Marion County Line
FM#: 2571882
Date: June, 2011
Impacts: 5.0 acres
Mitigation: Defer mitigation selection to future plans
Status: No revisions

Select Year: 2005 Go

The 2005 Florida Statutes

Title XXVIII	Chapter 373	View Entire Chapter
NATURAL RESOURCES; CONSERVATION, RECLAMATION, AND USE	WATER RESOURCES	

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.

[1]**Note.**--

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.

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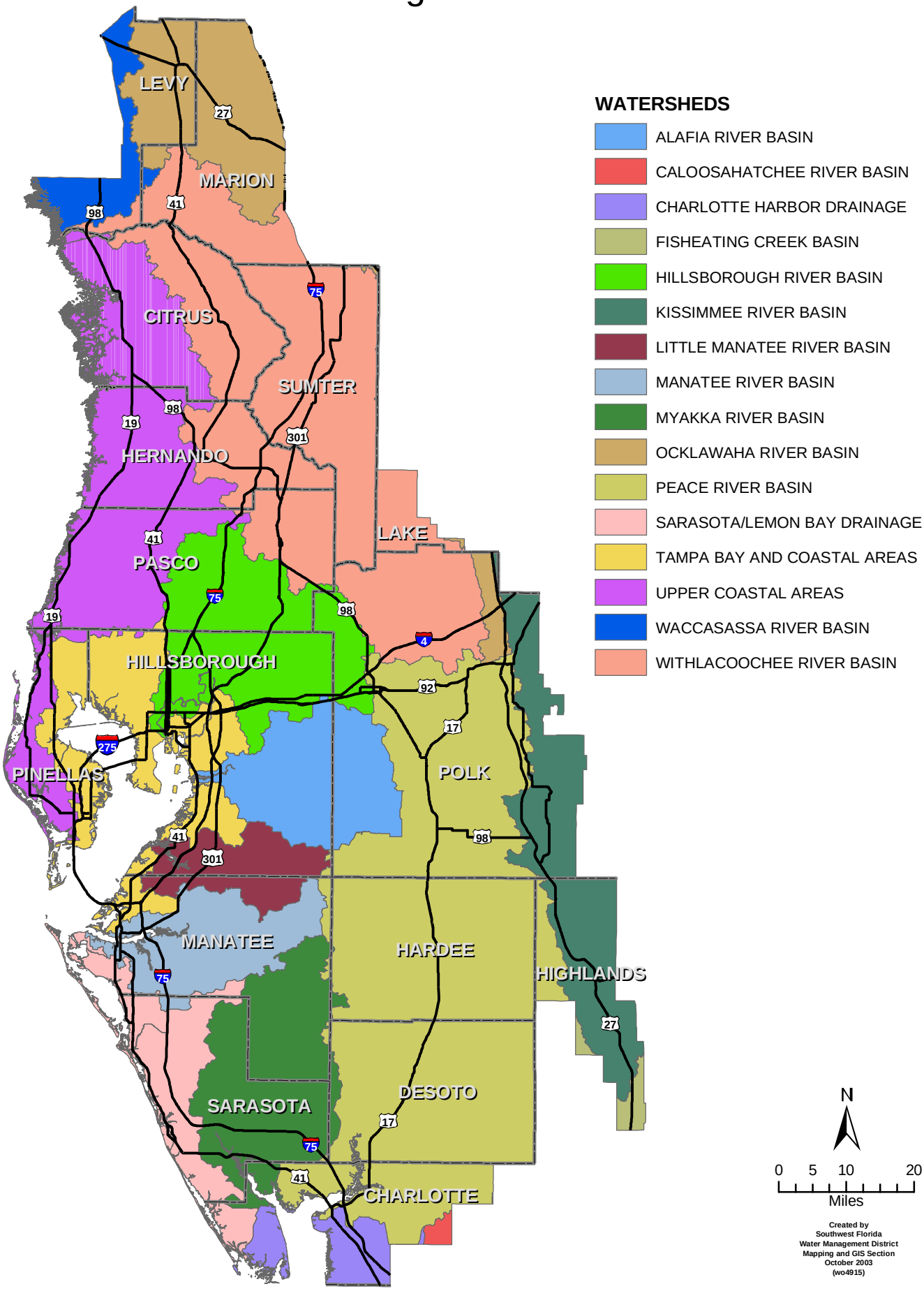
ERP Watersheds/Basins in the S.W.F.W.M.D.

Figure 1



FDOT Wetland Impact Inventory
(District 1)
Anticipated Construction Commencement
2004-2009
Figure 2

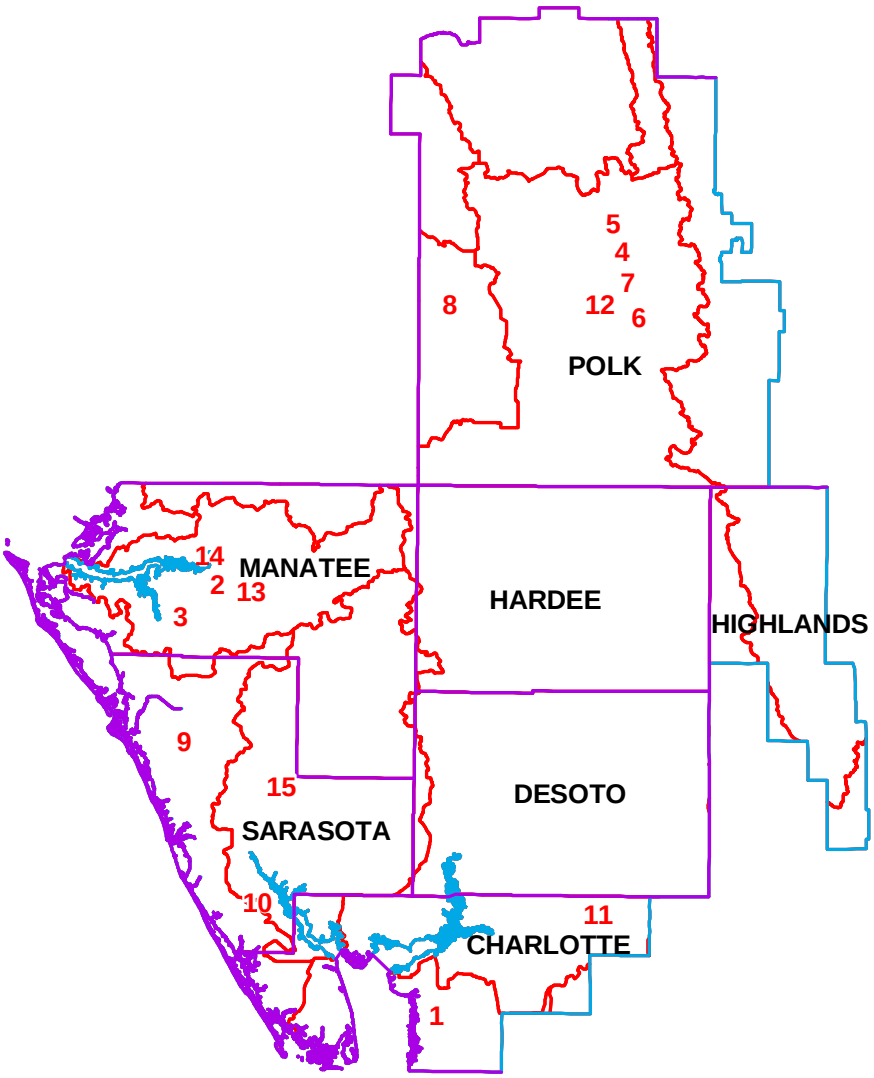


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FIGURE 2 – FDOT Project Location
FDOT Wetland Impact Inventory (District 1 – 15 Projects)
Anticipated Construction Commencement Dates – 2005 through 2010

Map#	County	Project Number & Name	Const.
1	Charlotte	1120082 - CR 765A Bridge Replacement	Oct -2005
2	Manatee	1960223 - SR 64 – Lena to Lakewood (Seg.2)	Sept -2007
3	Manatee	4043231 - SR 70 – Lakewood to Lorraine (Seg.1)	Sept -2005
4	Polk	1976021 - US 27 – SR 540 to SR 542	Oct -2009
5	Polk	1976721 - US 27 – SR 542 to SR 546	June - 2009
6	Polk	1977051 -US 27 – SR 60 to Towerview Blvd.	July – 2006
7	Polk	4110391 – US 27 – SR 546 to SR 544	Oct – 2010
8	Polk	1973941 – SR 563 – Pipkin Rd. to SR 572	Oct – 2008
9	Sarasota	4063142 – I-75 – N. River Rd. to SR 681	Oct – 2009
10	Sarasota	1980101 – Englewood Connector (Charlotte Co. to I-75)	Undetermined
11	Charlotte	1973503 – SR 31 – SR 74 to Charlotte Co.	May – 2005
12	Polk	1977012 – SR 559 – SR 655 to US 92	April – 2009
13	Manatee	1960224 – SR 64 – Lakewood to Lorraine (Seg.3)	Sept – 2006
14	Manatee	1996682 – Upper Manatee River, SR 64 to US 301	Sept – 2008
15	Sarasota	4138871 – SR 72, Myakka River to Big Slough	Oct –2005

FDOT Wetland Impact Inventory
(District 1, District 7, Turnpike)
Anticipated Construction Commencement
2004-2013
Figure 3

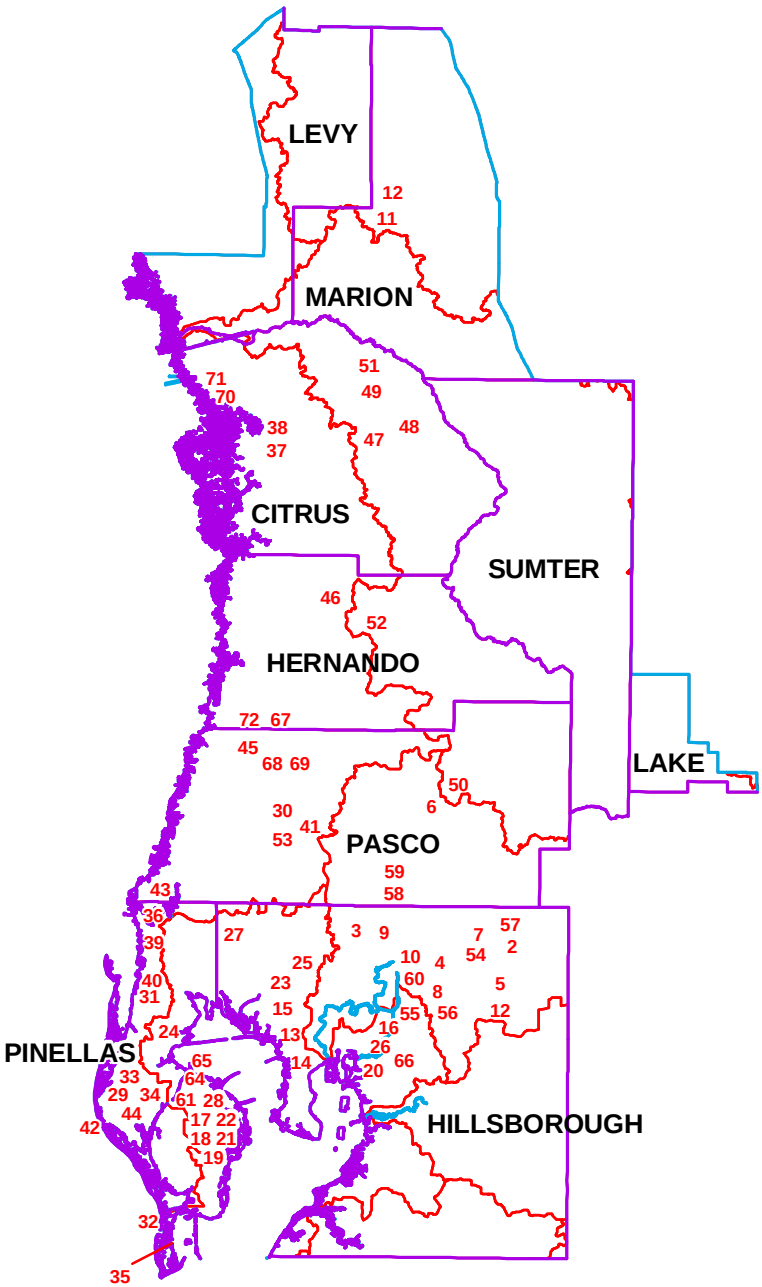

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FIGURE 3 – FDOT Project Location
FDOT Wetland Impact Inventory (District 5 – 2 Projects, District 7- 53 Projects, Turnpike – 1 Project)
Anticipated Construction Commencement Dates – 2004 through 2013

Map#	County	Project Number & Name	Const.
1	Hillsborough	2578391 - Alexander St.-US 92 to I-4	Sept -2004
2	Hillsborough	2584491 - Int.-4 at Alexander St. Ramp	Sept -2004
3	Hillsborough	2584131 - SR 93 (I-275) – US 41 to Pasco C.L.	Nov -2007
4	Hillsborough	4037601 - US 301 at McIntosh Road	Oct -2007
5	Hillsborough	2555851 - SR 39 – I-4 to Knights Griffin Rd.	Dec -2007
6	Hillsborough	4037801 - SR 52 - I-75 to Curley Rd.	March-2007
7	Hillsborough	4112771 - US 301-Holloman's Branch to Hills. C.L.	Oct -2005
8	Hillsborough	4084601 - I-75 @ CR 581 (BB Downs Blvd.)	Sept -2006
9	Hillsborough	4084593 - I-75 - CR 581 to SR 54	Nov -2009
10	Hillsborough	4084592 - I-75 - Fowler Ave. to CR 581	Nov -2009
11	Marion	2387621 - SR 40 – CR 225A to SW 52nd Ave.	Dec -2004
12	Marion	2387191 - SR 40 – CR 328 to SW 80th	June-2004
13	Hillsborough	2557031 - SR 60 – Cypress St. to Fish Creek	Aug -2004
14	Hillsborough	2583981 - I-275 – Howard Franklin to Himes Ave.	Dec -2006
15	Hillsborough	2556301 - SR 60 – Courtney Campbell to Fish Ck.	Aug -2004
16	Hillsborough	2558881 - US 301-Sligh Ave. to Tampa Bypass	Oct -2005
17	Pinellas	2571391 - Ulmerton Rd. – US 19 to 49th Street	Aug -2005
18	Pinellas	2570701 - US 19 – 49th St. to 118 Ave.	Oct -2006
19	Pinellas	2569941 - CR 296 Connector, 40th St. to 28th St.	April-2007
20	Hillsborough	2555991 - SR 676 (Causeway) – US 301 to US 41	Aug -2007
21	Pinellas	2569981 - CR 296 @ I-275 Interchange	Nov -2007
22	Pinellas	2569311 - Gandy Blvd. (SR 694)- US 19 to 4th St.	Dec -2013
23	Hillsborough	4143481 - Tampa Int. Airport (TIA), Runway 17-35	Nov -2007
24	Pinellas	2569491 - US 19 (SR 55) – Seville Dr. to SR 60	Nov -2007
25	Hillsborough	2583982 - I-275 – Howard Franklin to Himes Ave.	Nov -2008
26	Hillsborough	2558932 - SR 574(MLK Bld.)–Highview to Parsons	April-2008
27	Hillsborough	4052141 - Gunn Hwy. – Ehlich Rd. to Mobley Rd.	June-2004
28	Pinellas	2569951 - SR 686 (Roosevelt) – Ulmerton to 40th	June-2011
29	Pinellas	2570501 - SR 688 (Ulmerton)-Oakhurst to 119th	May-2004
30	Pasco	2563221 - SR 52 – Moon Lake to Suncoast Pkwy.	Feb –2006
31	Pinellas	2568151 - SR 586 (Curlew Rd.) – CR 1 to Fischer	July – 2004
32	Pinellas	4064741 - SR 699 (Gulf Bld.) – John's Pass Bridge	Oct – 2005
33	Pinellas	2571551 - SR 688 – 119th to Long Beach Canal	June – 2006
34	Pinellas	2571541 - SR 688 – El Centro/Ranchero to US 19	May – 2008
35	Pinellas	4107551 - SR 679(Bayway)–Intercoastal to Bridge	Nov – 2007
36	Pinellas	2571371 - US Alt. 19 – Meres Blvd. to Pasco C.L.	July – 2005
37	Pinellas	2571931 - US 19 – CR 490 (Yulee) to CR 44	Feb -2005
38	Pinellas	4089061 - US 19 – 3rd Ave. NE to NW 6th Ave.	Feb –2005
39	Pinellas	2570781 - US Alt. 19 – Harry St. to Meres Blvd.	Nov - 2005

Figure 3 (cont.) - Wetland Impact Inventory (District 7, Turnpike)

Map#	County	Project Number & Name	Const.
40	Pinellas	2568901 - US Alt. 19 – Sunset Pt. to Countryside	Aug – 2008
41	Pasco	2563241 - US 41– Tower Rd. to Ridge Rd.	Sept – 2009
42	Pinellas	2570831 - SR 699-192nd Ave. to Walsingham/Ulmer.	Nov – 2008
43	Pinellas	4037661 - Alt. US 19 – Pinellas C.L. to US 19	Nov – 2008
44	Pinellas	4091541 - SR 688 – Wild Ac. to El Centro/Ranchero	Nov – 2008
45	Pasco	2572983 - CR 578(C.L. Road)–East Rd. to Mariner	June – 2011
46	Hernando	4050172 - US 98-CR 485 (Cobb Rd.) to CR 491	Sept – 2011
47	Citrus	2571841 - US 41 – Watson St. to SR 44 East	Nov – 2004
48	Citrus	4092071 - CR 470 (Gospel Isle)	Nov – 2004
49	Pasco	2571651 - US 41 – SR 44 to SR 200	Nov – 2007
50	Pasco	4037811 - SR 52 – Curley Rd. to Smith Rd.	Nov – 2005
51	Citrus	2571882 - SR 200, US 41 to Marion County Line	June – 2011
52	Hernando	2572992 - CR 485 (Cobb Rd.) - SR 50 to US 98	Dec –2012
53	Pasco	2589581 - Suncoast Parkway / Ridge Rd. Interch.	Feb - 2005
54	Hillsborough	4067382 – I-4 Weigh State, Kingsway to Bakers Br.	April – 2007
55	Hillsborough	2557931 – US 301, Tampa Bypass to Fowler	Aug – 2009
56	Hillsborough	4113371 – US 92, Eureka Springs to Thonotasassa	July – 2007
57	Hillsborough	4089321 – SR 39 @ Hillsborough River	May – 2008
58	Pasco	4084594 – I-75 – Hills./Pasco Co. Line to CR 54	Oct – 2011
59	Pasco	2587362 – I-75 – CR 54 to SR 52	Undetermined
60	Hillsborough	2586621 – I-75 – SR 60 to I-75/I-4 Interchange	June - 2006
61	Pinellas	2569942 – CR 296 Connector, NB I-275 (Ramp P) to WB SR 692	May - 2007
62	Pinellas	2568812 – US 19 – Seville Dr. to SR 60	Dec – 2009
63	Pinellas	2568811 – US 19 – Whitney Rd. to Seville Dr.	Feb – 2010
64	Pinellas	2569971 – SR 686 – 49th St. Bridge to Ulmerton Rd.	Oct – 2009
65	Pinellas	4091551 – SR 688 – Long Branch to Wild Acres	Dec – 2009
66	Hillsborough	2557931 – I-4 to Crosstown Connector	Aug – 2009
67	Pasco	2572985 – CR 578 – Suncoast Parkway to US 41	Oct – 2009
68	Pasco	2563231 – SR 52 – Suncoast Parkway to US 41	April – 2014
69	Pasco	4113341 – US 41 – Gowers Corner to CR 578	Nov –2007
70	Citrus	4058224 – US 19 – Ft. Island Trail to NE 1st Terrace	Oct – 2008
71	Citrus	4058222 – US 19 – Green Acres to Jump Court	Oct – 2008
72	Pasco	2572982 – CR 578 – US 19 to East Road	Undetermined

FDOT Mitigation Projects

Figure 4

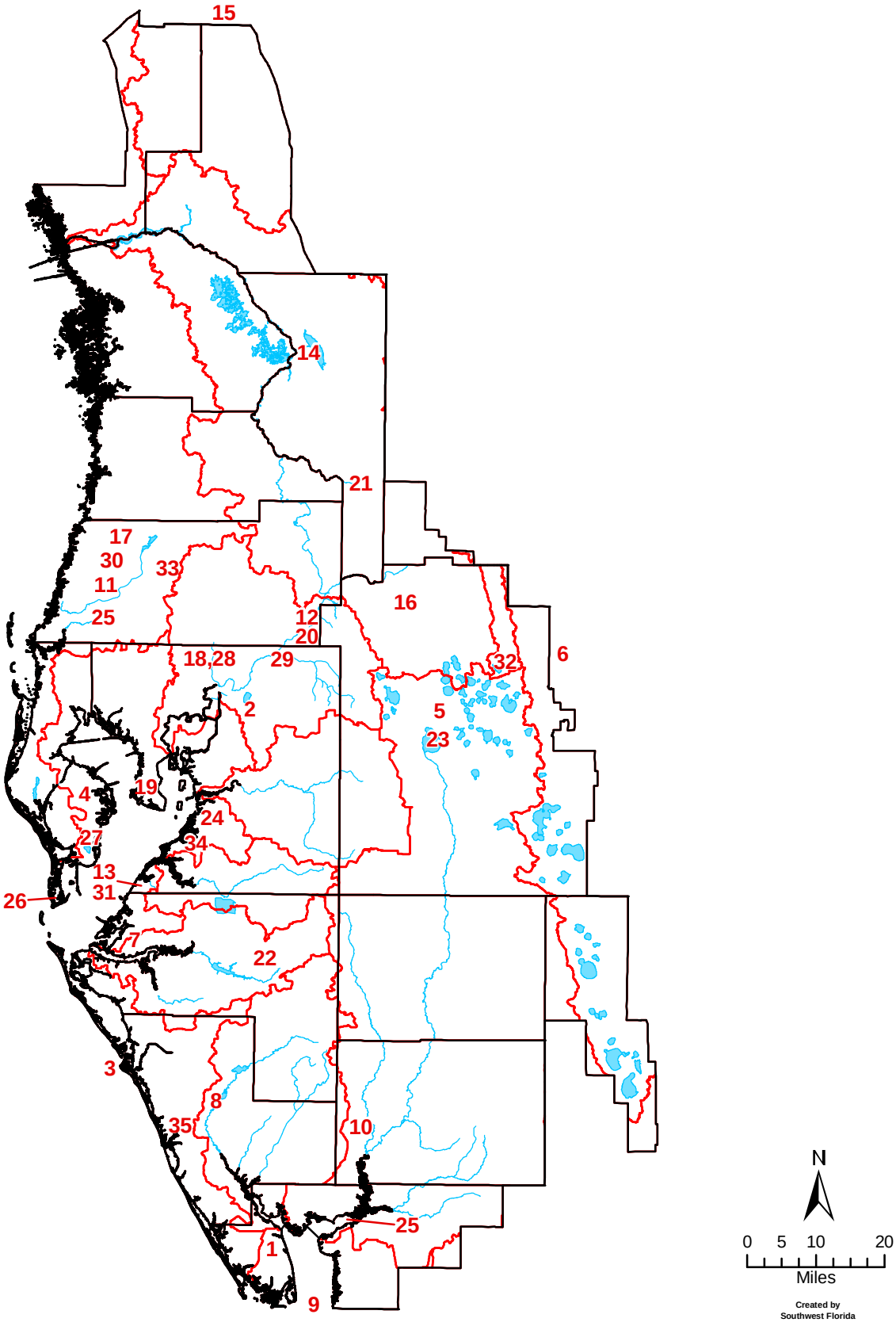

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FIGURE 4 - FDOT Mitigation Projects

1 SW 31 - Cattle Dock Point, Phase II (DEP / WMD – SWIM)
2 SW 34 - Lake Thonotasassa (WMD – SWIM / Hillsborough Co. Parks)
3 SW 38 - Quick Point Preserve (City of Longboat Key)
4 SW 45 - Gateway Restoration (Pinellas Co. / WMD – SWIM)
5 SW 47 - Tenoroc / Saddle Creek (DEP / FFWCC)
6 SW 49 - Reedy Creek Mitigation Bank (Private Mitig. Bank)
7 SW 50 - Terra Ceia Restoration (DEP / WMD – SWIM)
8 SW 51 - Myakka River State Park (DEP - Parks)
9 SW 52 - Little Pine Island Mitigation Bank (Private Mitig. Bank)
10 SW 53 - Boran Ranch Mitigation Bank (Private Mitig. Bank)
11 SW 54 - Anclote Parcel (WMD – Land Resources)
12 SW 55 - Upper Hillsborough 4&5 (WMD – Land Resources)
13 SW 56 - Cockroach Bay, Freshwater (Hills. Co. Parks / WMD – SWIM)
14 SW 57 - Lk. Panasoffkee Restoration (WMD - SWIM)
15 SW 58 - Ledwith Lake (Alachua County)
16 SW 59 - Hampton Tract (WMD – Land Resources)
17 SW 60 - Serenova Extension (WMD - Land Resources)
18 SW 61 - Cypress Ck. Preserve, Jennings Tract (Hills. County Parks)
19 SW 62 - Tappan Tract (City of Tampa / WMD – SWIM)
20 SW 63 - Hillsborough River Corridor (WMD - Land Resources)
21 SW 64 - Baird Tract (DEP / DOF)
22 SW 65 - Rutland Ranch (WMD - Land Resources)
23 SW 66 - Lk. Hancock Reserve (Polk County / WMD – Land Res.)
24 SW 67 – Apollo Beach (Hills Co. Parks / WMD – SWIM)
25 SW 69 – Peace River Bridge Restoration (DOT/ WMD)
26 SW 70 - Fort DeSoto Park (Pinellas County / WMD – SWIM)
27 SW 71 - Boyd Hill Nature Park (City of St. Petersburg)
28 SW 72 - Cypress Creek Preserve, Greer Tract (Hills. County Parks)
29 SW 73 – Hillsborough River State Park (DEP-Parks / WMD)

FIGURE 4 - FDOT MITIGATION PROJECTS (Cont.)

30 SW 74 - Serenova Preserve, Sites 2,3,4,8 (WMD – Land Resources)

31 SW 75 – Cockroach Bay – Saltwater (Hills. Co. Parks / WMD-SWIM)

32 SW 76 - Lake Lowery Tract (Polk Co. / WMD – Land Resources)

33 SW 77 – Conner Preserve (WMD – Land Resources)

34 SW 78 - Bahia Beach (Hills. Co. Parks / WMD-SWIM)

35 SW 79 – Fox Creek Regional Mitigation Project (Sarasota County)

36 SW 80 – Hidden Harbor (Manatee County / WMD)

37 SW 81 – Ekker Tract (Hills. Co. Parks / WMD-SWIM)

38 SW 82 - Balm Boyette (Hills. Co. Parks & EPC / WMD-SWIM)

Table 1. FDOT WETLAND IMPACT INVENTORY

Mitig. Transfer> **<Deferred Mitig.** **From Previous Plans**
New DOT Proj.> **<Deferring Mitig.** **To Future Plans**

Update - January, 2006

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	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
04	1	Polk	Alafia River	1973941	Oct., 2008	SR 563 - Pipkin Rd. to SR 572 (Drane Field Rd.)														5.30										5.30	Hills. Co. Parks (ELAPP) SW 82 - Balm Boyette	deferred mitigation selection from 2004
1						**SUBTOTAL BY BASIN:**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**5.30**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**5.30**	5.30	
02	1	Charlotte	Charlotte Harbor	1120082	Oct., 2005	CR 765A Bridge Replacement								0.03										0.11						0.14	Private Mit. Bank SW 52 - L. Pine Island Mit. Bank	no revisions
1						**SUBTOTAL BY BASIN:**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.14**	0.14	
96	1	Polk	Hillsbor. River	2012081	Oct., 1997	I-4 - County Line to Memorial Blvd. -Sec. 1										6.57							6.98							13.55	WMD - LAND SW 55 - U.H. 4&5	no revisions
97	7	Pasco	Hillsbor. River	2563431	Oct., 2000	SR 54 - US 41 to Cypress Creek									0.80			4.10	4.60				4.70							14.20	WMD- SWIM SW 34 - Lk. Thonotassassa	no revisions
97	7	Pasco	Hillsbor. River	2563151	June, 2001	US 41- Bell Lake to Tower Road													1.10											1.10	WMD - LAND SW 63 - Hills. River Corridor	no revisions
98	7	Hillsborough	Hillsbor. River	2578071	Oct., 1999	Bruce B. Downs Bike Path Amberly Dr. - Hunter's Green											0.40						0.10							0.50	Hills. Co. Parks (ELAPP) SW 61 - Jennings Tract	no revisions
98	1	Polk	Hillsbor. River	2012172	Sept., 2002	I-4 West of Memorial Blvd. to west of US 98 - Sec. 2		1.70						1.80		0.80														4.30	Hills. Co. Parks (ELAPP) SW 61 - Jennings Tract	no revisions
99	7	Hillsborough	Hillsbor. River	2555361	Aug., 2001	SR 39, Blackwater Creek Bridge Replacement								1.40									0.70							2.10	Hills. Co. Parks (ELAPP) SW 61 - Jennings Tract	no revisions
00	7	Pasco	Hillsbor. River	2587341	July, 1999	SR 56, Cypress Creek to CR 581 (B.B. Downs)													5.20				0.10							5.30	Hills. Co. Parks (ELAPP) SW 61 - Jennings Tract	no revisions
00	7	Hillsborough	Hillsbor. River	2578072	Feb., 2002	Bruce B. Downs Bike Path Tampa Limits to Amberly Dr.					0.20																			0.20	Hills. Co. Parks (ELAPP) SW 61 - Jennings Tract	no revisions
00	7	Hillsborough	Hillsbor. River	2558591	Nov., 2002	SR 678 (Bearss Ave.) Florida Ave. to Nebraska											0.10													0.10	Hills. Co. Parks (ELAPP) SW 61 - Jennings Tract	no revisions
00	7	Hillsborough	Hillsbor. River	2578391	Sept., 2004	Alexander Street US 92 to Interstate 4										2.60														2.60	Hills. Co. Parks (ELAPP) SW 61 - Jennings Tract	no revisions
00	7	Hillsborough	Hillsbor. River	2584491	Sept., 2004	Interstate 4 (SR 400) at Alexander Street Ramp										1.70														1.70	Hills. Co. Parks (ELAPP) SW 61 - Jennings Tract	no revisions
00	7	Hillsborough	Hillsbor. River	2584131 2584132	Nov., 2007	SR 93 (Interstate-275) US 41 to Pasco Co. Line					4.60								0.20	0.10		0.70	2.00							7.60	Hills. Co. Parks (ELAPP) SW 61 - Jennings Tract	no revisions
01	7	Hillsborough	Hillsbor. River	4084602	Dec., 2001	I-75 Off-Ramp at CR 581													0.50											0.50	Hills. Co. Parks (ELAPP) SW 61 - Jennings Tract	no revisions
02	7	Hillsborough	Hillsbor. River	4037601	March, 2007	US 301 (SR 41) at McIntosh Road										0.50														0.50	DEP / WMD - ENVIRON. SW 73 - Hills. River State Park	Addit. 0.3 acres mitigated on-site mitig. by DOT
02	7	Hillsborough	Hillsbor. River	2555851	Oct., 2010	SR 39 (Alexander St) I-4 to Knights Griffin Rd.										4.90														4.90	Hills. Co. Parks (ELAPP) SW 72 - Greer Tract	Addit. 9.3 ac. Mit. By FDOT On-Site & Vicker's Swamp
03	7	Hillsborough Pasco	Hillsbor. River	4084593	Nov., 2009	I-75 (SR 93A) CR 581 (BB Downs) to CR 54								0.10		0.30			0.90	0.40		0.20								1.90	Defer mitigation selection to future plans	Potential mitig. by FDOT no revisions
03	7	Hillsborough	Hillsbor. River	4084592	March, 2009	I-75 (SR 93A) Fowler Avenue to CR 581								0.10					0.50			4.50								5.10	Defer mitigation selection to future plans	Potential mitig. by FDOT no revisions
04	7	Hillsborough	Hillsbor. River	4067382	April, 2007	I-4 (SR 400) Weigh Station (WIM) Kingsway to Bakers Branch																					1.70			1.70	Defer mitigation selection to future plans	Potential mitig. by FDOT no revisions
04	7	Hillsborough	Hillsbor. River	2557931	Oct., 2009	US 301 (SR 41) Tampa Bypass to Fowler											0.10						0.30							0.40	Hills. Co. Parks (ELAPP) SW 72 - Greer Tract	Addit. Impacts in T.B. basin no revisions
04	7	Hillsborough	Hillsbor. River	4113371	July, 2007	US 92 Eureka Springs to Thonotasassa Rd.					1.60						0.33					0.48	0.28							2.69	Hills. Co. Parks (ELAPP) SW 72 - Greer Tract	Addit. Impacts in T.B. basin +1.09 acres from 2004
04	7	Hillsborough	Hillsbor. River	4089321	May, 2008	SR 39 @ Hillsborough River										1.50							0.30							1.80	Mitigation Nomin. By FDOT (Alexander St. North & South)	Potential mitig. by FDOT no revisions
04	7	Pasco	Hillsbor. River	4084594	Jan., 2011	I-75 (SR 93A) Hills./Pasco Co. Line S. of CR 54											1.50		4.00	5.00			0.10							10.60	Defer mitigation selection to future plans	Potential mitig. by FDOT no revisions
04	7	Pasco	Hillsbor. River	2587362	Oct., 2012	I-75 (SR 93A) CR 54 to SR 52										1.00			1.00	3.00			0.20							5.20	Defer mitigation selection to future plans	Potential mitig. by FDOT no revisions
05	7	Hillsborough	Hillsbor. River	2478622	Aug., 2009	Park Road I-4 (SR 400) to Sam Allen Road																	0.50							0.50	Defer mitigation selection to future plans	Potential mitig. by FDOT 2005, new project
05	7	Hillsborough	Hillsbor. River	2564222	Jan., 2012	US 301 (SR 41) SR 39 to South of CR 54																		0.10						0.10	Defer mitigation selection to future plans	Potential mitig. by FDOT 2005, new project
05	7	Pasco	Hillsbor. River	2562432	July, 2014	SR 52, CR 581 to Old Pasco Road																	0.80							0.80	Defer mitigation selection to future plans	Potential mitig. by FDOT 2005, new project
05	7	Hillsborough	Hillsbor. River	2578623	June, 2014	Sam Allen Road, Alexander St. to Park Rd.										0.90							0.80							1.70	Defer mitigation selection to future plans	Potential mitig. by FDOT 2005, new project
05	7	Pasco	Hillsbor. River	4165611	Undetermined	SR 54, I-75 to US 301																								0.00	Defer mitigation selection to future plans	No impact information 2005, new project
29						**SUBTOTAL BY BASIN:**	**0.00**	**1.70**	**0.00**	**0.00**	**6.40**	**0.00**	**0.00**	**3.40**	**0.80**	**20.77**	**2.43**	**4.10**	**18.00**	**8.50**	**0.00**	**5.88**	**17.86**	**0.10**	**0.00**	**0.00**	**1.70**	**0.00**	**0.00**	**91.64**	91.64	
97	1	Highlands	Kissimmee River	1945101	Sept., 2001	US 27 - Lake Glenada to Hal McRae						0.05										0.34								0.39	Private Mit. Bank SW 49 - Reedy Ck. Mitig. Bank	no revisions
01	1	Polk	Kissimmee River	2012041	Sept., 2002	I-4, East of CR 557 to Osceola County (Sec. 6-7.9)										1.53						0.11	0.71							2.35	Private Mit. Bank SW 49 - Reedy Ck. Mitig. Bank	Addit. Impacts in Withlac. & Ocklawaha Basins
05	1	Highlands	Kissimmee River	4067401	Oct., 2007	US 27 Weigh-In-Motion Station Site 2A						4.00												6.70			14.30			25.00	Defer mitigation selection to future plans	2005, new project
3	**1**					**SUBTOTAL BY BASIN:**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.05**	**0.00**	**0.00**	**0.00**	**1.53**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.45**	**0.71**	**6.70**	**0.00**	**0.00**	**14.30**	**0.00**	**0.00**	**27.74**	27.74	
05	7	Hillsborough	Little Manatee	4113331	June, 2008	SR 674 - CR 589 to Katie Stanaland Road														0.20			0.30							0.50	Defer mitigation selection to future plans	2005, new project
1						**SUBTOTAL BY BASIN:**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.20**	**0.00**	**0.00**	**0.30**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.50**	0.50	
97	1	Sarasota	Lower Coastal	1979421	June, 2001	SR 789 - Ringling Causeway Blvd																							0.27	0.27	City of Longboat Key SW 38 - Quick Point Preserve	no revisions
97	1	Sarasota	Lower Coastal	1980051	Sept., 2000	US 41 Bus. (SR 45) Venice Ave. to US 41 Bypass							0.32																	0.32	City of Longboat Key SW 38 - Quick Point Preserve	no revisions
04	1	Sarasota	Lower Coastal	4063143	Oct., 2009	I-75 - N. River Rd. (CR 577) to SR 681			0.10												4.00		13.30				0.80			18.20	Sarasota Co. SW 79 - Fox Creek ROMA	Addit. Impacts in Myakka +3.5 acres from 2004
04	1	Sarasota	Lower Coastal	1980101	Oct., 2006	US 301 - Wood St. to University Avenue		0.03			0.01									0.03			0.05							0.12	Sarasota Co. SW 79 - Fox Creek ROMA	no revisions
04	1	Sarasota	Lower Coastal	2006101	Undetermined	Englewood Connector Charlotte C.L. to I-75																					2.01			2.01	Defer mitigation selection Probable Nomin. - Myakka S.F.	Addit. Impacts in Myakka no revisions
05	1	Sarasota	Lower Coastal	1980172	Nov., 2010	US 41 (Venice Bypass) Center Rd. to US Bus. 41 North																				0.20				0.20	Defer mitigation selection Nomin. - Myakka State Forest	2005, new project
6	**2**					**SUBTOTAL BY BASIN:**	**0.00**	**0.03**	**0.10**	**0.00**	**0.01**	**0.00**	**0.32**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.03**	**4.00**	**0.00**	**13.35**	**0.00**	**0.00**	**0.20**	**2.81**	**0.00**	**0.27**	**21.12**	21.12	

Table 1. FDOT WETLAND IMPACT INVENTORY

Update - January, 2006

Mitig. Transfer> **<Deferred Mitig.** **From Previous Plans**

New DOT Proj.> **<Deferring Mitig.** **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	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
98	1	Manatee	Manatee River	1960581	Oct., 2000	US 301 (Ellenton) 60th Ave. to Erie Road							0.18				0.41													0.59	WMD - SWIM / DEP SW 50 - Terra Ceia	no revisions
01	1	Manatee	Manatee River	1960221	Dec., 2001	SR 64 - I-75 to Lena Rd. (Seg. 1)										0.68						1.29	0.45							2.42	WMD - LAND SW 65 - Rutland Ranch	no revisions
02	1	Manatee	Manatee River	1960223	Sept., 2006	SR 64 - Lena Rd. to Lakewood (Seg. 2)														0.30			0.50							0.80	WMD-LAND SW 65 - Rutland Ranch	no revisions
02	1	Manatee	Manatee River	1961211	July, 2005	SR 70 - I-75 to Lakewood Ranch Rd. (Seg. 1)																	0.90							0.90	WMD-LAND SW 65 - Rutland Ranch	no revisions
02	1	Manatee	Manatee River	4043231	Sept., 2004	SR 70 - Lakewood Ranch to Lorraine Road (Seg. 2)								2.10								1.70								3.80	WMD-LAND SW 65 - Rutland Ranch	no revisions
04	1	Manatee	Manatee River	1960224	Sept., 2006	SR 64 - Lakewood Ranch to Lorraine (Seg. 3)														3.50			0.50							4.00	Manatee County SW 80 - Hidden Harbour	no revisions
04	1	Manatee	Manatee River	1996682	Sept., 2008	Upper Manatee River Rd. SR 64 to US 301														3.50	0.30		2.10	0.10					0.30	6.30	Manatee County SW 80 - Hidden Harbour	no revisions
7						**SUBTOTAL BY BASIN:**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.18**	**2.10**	**0.00**	**0.68**	**0.41**	**0.00**	**0.00**	**7.30**	**0.30**	**2.99**	**4.45**	**0.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.30**	**18.81**	18.81	
97	1	Charlotte	Myakka River	1937941	July, 1999	SR 776 - CR 771 to Willow Bend Road			2.20	2.08			3.10					1.38						2.14						10.90	SW 52 - Pine Is.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		2.50			0.50									0.50			2.50	0.50						6.50	DEP - PARKS SW 51 - Myakka River State Park	+1.5 acres from 2004
04	1	Sarasota	Myakka River	4063143	Oct., 2009	I-75 - N. River Rd. (CR 577) to SR 681		0.30																						0.30		Addit. Impacts in L. Coastal no revisions Defer mitigation selection
04	1	Sarasota	Myakka River	2006101	Undetermined	Englewood Connector Charlotte C.L. to I-75		2.14					0.88	0.04									1.89	4.30			0.63			9.88	Defer mitigation selection Probable Mitig. by Sarasota Co.	Addit. Impacts in L. Coastal no revisions
6	**1**					**SUBTOTAL BY BASIN:**	**0.00**	**4.94**	**2.20**	**2.08**	**0.50**	**0.00**	**3.10**	**0.30**	**0.00**	**0.00**	**0.00**	**1.38**	**0.88**	**0.54**	**0.00**	**0.00**	**6.45**	**6.94**	**0.00**	**0.00**	**0.63**	**0.00**	**0.00**	**29.94**	**29.94**	
98	5	Marion	Ocklawaha River	238762	Dec., 2004	SR 40-CR 225A to SW 52nd Ave.										0.20														0.20	Alachua Co. SW 58 - Ledwith Lake	no revisions
97	5	Marion	Ocklawaha River	238641	Sept., 2002	SR 500 (US 27) Levy Co. Line to CR 326																2.37								2.37	Alachua Co. SW 58 - Ledwith Lake	no revisions
97	5	Marion	Ocklawaha River	238679	Sept., 1999	SR 500 (US 27) CR 464 to CR 225a																	1.09							1.09	Alachua Co. SW 58 - Ledwith Lake	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 Lake	no revisions
03	7	Polk	Ocklawaha River	1976791	June, 2003	US 27 SR 544 to Blue Heron Bay		0.02												0.44										0.46	Polk Co. / WMD-LAND SW 58 - Ledwith Lake	Addit. Imp. In Peace no revisions
03	7	Polk	Ocklawaha River	4038901	August, 2003	US 27 Blue Heron Bay to CR 547														1.90										1.90	Polk Co. / WMD-LAND SW 58 - Ledwith Lake	no revisions
03	7	Polk	Ocklawaha River	2012041	Sept., 2002	I-4, CR 557 to Osceola Co. Line (Sec. 6, 7, & 9)													0.59			3.76								4.35	Polk Co. / WMD-LAND SW 58 - Ledwith Lake	Addit. Imp. In With. & Kissim. no revisions
04	1	Polk	Ocklawaha River	4110391	Oct., 2010	US 27 CR 546 to SR 544																	1.00							1.00	Defer mitigation selection to future plans	Addit. Impacts in Peace no revisions
8	**3**					**SUBTOTAL BY BASIN:**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.20**	**0.00**	**0.00**	**0.59**	**2.34**	**0.00**	**6.13**	**2.17**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**11.45**	**11.45**	
96	1	Polk	Peace River	2012092	Oct., 2002	I-4, East of US 98 to East of CR 557 (Sec. 3-5)		0.20				1.68																		1.88	DEP/ FFWCC SW 47 - Tenoroc/Saddle Creek	no revisions
97	1	Hardee	Peace River	1986401	May, 1999	Ft. Green/Ona Road - Vandolah to SR 62 (Seg. 1)										2.08														2.08	Private Mit. 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 Mit. 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 Mit. 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							0.74							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						0.35		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										0.27	Private Mit. Bank SW 53 - Boran Ranch Mit. Bank	no revisions
98	1	Charlotte	Peace River	1984711	Oct., 2000	Trabue Harborwalk Bike Path				0.16																				0.16	Private Mit. Bank SW 52 - L.Pine Island Mit. Bank	no revisions
98	1	Hardee	Peace River	1986381	Oct., 2000	Ft. Green/Ona - Vandolah to North of Vandolah (Seg. 2)																	7.22							7.22	Private Mit. Bank SW 53 - Boran Ranch Mit. Bank	no revisions
98	1	Hardee	Peace River	1986371	Oct., 2003	Ft. Green/Ona - SR 64 to Vandolah Rd. (Seg. 3)								0.68		0.43						4.12								5.23	Private Mit. 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											3.00			0.30							3.60	Private Mit. 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																	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 Towerview Rd. to SR 540																3.90								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.														3.00		0.49	0.93							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											0.48			6.92		0.59	0.20	3.40						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										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			0.90							1.50	Polk Co. / WMD - LAND SW 66 - Circle B Bar Reserve	Addit. Impacts in Ocklawaha no revisions
02	1	Polk	Peace River	1977061	Oct., 2011	US 27 SR 540 to SR 542		0.02			0.08					0.01					0.44		1.22							1.77	Polk Co. / WMD - LAND SW 66 - Circle B Bar Reserve	no revisions
02	1	Polk	Peace River	1977071	Oct., 2010	US 27 SR 542 to CR 546																	2.70					1.10		3.80	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 Towerview Blvd.		0.01				0.18																		0.19	Polk Co. / WMD-LAND SW 66 - Circle B Bar Reserve	no revisions
04	1	Polk	Peace River	1977012	April, 2009	SR 559 SR 655 (Recker Hwy.) to US 92																	0.60	0.10						0.70	Polk Co. / WMD-LAND SW 66 - Circle B Bar Reserve	no revisions
04	1	Polk	Peace River	4110391	Oct., 2010	US 27 CR 546 to SR 544															0.80		3.10	1.80						5.70	Polk Co. / WMD-LAND SW 66 - Circle B Bar Reserve	Addit. Impacts in Ocklawaha no revisions
05	1	Polk	Peace River	4082682	July, 2011	US 98 Manor Drive to CR 540A														3.00								1.00		4.00	Polk Co. / WMD-LAND SW 66 - Circle B Bar Reserve	2005, new project
05	1	Polk	Peace River	4082683	Nov., 2010	US 98 CR 540A to SR 540																						1.90		1.90	Polk Country / WMD-LAND SW 66 - Circle B Bar Reserve	2005, new project
05	1	Desoto	Peace River	4154901	June, 2009	US 17 Charlotte C.L. to SW Collins								3.20									1.22							4.42	Polk Co. / WMD - LAND SW 66 - Circle B Bar Reserve	2005, new project
05	1	Desoto	Peace River	1938982	July, 2013	US 17 CR 760A to Heard Street								5.00									1.00				2.80			8.80	Defer mitigation selection to future plans	2005, new project
05	1	Desoto	Peace River	4178761	July, 2014	US 17 SW Collins to CR 760A																	0.20				1.50			1.70	Defer mitigation selection to future plans	2005, new project
28	**1**					**SUBTOTAL BY BASIN:**	**0.00**	**0.23**	**0.30**	**0.16**	**0.67**	**2.19**	**3.55**	**14.87**	**0.00**	**3.87**	**0.48**	**0.00**	**0.00**	**17.25**	**1.24**	**9.16**	**20.79**	**5.30**	**0.00**	**0.00**	**4.30**	**4.35**	**0.00**	**88.71**	88.71	

Table 1. FDOT WETLAND IMPACT INVENTORY

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

Update - January, 2006
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	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		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 2583982	Aug., 2006	Inter.-275, Howard Franklin to Himes Ave.							0.70											0.80						1.50	WMD - SWIM / Pinellas Co. SW 45 - Gateway Tract	-1.2 acres from 2004
00	7	Hillsborough	Tampa Bay	2556301	Aug., 2004	SR 60, Courtney Campbell to Fish Creek				3.70			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 Avenue 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)	+0.2 acre from 2004
01	7	Pinellas	Tampa Bay	2571391	Sept., 2005	Ulmerton Road, 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 Bayshore											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	April, 2007	CR 296 Connector 40th St. to 28th St.																					0.70			0.70	WMD-SWIM / Hills. Co. SW 56 - Cockroach Bay (Fresh)	no revisions
02	7	Hillsborough	Tampa Bay	2555991	Aug., 2007	SR 676 (Causeway Blvd.) US 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)	-2.5 acres from 2004
02	7	Pinellas	Tampa Bay	2569981	October, 2010	CR 296 at I-275 Interchange												1.90				0.10					1.00			3.00	WMD - SWIM / Hills. Co. SW 81 - Ekker Tract	mitigation transfer +1.9 acres from 2004
02	7	Pinellas	Tampa Bay	2569311	Dec., 2013	Gandy Blvd. (SR 694) US 19 to 4th St.			0.50															0.10						0.60	City of St. Petersburg SW 71 - Boyd Hill Nature Park	transfer remaining acres to FM 2569312
03	7	Hillsborough	Tampa Bay	4143481	Nov., 2007	Tampa International Airport (TIA) Runway 17-35 & Runway Safety Zone	3.40				0.10		0.40			8.50		2.80	0.30	1.50		3.40	0.40	6.30	0.80					27.90	WMD-SWIM / Hills. Co. SW 78 - Bahia Beach	-0.5 acre from 2004
03	7	Pinellas	Tampa Bay	2568812	March, 2009	US 19 (SR 55) Seville Dr. to SR 60																					0.50			0.50	WMD-SWIM / Hills. Co. SW 56 - Cockroach Bay (Fresh)	no revisions
03	7	Pinellas	Tampa Bay	2569951	Feb., 2013	SR 686 (Roosevelt) Ulmerton Rd. to 40th St.	0.50		0.30								0.40	0.10					0.60	0.20						2.10	City of St. Petersburg SW 71 - Boyd Hill Nature Park	no revisions
04	7	Hillsborough	Tampa Bay	2586621	June, 2006	I-75 (SR 93A) SR 60 to I-75/I-4 Interchange																	1.00							1.00	WMD-SWIM / Hills. Co. SW 81 - Ekker Tract	mitigation transfer no revisions
04	7	Pinellas	Tampa Bay	2569942	Feb., 2007	CR 296 Connector NB I-275 (Ramp P) to WB SR 692																					1.10			1.10	WMD-SWIM/Hills. Co. SW 81 - Ekker Tract	mitigation transfer -0.4 acre from 2004
04	7	Pinellas	Tampa Bay	2568811	Nov., 2008	US 19 (SR 55) Whitney Rd. to Seville Dr.							0.80																	0.80	WMD-SWIM/Hills. Co. SW 78 - Bahia Beach	no revisions
04	7	Pinellas	Tampa Bay	2569971	Oct., 2009	Roosevelt Blvd. - 49th St. Bridge to Ulmerton Rd.																	0.20	0.10						0.30	Defer mitigation selection to future plans	Goes with FM 2569961 no revisions
04	7	Pinellas	Tampa Bay	4091551	Jan., 2013	SR 688 (Ulmerton Rd.) Long Branch to Wild Acres	1.50		0.30																					1.80	WMD-SWIM/Hills. Co. SW 81 - Ekker Tract	mitigation transfer -0.5 acre from 2004
04	7	Hillsborough	Tampa Bay	2557931	Aug., 2009	US 301 (SR 41) Tampa Bypass to Fowler											0.10													0.10	WMD-SWIM/Hills. Co. SW 81 - Ekker Tract	Addit. Impacts in Hills. Basin no revisions
04	7	Hillsborough	Tampa Bay	4113371	July, 2007	US 92 Eureka Springs to Thonotasassa Rd.					0.02						0.02					0.17	0.69							0.90	WMD-SWIM/Hills. Co. SW 81 - Ekker Tract	Addit. Impacts in Hills. Basin Mitig. at Greer Tract
04	7	Hillsborough	Tampa Bay	2584151	October, 2009	I-4 (SR 400) @ Selmon Expressway	0.50						0.90																	1.40	WMD-SWIM/Hills. Co. SW 78 - Bahia Beach	+0.5 acre from 2004
05	7	Hillsborough	Tampa Bay	4152341	March, 2007	Dale Mabry Sidewalks																		0.50						0.50	WMD-SWIM/Hills. Co. SW 81 - Ekker Tract	2005, new project
05	7	Hillsborough	Tampa Bay	4133991	Oct., 2007	US 41, I5 Terrace to Bull Frog Creek							0.10											0.10						0.20	WMD-SWIM/Hills. Co. SW 78 - Bahia Beach	2005, new project
05	7	Hillsborough	Tampa Bay	4055252	Oct., 2011	SR 60 (Adamo Drive) US 301 to East of Falkenburg											1.00			1.00										2.00	WMD-SWIM/Hills. Co. SW 81 - Ekker Tract	2005, new project
05	7	Pinellas	Tampa Bay	2569961 2569971	Dec., 2011	Roosevelt Blvd. and 49th St.							1.00											2.10						3.10	Defer mitigation selection to future plans	Goes with FM 2569971 2005, new project
05	7	Hillsborough	Tampa Bay	4154891	August, 2008	US 301, Sun City Center to Gibsonton Drive										2.20			0.80		0.90		1.10							5.00	WMD-SWIM/Hills. Co. SW 81 - Ekker Tract	2005, new project
05	7	Pinellas	Tampa Bay	2569312	June, 2014	Gandy Blvd. (SR 694) 9th Street to 4th Street North							0.10			0.30		3.90												4.30	Defer mitigation selection to future plans	2005, new project
05	8	Hillsborough	Tampa Bay	4061511	July, 2010	Veteran's Expressway Memorial Hwy. to Linebaugh Ave.													4.00				3.00							7.00	Defer mitigation selection to future plans	2005, new project
05	8	Hillsborough	Tampa Bay	4061511	Undetermined (possibly 2014)	Veteran's Expressway Linebaugh Ave. to Dale Mabry													4.00				1.00							5.00	Defer mitigation selection to future plans	2005, new project
39	**2**					**SUBTOTAL BY BASIN:**	**6.50**	**0.20**	**1.20**	**3.80**	**0.32**	**0.00**	**14.90**	**0.00**	**0.00**	**17.80**	**4.12**	**12.40**	**9.20**	**2.50**	**0.90**	**3.67**	**13.59**	**10.70**	**16.60**	**3.50**	**3.30**	**0.00**	**0.00**	**125.20**	125.20	

Table 1. FDOT WETLAND IMPACT INVENTORY

Mitig. Transfer> **<Deferred Mitig.** **From Previous Plans**
New DOT Proj.> **<Deferring Mitig.** **To Future Plans**

Update - January, 2006

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	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	Pasco	Upper Coastal	2563361	Jan., 2004	SR 54 - Mitchell to Gunn													1.60	0.50	2.30		2.20							6.60	WMD - LAND SW 54 - Anclote Parcel	no revisions
98	7	Pasco	Upper Coastal	2563391	Jan., 2003	SR 54 - North Suncoast to West of US 41										1.30		0.80	3.00				0.50	1.40						7.00	WMD - Land SW 54 - Anclote Parcel	no revisions
00	8	Pasco	Upper Coastal	2589581	Feb., 2005	Suncoast Parkway/ Ridge Road Interchange			0.15										8.19				3.48							11.82	WMD - Land SW 60 - Serenova Extension	no revisions
00	7	Pinellas	Upper Coastal	2570931	Feb., 2002	SR 60, Clearwater Harbor Bridge Replacement							1.30												0.20					1.50	On-site Restoration & SW 45 - Gateway Tract	no revisions
00	7	Pinellas	Upper Coastal	4037711	April, 2002	US 19 - Republic Drive to CR 816 (Alderman)											0.10													0.10	WMD-LAND SW 77 - Conner Preserve	no revisions
00	7	Hernando	Upper Coastal	2571741	Aug., 2003	US 98 Hernando Co. Line to US 19													1.40											1.40	WMD-LAND SW 77 - Conner Preserve	no revisions
00	7	Pinellas	Upper Coastal	2570501	May, 2004	SR 688 (Ulmerton Rd.) Oakhurst Rd. to 119th St.														0.20										0.20	WMD-LAND SW 77 - Conner Preserve	no revisions
00	7	Pasco	Upper Coastal	2563221	Oct., 2005	SR 52 - Moon Lake to Suncoast Parkway										3.20	0.90		2.30					0.10						6.50	WMD-LAND SW 77 - Conner Preserve	no revisions
01	7	Pasco	Upper Coastal	2563321	July, 1996	SR 54 - Rowan Rd. to Mitchell Bypass										0.10	0.20						3.30							3.60	WMD-LAND SW 77 - Conner Preserve	no revisions
01	7	Pinellas	Upper Coastal	2568151	July, 2004	SR 586 (Curlew Rd.) CR 1 to Fisher Road											0.10													0.10	WMD-LAND SW 77 - Conner Preserve	no revisions
02	7	Pasco	Upper Coastal	2563161	Nov., 1996	SR 52, Hicks to Moon Lake										1.60														1.60	WMD-LAND SW 74 - Serenova - Sites 2,3,4,8	no revisions
02	7	Pinellas	Upper Coastal	2569031	Sept., 2003	SR 682 (Bayway Bridge) SR 679 to W. Toll Plaza				0.10													0.30						0.40	0.80	Pinellas Co. / WMD-SWIM SW 70 - Ft. DeSoto Park	no revisions
02	7	Pinellas	Upper Coastal	2571521	Nov., 2007	SR 679 (Bayway) Intercoastal to Bridge				0.30																				0.30	Pinellas Co. / WMD-SWIM SW 70 - Ft. DeSoto Park	no revisions
03	7	Citrus	Upper Coastal	2571931	Oct., 2006	US 19 (SR 55) CR 490 (Yulee) to CR 44								0.05						0.02			0.02							0.09	WMD-LAND SW 77 - Conner Preserve	no revisions
03	7	Pasco	Upper Coastal	2563241	March, 2009	US 41 (SR 45) Tower Rd. to Ridge Road					2.01					0.20			2.50	5.96			0.42				0.59			11.48	WMD-LAND SW 77 - Conner Preserve	+2.3 acres from 2004
03	7	Pinellas	Upper Coastal	2570831	Oct., 2011	SR 699 (Gulf Blvd.) - 192nd Ave. to Walsingham/Ulmerton Rd.							0.10																	0.10	Pinellas Co./ WMD-SWIM SW 70 - Ft. DeSoto Park	no revisions
03	7	Pinellas	Upper Coastal	4091541	Sept., 2011	SR 688 (Ulmerton Rd.) - Wild Acres to El Centro/Ranchero Blvd.	0.20		0.60																					0.80	Pinellas Co./ WMD-SWIM SW 70 - Ft. DeSoto Park	+0.6 acre from 2004
03	7	Pasco	Upper Coastal	2572983	July, 2013	CR 578 (County Line Rd.) East Rd. to Mariner Blvd.																	0.40							0.40	WMD-LAND SW 77 - Conner Preserve	no revisions
03	7	Hernando	Upper Coastal	4050172	Sept., 2011	US 98 - CR 485 (Cobb Rd.) to CR 491 (Citrus Way)					0.10																			0.10	WMD-LAND SW 77 - Conner Preserve	no revisions
03	7	Hernando	Upper Coastal	2572992	June, 2016	CR 485 (Cobb Rd.) SR 50 to US 98														8.00							4.00			12.00	WMD-LAND SW 77 - Conner Preserve	no revisions
04	7	Pasco	Upper Coastal	2563371	Sept., 2002	SR 54 - Gunn Highway to Suncoast Parkway													6.00											6.00	WMD-LAND SW 77 - Conner Preserve	no revisions
04	7	Pasco	Upper Coastal	2572985	Oct., 2009	CR 578 (County Line Rd.) Suncoast Parkway to US 41										0.20														0.20	WMD-LAND SW 77 - Conner Preserve	no revisions
04	7	Pasco	Upper Coastal	2563231	Sept., 2013	SR 52 Suncoast Parkway to US 41					2.00						0.50		1.00				0.70							4.20	WMD-LAND SW 77 - Conner Preserve	no revisions
04	7	Pasco	Upper Coastal	4113341	Nov., 2007	US 41 (SR 45) Gowers Corner to CR 578																		0.50						0.50	WMD-LAND SW 77 - Conner Preserve	no revisions
04	7	Citrus	Upper Coastal	4058222	Nov., 2012	US 19 (SR 55) Green Acres to Jump Ct.										0.20			0.01				0.03							0.24	WMD-LAND SW 77 - Conner Preserve	no revisions
04	7	Pasco	Upper Coastal	2572982	Undetermined	CR 578 (County Line Rd.) US 19 to East Rd.																	0.50							0.50	WMD-LAND SW 77 - Conner Preserve	no revisions
05	7	Pinellas	Upper Coastal	4188601	March, 2007	US 19 (SR 55) - Sunray Drive to Marine Parkway (Sidewalks)																	0.20							0.20	WMD-LAND SW 77 - Conner Preserve	2005, new project
05	7	Citrus	Upper Coastal	4059223	Sept., 2013	US 19 (SR 55) West Jump Court to CR 44										1.00			1.50				0.30							2.80	Defer mitigation selection to future plans	2005, new project
05	7	Hernando	Upper Coastal	4079512	April, 2014	SR 50, Mariner to Suncoast																	0.10							0.10	Defer mitigation selection to future plans	2005, new project
05	8	Hernando Citrus	Upper Coastal	4052701	July, 2011	Suncoast Parkway 2													7.00				9.00							16.00	Defer mitigation selection to future plans	2005, new project
32						**SUBTOTAL BY BASIN:**	**0.20**	**0.00**	**0.75**	**0.40**	**4.11**	**0.00**	**1.40**	**0.05**	**0.00**	**7.80**	**1.80**	**0.80**	**34.50**	**14.68**	**2.30**	**0.00**	**21.45**	**2.00**	**0.20**	**0.00**	**4.59**	**0.00**	**0.40**	**97.23**	97.43	
98	7	Citrus	Withlac. River	2571641	Dec., 2002	SR 44 -CR 470 to Withlacoochee River										4.90				0.50	3.60		4.90							13.90	DOF / DEP SW 64 -With. State Forest - Baird	no revisions
98	7	Citrus	Withlac. River	2571631	Aug., 2002	SR 44 - US 41 to CR470								3.10			3.20						1.60							7.90	DOF / DEP SW 64 -With. State Forest - Baird	no revisions
98	1	Polk	Withlac. River	2012092	Oct., 2002	I-4 East of US 98 to East of CR 557 (Sec. 3-5)		0.86				0.02				0.28	2.76		3.84	8.46		0.05	1.21				1.40			18.88	WMD - LAND SW 59 - Hampton Tract	Addit. impacts in Peace no revisions
98	1	Polk	Withlac. River	2012041	Sept., 2002	I-4 East of CR 557 to Osceola County (Sec. 6-7,9)														0.03		3.18	0.55				0.12			3.88	WMD - LAND SW 59 - Hampton Tract	Addit. Imp. In Ocklaw.& Kiss. no revisions
99	5	Sumter	Withlac. River	4063291	Nov., 2000	I-75 Lk. Panasoffkee Bridge		5.93																						5.93	WMD - SWIM SW 57 - Lake Panasoffkee	no revisions
01	7	Citrus	Withlac. River	2571841	Nov., 2004	SR 45 (US 41) Watson St. to SR 44 East																	0.10							0.10	DOF / DEP - SW 64 -With. State Forest - Baird	no revisions
02	7	Citrus	Withlac. River	4092071	Nov., 2004	CR 470 (Gospel Isle)										0.10							0.20							0.30	DOF / DEP SW 64 -With. State Forest - Baird	no revisions
02	7	Pasco	Withlac. River	2571651	Jan., 2013	US 41 (SR 45) SR 44 to SR 200										0.50	0.20													0.70	DOF / DEP SW 64 -With. State Forest - Baird	no revisions
03	7	Citrus	Withlac. River	2571882	June, 2011	SR 200 US 41 to Marion Co. Line		1.90	0.30														2.00				0.50	0.30		5.00	Defer mitigation selection to future plans	no revisions
9						**SUBTOTAL BY BASIN:**	**0.00**	**8.69**	**0.30**	**0.00**	**0.00**	**0.02**	**0.00**	**3.10**	**0.00**	**5.78**	**6.16**	**0.00**	**3.84**	**8.99**	**3.60**	**3.23**	**10.56**	**0.00**	**0.00**	**0.00**	**2.02**	**0.30**	**0.00**	**56.59**	56.59	
167	**10**	**157 Total Projects**				**GRAND TOTALS**	**6.70**	**15.81**	**4.85**	**6.44**	**12.01**	**6.26**	**23.45**	**23.85**	**0.80**	**58.43**	**15.40**	**18.68**	**67.01**	**67.63**	**12.34**	**31.51**	**111.68**	**31.95**	**16.80**	**3.70**	**33.65**	**4.65**	**0.97**	**574.37**		
							6.70	15.81	4.85	6.44	12.01	6.26	23.45	23.85	0.80	58.43	15.40	18.68	67.01	67.63	12.34	31.51	111.68	31.95	16.80	3.70	33.65	4.65	0.97	574.57		

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2005

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
Cattle Dock Point, Phase II (SW 31) (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.
Lake Thonotasassa (SW 34) (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) Enhance - 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.
Quick Point (SW 38) (Longboat Key) Lower Coastal - Sarasota Co.	Sarasota Co. Seagrass - 0.27 ac. Mangrove - 0.32 ac. **Total - 0.59 acre**	Seagrass Restoration - 1.5 ac. Inland Pond - 0.3 ac. Mangrove Enhancement - 1.0 ac. **Total - 2.8 acres**	Quick Point Preserve is a 34-acre tract with other restoration activities funded by various sources.
Gateway Restoration (SW 45) (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.

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2005

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
Tenoroc / Saddle Ck. (SW 47) (DEP / FFWCC) Peace River - Polk Co.	Polk Co. Forest (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.
Reedy Creek **Mitigation Bank (SW 49)** (Private Mitigation Bank) Kissimmee River 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.
Terra Ceia Restoration (SW 50) (DEP / WMD - SWIM) Manatee River 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.
Myakka River State Park (SW 51) (DEP - Parks) Myakka Basin - 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.
Little Pine Island **Mitigation Bank (SW 52)** (Private Mitgation Bank) Charlotte Harbor - Lee Co.	Charlotte Co. Forest (Fresh) – 0.1 ac. Bay & Estuary - 2.24 ac. Mangrove – 2.75 **Total - 5.09 acres**	Saltwater Marsh Restoration & Mangrove Enhancement **Total - purchase 5.09 credits**	The mitigation bank includes eradication of exotic vegetation from 1,565 wetland acres on state-owned property.

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2005

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
Boran Ranch **Mitigation Bank (SW 53)** (Private Mitigation Bank) Peace River Basin - DeSoto Co.	Hardee & DeSoto Co. Hardwood Forest - 9.49 ac. Marsh (Fresh) – 12.38 ac. **Total - 21.87 acres**	Freshwater wetland & upland restoration & enhancement **Total - 21.87 credits**	The mitigation bank includes 132 wetland acres and 272 upland acres (total 404 acres), construction complete, currently maintenance & monitoring.
Anclote Parcel (SW 54) (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, majority deeded to WMD/Pasco Co. as mitigation for other projects ' wetland impacts.
Upper Hills. – 4 & 5 (SW 55) (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 & Restorat. - 101.3 ac. Forested & Marsh Restorat. – 10 ac. Marsh & Shrub Enhance.- 8.7 ac. **Total - 120 acres**	Backfilled 1.3 miles of ditch to hydrologically enhance 12 forested and 3 non-forested wetlands, portion of WMD property covering several thousand acres.
Cockroach Bay – Fresh (SW 56) (Hills. Parks / WMD – SWIM) Tampa Bay Basin - Hills. Co.	Pinellas Co. Canal – 0.2 ac. Shrub - 0.2 ac. Marsh (Fresh) – 7.4 ac. **Total – 7.8 acres**	Marsh (Fresh) Creation – 26 ac. Upl. Hardwood Hammock Enhance – 7 ac. **Total – 33 acres**	Entire site covers 651 acres of various fresh & saltwater wetland creation & restoration, along with upland habitat restoration
Lk. Panasoffkee Restorat. (SW 57) (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.

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2005

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
Tappan Tract (SW 62) (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 includes 33-acres, the 8.4-acres include habitat improvements which will enhance the remaining 24.6 acres.
Hillsborough River Corridor (SW 63) (WMD - Land Resources) Hillsborough Basin – Pasco Co.	Pasco Co. Cypress - 1.1 ac. **Total - 1.1 acres**	Acquisition & Preservation - Forest Wetland Floodplain - 10.0 ac. **Total - 10 acres**	Acquiring this parcel will almost connect separate WMD-owned parcels covering several thousand acres along the Hillsborough River.
Baird Tract (SW 64) (DEP / DOF) Withlacoochee Basin – Sumter Co.	Citrus, Hernando Co. Forest - 12.6 ac. Shrub – 3.4 ac. Marsh (Fresh) - 6.7 ac. Ditch (Fresh) – 0.1 **Total - 22.8 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.
Rutland Ranch (SW 65) (WMD-Land Resources) Manatee River Basin – Manatee Co.	Manatee Co. Forest - 3.11 ac. Marsh - 4.85 ac. **Total – 7.96 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, enhancement includes hydrologic restoration of several heavily drained marshes, and upland habitat corridors.

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2005

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
Boyd Hill Nature Park (SW 71) (City of St. Petersburg) Tampa Bay Drainage Basin, Pinellas County	Pinellas & Hillsborough Counties Mixed Forest – 7.0 ac. Shrub – 2.9 ac. Marsh – 0.6 ac. Canals & Ditches – 1.6 ac. **Total – 12.1 acres**	Hardwood Wet. 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. Maggiorie, 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 removal.
Cypress Ck. Preserve, West Greer Tract (SW 72) (Hillsb. Parks / WMD-Land) Hillsborough Basin – Hillsbor. Co.	Hillsborough County Mixed Forest – 4.9 ac. Cypress – 1.6 ac. Marsh - 1.06 ac. Shrub – 0.53 ac. **Total – 8.09 acres**	Forest Wet. Preservation – 61.5 ac. Forested Upland Enhancement – 38.0 ac. **Total – 99.5 acres**	This parcel acquisition is adjacent to several hundred acres of native habitat owned and managed by Hills. Co. Parks (ELAPP), including the Jennings Tract (SW 61).
Hillsborough River State Park, Bulkhead Removal (SW 73) (FDEP – Parks / WMD) Hillsborough Basin – Hillsbor. Co.	Hillsborough County Mixed Forest – 0.5 ac. **Total – 0.5 acre**	Forest Wet. Restoration – 0.5 ac. **Total – 0.5 acre**	This project includes removal of a concrete bulkhead and forested wetland restoration along the Hillsborough River.
Serenova Pres. - 2,3,4,8 (SW 74) (WMD-Land) Upper Coastal Basin – Pasco County	Pasco County Mixed Forest – 1.6 ac. **Total – 1.6 acres**	Forested Wet. Enhancement – 26 ac. **Total – 26 acres**	Hydrologic enhancement of the Pithlac. River and Five Mile Creek within the Serenova Preserve (7,000 acres)
Cockroach Bay – Saltwater (SW 75) (Hills. Parks / WMD – SWIM) Tampa Bay Drain. Basin – Hills. Co.	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.

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2005

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
Lake Lowery Tract (SW 76) (Polk Co. Nat. Res. / WMD – Land) Ocklawaha River Basin – Polk Co.	Polk County Cypress – 0.6 ac. Marsh (Fresh) – 3.8 ac. Mixed Forest – 2.3 ac. **Total – 6.7 acres**	Marsh Preservation – 198 acres **Total – 198 acres**	Entire site includes joint-acquisition and preservation of 397 acres, predominantly forested and marsh wetland habitat. Adjacent to 5700-acres of FFWCC property (Hilochee Wildlife Mgmt. Area).
Conner Preserve (SW 77) (WMD – LAND) Upper Coastal & Hillsborough River Drainage Basins – Pasco County	Pasco County Mixed Forest – 37.4 ac. Marsh (Fresh) – 10.2 ac. **Total – 47.8 acres**	Forested Wet. 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.
Bahia Beach Tract (SW 78) (Hills. Co. Parks, HCEPC, WMD – SWIM) Tampa Bay Basin – Hills. Co.	Hillsborough County Canal & Waterway – 6.5 ac. Exotic Shrub – 2.8 ac. Forested Wet. – 10.4 ac. Marsh (Fresh) – 4.6 ac. Ditch – 6.3 ac. Mangrove – 2.1 ac. **Total – 32.7 acres**	Freshwater Forested & Marsh Wetland Creation - 40 acres Upland Habitat Restoration – 21 acres Coastal Wet. Hammock Enh. – 17 acres Marsh (salt) Restoration – 15 acres Mangrove & Salt-marsh Enhance. – 27 ac. **Total – 120 acres**	The Bahia Beach Tract is adjacent to several thousand acres of other Hills. County tracts that have been acquired, enhanced and restored with assistance through the WMD.
Fox Creek Regional Mitigation Project (SW 79) (Sarasota County) Lower Coastal Basin – Sarasota Co.	Sarasota County Hardwood Forest – 4.0 ac. Pond – 0.1 ac. Marsh (Fresh) –14.2 **Total – 18.3 acres**	Freshwater Forested & Marsh Creation – 35 acres **Total – 35 acres**	The entire tract includes 140 acres of upland and wetland acres of wetland and upland habitat creation, restoration, and enhancement.

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2005

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
Ledwith Lake (SW 58) (Alachua Co./ FDEP / SJRWMD) Ocklawaha Basin – Alachua Co.	Marion Co. Marsh (Fresh) - 3.66 ac. Mixed Hardwood - 0.02 ac. **Total - 3.68 acres**	Acquisition & enhance 160-acre marsh **Total - 160 acres**	Site is a 2200-acre marsh proposed for public acquisition, within a proposed east-west corridor from Ocala Nat. Forest to Wacasassa River.
Hampton Tract (SW 59) (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, install over 90 ditchblocks to restore wetland hydrology.
Serenova Extension (SW 60) (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**	Acquisition, Enhancement, Management Oak Hammocks – 38 ac. Pine Flatwoods – 98 ac. Mixed Forested Wetlands - 44 ac. Cypress - 15 ac. Marsh (Fresh) - 2 ac. Open Water - 7 ac. Marsh Creation – 11 ac. **Total – 215 acres**	This tract is adjacent to the Serenova Tract & Starkey Wilderness Area, a 15,000-acre parcel of native habitat owned by the WMD.
Cypress Ck. Preserve, West Jennings Tract (SW 61) (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**	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), including the Greer Tract (SW 72).

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2005

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
Hidden Harbour (SW 80) (Manatee County, WMD-TSV) Manatee River – Manatee Co.	Manatee County Hardwood Forest – 7.32 ac. Marsh (Fresh & Salt) – 2.7 ac. Seagrass – 0.3 ac. **Total – 10.32 acres**	Freshwater Forested Wetland Enhancement – 47.5 acres Freshwater Marsh Enhance. – 1.1 acres Upland Habitat Restoration – 17.1 acres Marsh Creation – 4.5 acres **Total – 70.2 acres**	The entire tract includes 229 acres along the Manatee River.
Balm Boyette – Stallion Hammock Restoration (SW 81) (Hills. Co. Parks, HCEPC, WMD-SWIM) Alafia River Basin – Hillsborough Co.	Polk County Hardwood Forest/Shrub – 5.3 ac. **Total – 5.3 acres**	Freshwater Forested Wetland Restoration – 30 acre **Total – 30 acres**	The entire tract includes 4,933 acres. The proposed project area includes approximately 275-acres of wetland restoration, forested wetland enhancement, and upland habitat enhancement.
Ekker Tract (SW 82) (Hills. Co. Parks, WMD-SWIM) Tampa Bay Drainage Basin – Hillsborough Co.	Hillsborough County Hardwood Forest – 4.0 ac. Shrub – 4.9 ac. Marsh (Fresh) – 4.4 Mangrove – 0.1 ac. Open Water & Ditch – 2.3 ac. **Total – 15.6 acres**	Freshwater Forested & Marsh Creation – 14 acres Upland Habitat Restoration – 9 acres Oak Hammock Enhancement – 29 acres Pine Flatwood Enhancement – 32 acres **Total – 84 acres**	The project includes converting over 150 low quality abandoned tropical fish ponds into appropriate wetland habitat and buffer with enhanced and restored upland habitat. The tract is one of the few undeveloped parcels along Bullfrog Creek.

Table 2 - DOT Mitigation Projects - Compensation Summaries, Updated December, 2005

Mitigation Project Agency Representative Watershed Basin, County	DOT Impacts Wetland Locations, Type & Acreage	Proposed Mitigation Type & Acreage	Remarks
Lk. Hancock Reserve (SW 66) (Polk Co. Nat. Res./WMD-Land Res.) Peace River, Polk County	Polk Co. Forest - 8.7 ac. Shrub - 0.5 ac. Marsh - 13.2 ac. Ditches – 8.7 ac. **Total - 33.9 acres**	Mixed Forested Restore - 50 ac. Mixed Forest Enhance – 40 ac. Marsh Enhance – 339 ac. Upland Restore - 24 ac. Upland Preservation – 19 acres **Total – 472 acres**	The entire Lake Hancock Reserve covers 1,256 acres. Restoring wet pastures to marsh and forested wetland habitat within the core of the property. Adjacent upland habitats on tract are being enhanced and restored by Polk Co.
Apollo Beach Nature Pres. (SW 67) (Hills. Co. Parks / WMD-SWIM) Tampa Bay Drainage, Hills. Co.	Hillsborough Co. Marsh (Salt) – 5.3 ac. **Total - 5.3 acres**	Marsh (Salt) Create - 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.
Peace River Bridge Rest. (SW 69) (DOT & WMD) Peace River 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.
Ft. DeSoto Park (SW 70) (Pinellas County / WMD – SWIM) Upper Coastal Basin, Pinellas Co.	Pinellas Co. Canal & Pond – 0.8 ac. Marsh – 0.3 ac. Seagrass – 0.4 ac. Bay Bottom – 0.4 ac. **Total – 1.9 acres**	Seagrass Enhancement – 13 ac. **Total – 13 acres**	The 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 3 - Mitigation Projects - Habitat Types & Acreages

December, 2005

Mitigation Projects	DOT Wetland Impact Acreage	Forest Wetland Enhance (Fresh)	Forest Wetland Restore & Create (Fresh)	Forest Wetland Preserve & Enhance (Fresh)	Non-Forest Wetland Enhance (Fresh)	Non-Forest Wetland Restore & Create (Fresh)	Non-Forest Wetland Preserve (Fresh)	Mangrove Wetland Enhance (Salt)	Mangrove Wetland Restore & Create (Salt)	Non-Forest Wetland Restore & Create (Salt)	Forest Upland Enhance	Forest Upland Restore	MITIG. BANK CREDIT	PROJ.'s MITIG. ACREAGE
1-SW 31-Cattle Dock	8.82				0.1			1.2	8.0	6.0	1.5			16.8
2-SW 34-Lk. Thono	14.2				14.0	45.0								59.0
3-SW 38-Quick Point	0.59							1.0		1.8				2.8
4-SW 45-Gateway	27.4							42.5		53.5	10.3			106.3
5-SW 47-Teneroc	8.17		21.4			3.7								25.1
6-SW 49-Reedy Ck.	2.74												2.75	0.0
7-SW 50-Terra Ceia	0.59							4.0			3.0			7.0
8-SW 51-Myakka R.S.P.	7.36	194.0			1,074.0	6.0								1,274.00
9-SW 52-LPI Mit. Bk.	5.1												5.1	0.0
10-SW 53-Boran Ranch	21.87												21.87	0.0
11-SW 54-Anclote	13.6			139.0		6.0					40.0			185.0
12-SW 55-UH 4&5	13.55	101.0	10.3		8.7									120.0
13-SW 56-C.R.Bay-Fresh	7.8					26.0					7.0			33.0
14-SW 57-Lk. Panasof.	5.93				75.0									75.0
15-SW 58 - Ledwith Lk.	3.74						160.0							160.0
16-SW 59-Hampton	22.83	993.0			83.0									1076.0
17-SW 60-Serenova Ext.	11.82			59.0	11.0		9.0				136.0			215.0
18-SW 61-Jennings	24.9			146.0							132.0	20.0		298.0
19-SW 62-Tappan	5.1					0.55		0.77		5.86		1.20		8.38

Table 3 - Mitigation Projects - Habitat Types & Acreages							Page 2 of 3		December, 2005					
Mitigation Projects	DOT Wetland Impact Acreage	Forest Wetland Enhance (Fresh)	Forest Wetland Restore & Create (Fresh)	Forest Wetland Preserve & Enhance (Fresh)	Non-Forest Wetland Enhance (Fresh)	Non-Forest Wetland Restore & Create (Fresh)	Non-Forest Wetland Preserve (Fresh)	Mangrove Wetland Enhance (Salt)	Mangrove Wetland Restore & Create (Salt)	Non-Forest Wetland Restore & Create (Salt)	Forest Upland Enhance	Forest Upland Restore	MITIG. BANK CREDIT	PROJ. MITIG. ACREAGE
20-SW 63-Hills. Corrid.	1.1			10.0										10.0
21-SW 64-Baird Tract	22.8	548.0			970.0									1518.0
22-SW 65-Rutland Ranch	7.96				75.0	5.0					10.0	25.0		115.0
23-SW 66-Lk. Hancock	33.9	40.0	50.0		339.0						19.0	24.0		472.0
24-SW 67-Apollo Beach	5.3									13.8				13.8
25-SW 69-Peace River	0.8							2.06	2.51					4.57
26-SW 70-Ft. DeSoto	1.8									24.0				24.0
27-SW 71-Boyd Hill	12.1	69.6				1.0					21.4			92.0
28-SW 72-Greer Tract	8.09			61.5							38.0			99.5
29-SW 73-Hills. R.S.P	0.5		0.5											0.5
30-SW 74-Serenova, 2-4	1.6	26.0												26.0
31-SW 75-C.R.Bay-Salt	5.5									15.1				15.1
32-SW 76-Lk. Lowery	6.67						198.0							198.0
33-SW 77 - Conner	47.80	918.0			712.0						1046.0	304.0		2,980.0
34-SW 78-Bahia Beach	32.8	17.0	10.0			30.0		27.0		15.0				120.0
35-SW 79 - Fox Creek	18.32					30.0					5.0			35.0
36-SW 80 - Hidden Harb.	10.32			47.5	1.1	4.5						17.1		70.2
37-SW 81- Balm Boyette	5.30		30.0											30.0
38-SW 82-Ekker Tract	15.60		2.0			12.0					61.0	9.0		84.0

Table 3 - Mitigation Projects - Habitat Types & Acreages							Page 3 of 3		December, 2005					
	DOT	Forest	Forest	Forest	Non-Forest	Non-Forest	Non-Forest	Mangrove	Mangrove	Non-Forest	Forest	Forest	MITIG.	PROJ.
Mitigation	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Upland	Upland	BANK	MITIG.
Projects	Impact	Enhance	Restore	Preserve &	Enhance	Restore &	Preserve	Enhance	Restore &	Restore &	Enhance	Restore	CREDIT	ACREAGE
	Acreage	(Fresh)	& Create	Enhance	(Fresh)	Create	(Fresh)	(Salt)	Create	Create				
			(Fresh)	(Fresh)		(Fresh)			(Salt)	(Salt)				
TOTALS	444.4	2906.6	124.2	463	3362.9	169.8	367.0	78.5	10.5	135.06	1530.2	400.3	29.7	9569.1
	Cumulative												Cumul.	Cumul.
	Impact		Cumulative Mitigation Ratio:			22-to-1							Mitig.	Mitig.
	Acreage												Bank	Acreage
													Credits	

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Table 4 - Amended DOT Impacts and Associated Mitigation

DOT District	DOT- WPI	DOT- FM	Estim. Permit	Prev. Ac.	Curr. Ac.	Mitigation Project	Programmed Funds (Previous)	Programmed Funds (Current)	Mitig. Type	Prev. Mitig.	Curr. Mitig.	Prev. Mitig. Credits	Curr. Mitig. Credits
1	NA	1960224	2006	4.00	4.04	SW 81-Hidden Harbour	$ 360,876.00	$ 360,876.00	Forest Wet. Enhance	0.0	25.5		
1	NA	4138871	2006	5.00	6.50	SW 51- Myakka River	$ 451,095.00	$ 586,423.00	Marsh Wet. Enhance	30.0	60.00		
1	NA	1977012	2009	0.70	0.00	SW 66- Circle B Bar	$ 66,933.00	$ -	F.Wetland Enhancement	5.0	0.0		
1	NA	4063143	2009	14.70	18.20	SW 79- Fox Creek	$ 1,405,599.00	$ 1,740,265.00	Wet.Creation/Upl Enh.	25.0	30.0		
1	NA	4084411	2007	0.00	0.00	SW 66- Circle B Bar	$ -	$ -	F.Wetland Enhancement	0.0	0.0		
1	NA	1975331	2003	19.57	18.48	SW 59- Hampton Tract	$ 1,662,217.00	$ 1,569,635.00	F.Wetland Enhancement	520.0	520.0		
7	NA	4113371	2007	1.60	2.69	SW 72 - Cypress Ck., Greer	$ 147,910.00	$ 248,674.00	Forest Wet. Pres./Enhance	25.0	45.0		
7	NA	4113371	2007	0.70	0.00	SW 78- Bahia Beach	$ 64,711.00	$ -	Wet.Creation/Upl Enh.	2.4	-		
7	NA	4113371	2006	0.00	0.87	SW 82- Ekker Tract	$ -	$ 78,490.00	F. Wet. Creation/Upl Enh.	0.0	4.0		
7	NA	2569311	2005	5.00	0.50	SW 71 - Boyd Hill Nature Park	$ 440,920.00	$ 8,984.00	F.Forest Wet. Enhance	45.0	4.0		
7	NA	2569942	2006	1.50	0.00	SW 78- Bahia Beach	$ 135,329.00	$ -	Wet.Creation/Upl Enh.	3.6	0.0		
7	NA	2569942	2006	0.00	1.10	SW 82- Ekker Tract	$ -	$ 99,242.00	F. Wet. Creation/Upl Enh.	0.0	8.0		
7	7117082	2569981	2005	1.10	0.00	SW 56 / 71 - C.R. Bay	$ 97,002.00	$ -	F. Wet. Creation/Upl Enh.	5.0	0.0		
7	7117082	2569981	2005	0.00	3.00	SW 82- Ekker Tract	$ -	$ 264,550.00	F. Wet. Creation/Upl Enh.	0.0	24.0		
7	7117166	2570781	2006	0.10	0.00	SW 77- Conner Preserve	$ 9,022.00	$ -	Wet.&Upl.Rest./Enhance	20.0	0.0		
7	7117243	2571551	2003	0.2	-	SW 70- Ft. DeSoto Park	$ 16,988.00	$ -	S.Wetland Enhance	1.0	0.0		
7	7119003	2571641	2002	13.45	13.90	SW 64- Baird Tract	$ 1,106,679.00	$ 1,143,705.00	F. Wetland Enhancement	900.0	910.0		
7	NA	4037801	2005	0.00	0.00	SW 72 - Cypress Ck., Greer	$ -	$ -	F.Wetland Enhancement	0.0	0.0		
7	714476	2586621	2006	1.00	-	SW 78- Bahia Beach	$ 90,219.00	$ -	Wet.&Upl.Rest./Enhance.	4.0	0.0		
7	714476	2586621	2006	0.00	1.00	SW 82- Ekker Tract	$ -	$ 90,219.00	F. Wet. Creation/Upl Enh.	0.0	8.0		
7	NA	4037811	2006	0.40	-	SW 65-Rutland Ranch	$ 36,088.00	$ -	Wet.&Upl.Rest./Enhance.	10.0	0.0		
7	NA	4052141	2005	0.50	-	SW 56- Cockroach Bay (Fresh)	$ 44,092.00	$ -	Wet. Creation	2.0	-		
7	NA	4058224	2006	0.10	-	SW 77- Conner Preserve	$ 9,022.00	$ -	Wet.&Upl.Rest./Enhance.	8.0	-		
7	NA	4089061	2006	0.20	-	SW 77- Conner Preserve	$ 18,044.00	$ -	Wet.&Upl.Rest./Enhance.	8.0	-		
7	NA	4112771	2006	0.20	-	SW 72 - Cypress Ck., Greer	$ 18,044.00	$ -	Forest Wet. Pres./Enhance	5.0	-		
7	NA	4143481	2004	28.40	27.90	SW 78- Bahia Beach	$ 2,446,632.00	$ 2,403,557.00	Wet.Creation/Upl Enh.	110.0	110.0		
7	7115970	2563221	2002	6.70	6.50	SW 77- Conner Preserve	$ 551,283.00	$ 534,826.00	Wet.&Upl.Rest./Enhance.	310.0	310.0		
7	NA	2557931	2009	0.10	-	SW 78- Bahia Beach	$ 9,562.00	$ -	Wet.&Upl.Rest./Enhance.	0.5	-		
7	NA	2557931	2009	0.00	0.10	SW 82- Ekker Tract	$ -	$ 9,562.00	F. Wet. Creation/Upl Enh.	-	0.5		
7	7115959	2558932	2002	0.40	0.00	SW 71 - Boyd Hill Nature Park	$ 39,911.00	$ -	F.Forest Wet. Enhance	5.0	0.0		
7	7115960	2563241	2006	9.20	11.48	SW 77- Conner Preserve	$ 879,695.00	$ 1,061,257.00	Wet.&Upl.Rest./Enhance.	520.0	570.0		
7	NA	2572982	Undet.	5.50	0.50	SW 77- Conner Preserve	$ -	$ -	Wet.&Upl.Rest./Enhance.	8.0	0.0		
7	NA	2584151	2009	0.50	1.40	SW 78- Bahia Beach	$ 47,810.00	$ 133,866.00	Wet.&Upl.Rest./Enhance.	2.0	6.0		
7	NA	4037661	2008	0.30	0.00	SW 70- Ft. DeSoto Park	$ 28,148.00	$ -	S.Wetland Enhance	1.0	0.0		
7	NA	4091551	2009	2.30	0.00	SW 71 - Boyd Hill Nature Park	$ 219,924.00	$ -	F.Forest Wet. Enhance	9.0	0.0		
7	NA	4091551	2009	0.00	1.80	SW 82- Ekker Tract	$ -	$ 172,114.00	F. Wet. Creation/Upl Enh.	0.0	15.0		
7	NA	2583982	2004	1.90	1.50	SW 45-Gateway	$ 163,683.00	$ 55,209.00	S.Wetland Enhance	16.0	16.0		
	TOTALS			**125.32**	**121.46**		**$ 10,567,438.00**	**$ 10,561,454.00**		**2600.5**	**2666.0**	**0.00**	**0**
	NET DIFF.				**-3.9**			**$ (5,984.00)**		**Acres**	**Acres**	**Credits**	**Credits**

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2006-2007 Regional Mitigation Plan

Table 5 - New FDOT Impacts and Associated Mitigation

DOT District	DOT- WPI	DOT- FM	Estim. Permit	Curr. Ac.	Mitigation Project	Programmed Funds	Mitig. Type	Estim. Mitig.	Estim. Mitig. Credits
1	NA	1996682	2007	6.3	SW 80- Hidden Harbour	$ 591,116.00	Forest Wet. Enh./Marsh Creation	44.7	
1	NA	1973941	2007	5.30	SW 81- Balm Boyette	$ 497,288.00	Forest Wet. Enhance	25.5	
1	NA	4154901	2006	4.42	SW 66- Circle B Bar	$ 408,602.00	F.Wetland Enhancement	30.00	
1	NA	4082682	2008	4.00	SW 66- Circle B Bar	$ 382,476.00	F.Wetland Enhancement	25.0	
1	NA	4082683	2007	1.90	SW 66- Circle B Bar	$ 175,643.00	F.Wetland Enhancement	12.0	
7	NA	2555851	2006	4.90	SW 72- Greer Tract	$ 442,073.00	F.Wet. Preserv./Upl. Enhance	56.0	
7	NA	4152341	2006	0.50	SW 82- Ekker Tract	$ 46,222.00	F. Wet. Creation/Upl Enh.	3.0	
7	NA	4133991	2006	0.20	SW 78- Bahia Beach	$ 18,043.00	F. Wet. Creation/Upl Enh.	1.0	
7	NA	4055252	2007	2.00	SW 82- Ekker Tract	$ 184,888.00	Forest Wet. Pres./Enhance	10.0	
7	NA	4154891	2006	5.00	SW 82- Ekker Tract	$ 451,095.00	Forest Wet. Pres./Enhance	20.0	
7	NA	4188601	2006	0.20	SW 77- Conner Preserve	$ 18,488.00	F. Wet. Creation/Upl Enh.	10.0	
TOTALS				**34.72**		**$ 3,215,934.00**		**237.2**	

DOT District	DOT- WPI	DOT- FM	Estim. Permit	Curr. Ac.	Mitigation Project	Programmed Funds	Mitig. Type
7	NA	4084592	2006	28.50	Future Mitigation Project	$ 2,571,241.00	To Be Determined
7	NA	4084593	2007	37.00	Future Mitigation Project	$ 3,420,428.00	To Be Determined
7	NA	4084594	2007	16.70	Future Mitigation Project	$ 1,543,815.00	To Be Determined
7	NA	2587362	2008	10.70	Future Mitigation Project	$ 1,003,959.00	To Be Determined
7	NA	2564222	2008	0.10	Future Mitigation Project	$ 9,562.00	To Be Determined
7	NA	4067382	2005	1.70	Future Mitigation Project	$ 149,912.00	To Be Determined
7	NA	4089321	2006	1.80	Future Mitigation Project	$ 166,399.00	To Be Determined
7	NA	2578622	2006	0.90	Future Mitigation Project	$ 83,199.00	To Be Determined
7	NA	2562432	2010	0.80	Future Mitigation Project	$ 78,103.00	To Be Determined
7	NA	2578623	2011	1.70	Future Mitigation Project	$ 169,622.00	To Be Determined
7	NA	2555851	2006	9.30	Future Mitigation Project	$ 839,036.00	To Be Determined
7	NA	2557931	2007	0.30	Future Mitigation Project	$ 27,733.00	To Be Determined
TOTALS				**109.50**		**$ 10,063,009.00**	

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 Miselis, 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) (Fluccs 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 mitgated through the purchase of 2.08 credits from the Little Pine Island Mitigation Bank (SW 52).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation X Restoration X Enhancement Mitigation Area: **16.8 Acres**
SWIM project? Y Aquatic Plant Control project? N 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.

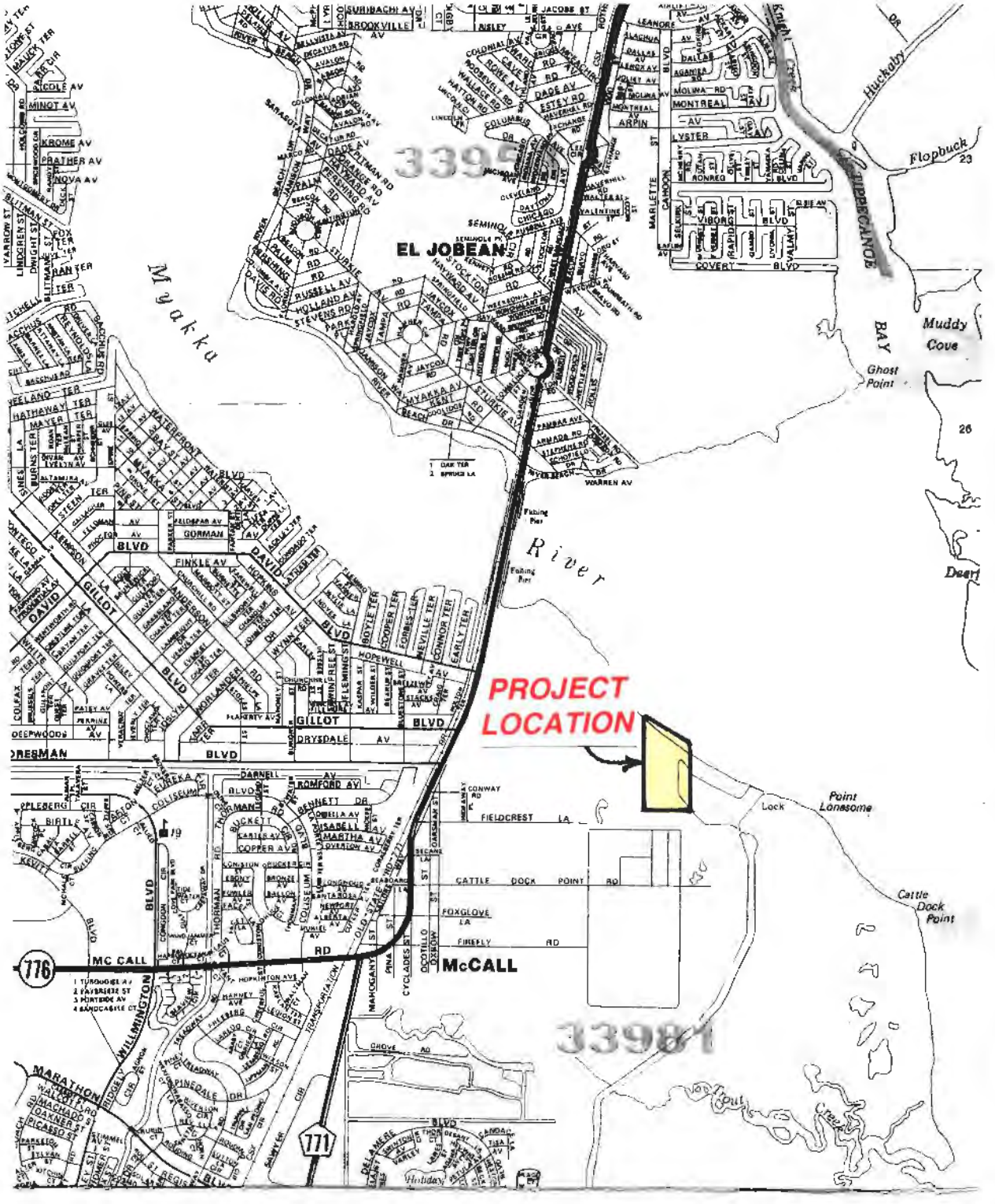
C. **Brief description of proposed work:** The project included eradicating the nuisance & exotic vegetation, and grading the filled upland to create appropriate intertidal marsh elevations (total 6 acres) and three upland habitat islands (total 1.5 acres). The cut material was deposited to fill a portion 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.

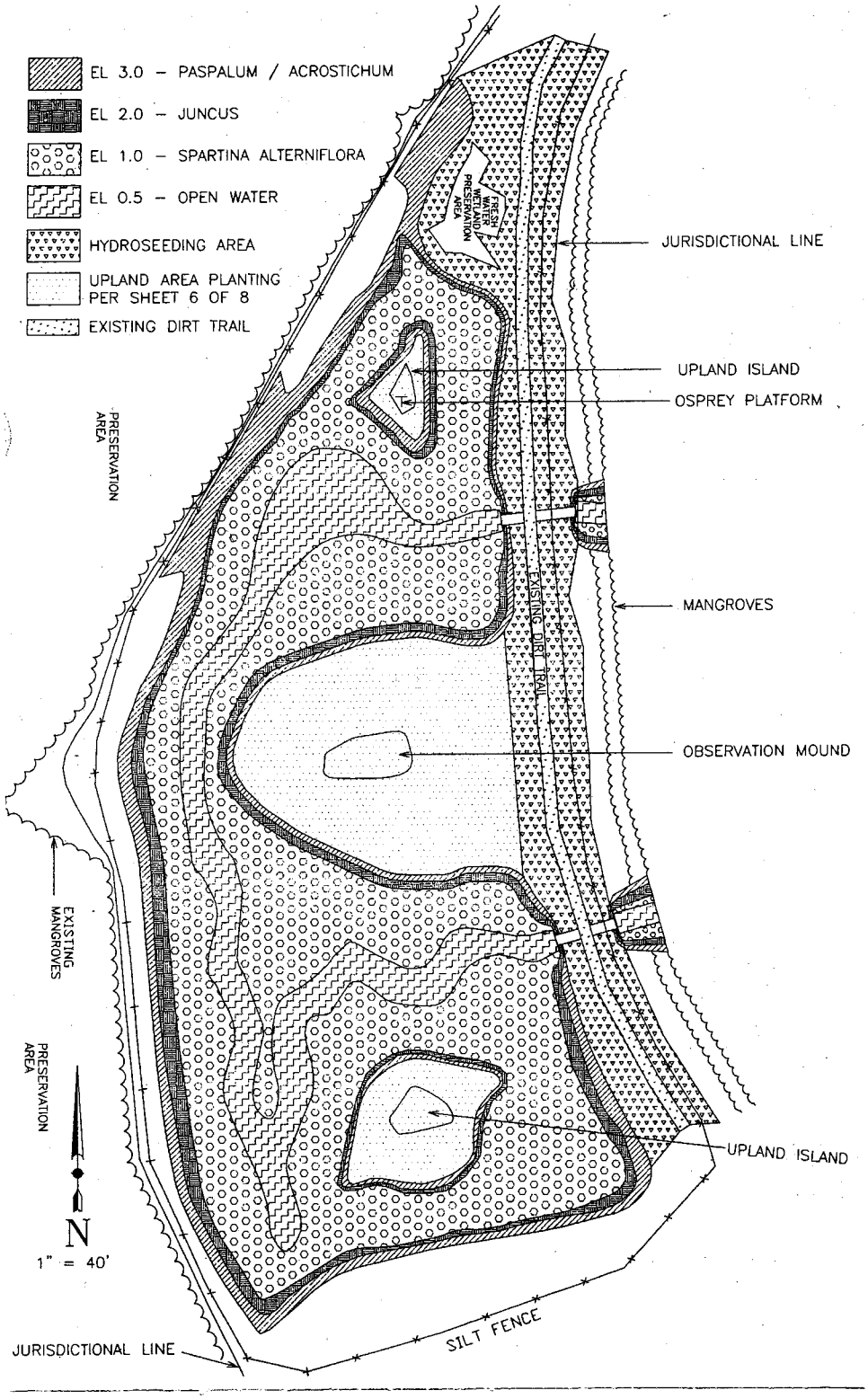
E. **Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** Cattle Dock, Phase II was designed and constructed to provide appropriate wetland mitigation for the predominantly low-quality SR 776 wetland impacts, as well as for the high quality 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.

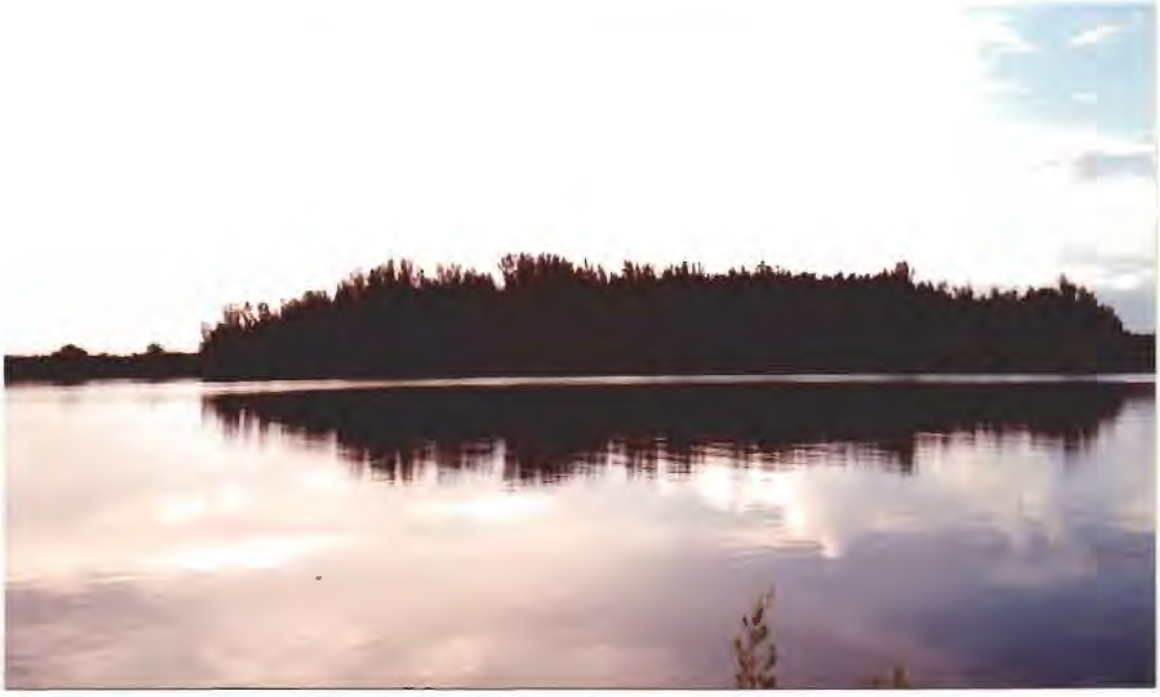


FDOT – District One MITIGATION SITE (Myakka River Basin)	**SW 31 - CATTLE DOCK POINT, PHASE II**	**FIGURE A Location Map**

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.

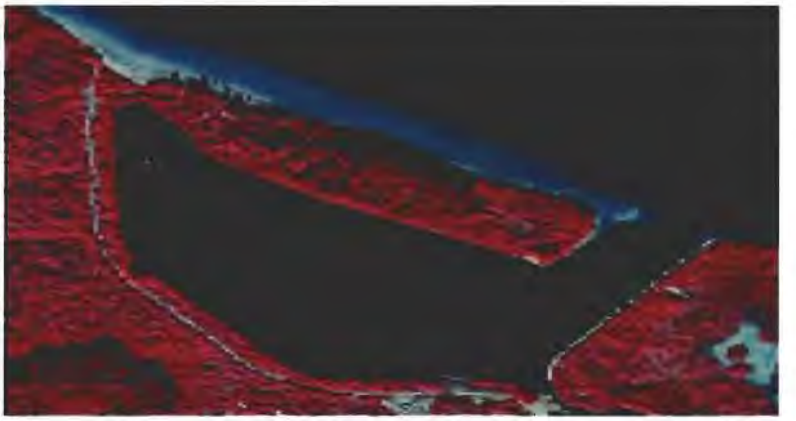
View along the access road located along the eastern boundary of the Phase II construction area, access road is one of the few upland areas not dominated by B. pepper.

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 visable 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: Amy Remley, SWIM Environmental Scientist Phone Number: (813) 985-7481 ext. 2083

County(ies): 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: 0.80 ac. 616 (Fluccs code)
4.10 ac. 618
4.60 ac. 621
4.70 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 values of Lake Thonotosassa through a restoration plan that involves enhancement and restoration of 59 wetland acres.

B. Brief description of current condition: 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 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 diverts up to the mean annual flow of the creek into the restoration area with sediments removed by a sump; (2) A low flow channel carries water from the sediment sump through the marsh planting area; (3) Planted upland islands bracket the low flow islands; (4) The marsh restoration area was graded to proper elevation and planted with herbaceous vegetation & 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.

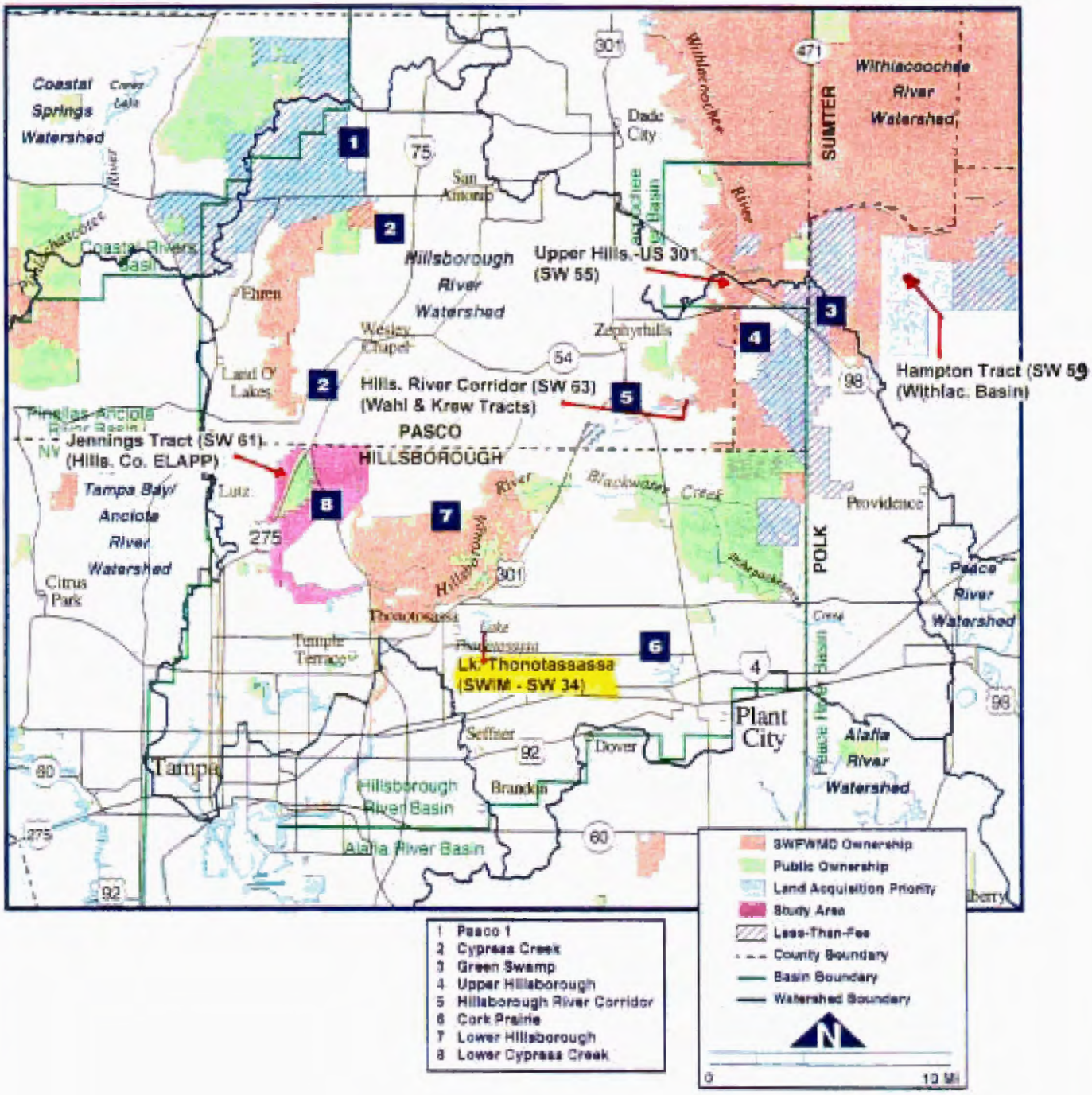
D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The created herbaceous marsh and planted cypress will replace the acreage and function of the marsh, open water, and cypress wetlands proposed for impact along SR 54 in conjunction with a larger restoration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

PROJECT IMPLEMENTATION

Entity responsible for construction: Construction Complete in 1999
Contact Name: Amy Remley, SWIM Environmental Scientist Phone Number: (813) 985-7481 ext. 2083
Entity responsible for monitoring and maintenance: SWFWMD-SWIM and Hillsborough County Parks
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 with additional herbs in late 2004 to guarantee the percent coverage Of desirable species.
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. Since the mitigation 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, Hills. County is providing additional assistance with herbicide treatment of these species within the mitigation area.
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**

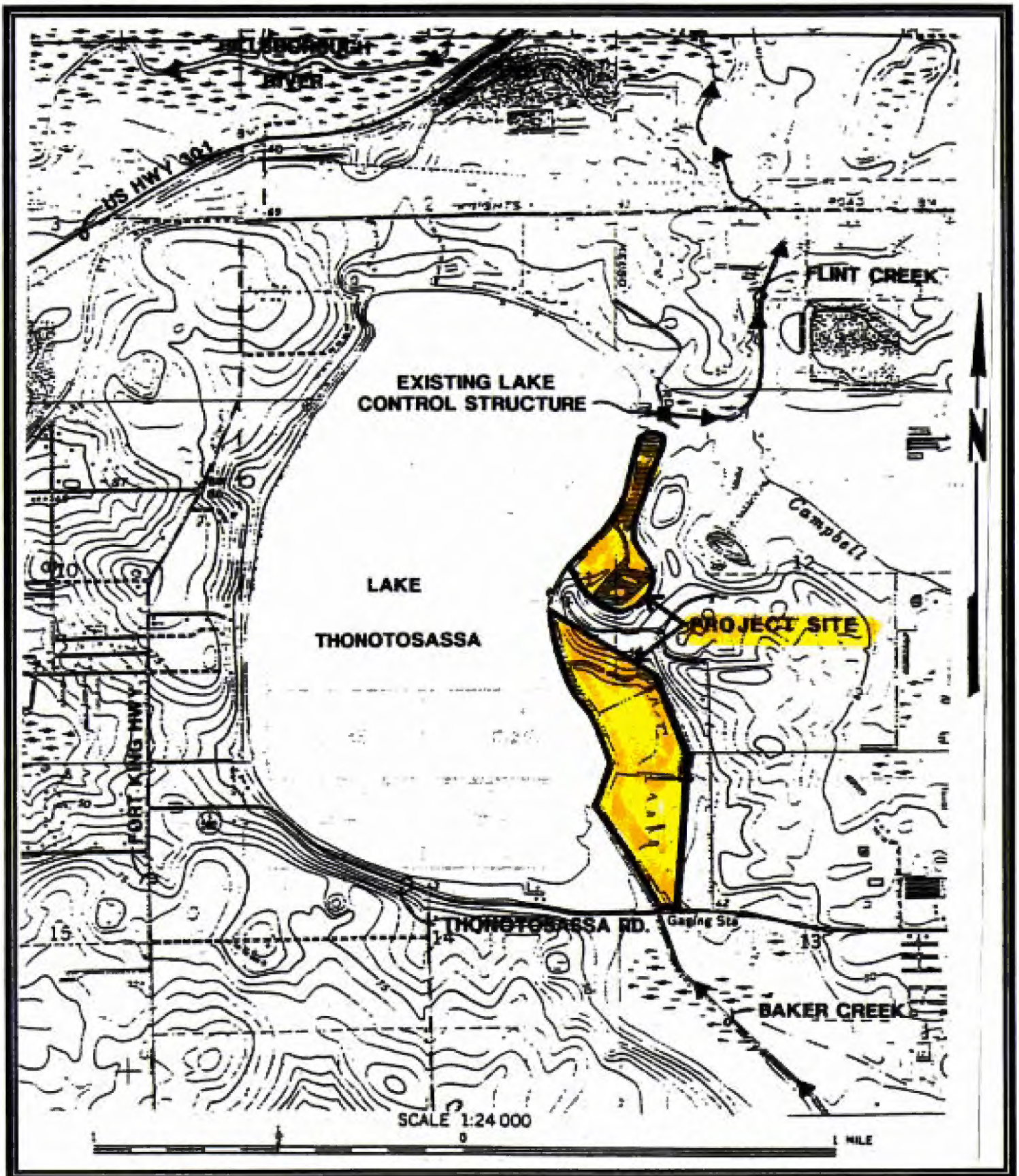
WETLAND RESTORATION IN THE LAKE THONOTOSASSA WATERSHED

SECTION 11, 12, 13 and 14, TOWNSHIP 26 S, RANGE 20 E
HILLSBOROUGH COUNTY, FLORIDA

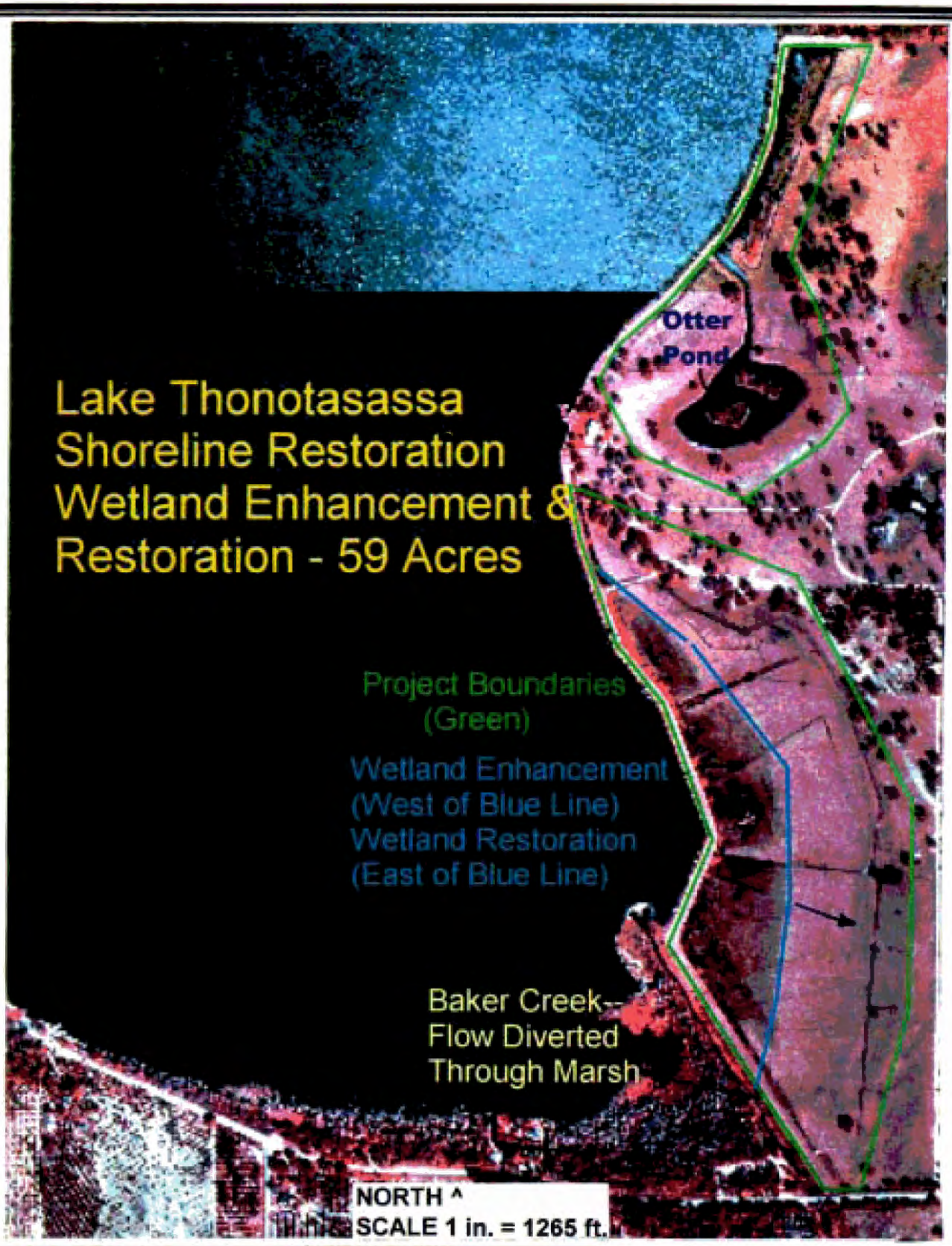
PROJECT CONSTRUCTION PLANS

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



FDOT - District 7 **MITIGATION SITE** **(Hillsborough River Basin)**	**LAKE THONOTOSASSA** **SHORELINE RESTORATION** **(SW 34)**	**FIGURE D** **INFRARED AERIAL** **(1995)**

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**: Quick Point Nature Preserve** Project Number**: SW 38**
Project Manager: Steve Schield, Environmental Officer Phone No: 941-316-1999
610 General Harris St., Longboat Key, FL 34228-3196
County: Sarasota Location :Sec./T/R: 24,25/36S/17E

IMPACT INFORMATION

WPI: 1119232 FM: 1979421, SR 789-Ringling Causeway Bridge ERP #: 4418555.01 COE #: 199500210 (IP-TF)
WPI: 1119295 FM: 1980051, US 41-Venice Ave. to US 41 Bypass ERP #: 44020099.02 COE #: 199905145 (IP-PB)
Drainage Basin(s): Lower Coastal Water Body(s) :Sarasota Bay SWIM water body? Y

Impact Acres: WPI: 1119232 - 0.07 ac. 911 (Fluccs code- seagrass - fill impacts)
0.20 ac. 911 (Fluccs code - seagrass - shading impacts)
WPI: 1119295 - 0.32 ac. 612 (Fluccs code – mangrove)
TOTAL 0.59 ac.

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation _X_ Restoration _X_ Enhancement ___ Preservation Mitigation Area: **2.8 ac.**
SWIM project?N Aquatic Plant Control project?N Exotic Plant Control Project? Y
Mitigation Bank? N Drainage Basin(s): Lower Coastal Water Body(s): Sarasota Bay SWIM water body? Y

Project Description{tc "Project Description"}

A. Overall project goal: Restore mangrove, seagrass, upland habitat areas on and adjacent to the 34-acre Quick Point Preserve located on the southern end of Longboat Key.

B. Brief description of current condition: The 34-acre site has an existing 20-acres of mangrove (the majority disturbed by mosquito ditches, spoil mounds, and exotic vegetation), 5 acres of restored wetland, and 9-acres of fill area that will be used to create upland habitat. The original plan proposed removal of the 9-acres of fill to create wetland habitat, but it was determined that construction limitations would lead to wetland disturbance. The disturbed upland fill will have exotic species removed and used to create upland habitat. The upland habitat creation is not proposed as mitigation for the DOT impacts.

C. Brief description of proposed work: The disturbed mangrove area will have the exotic species removed (primarily Brazilian pepper, Australian pine), minor grading has been conducted to construct a tidal pond. Due to the loss of seagrass from decreased salinity levels during El Nino, seagrass will be planted within existing sandy bottom areas at Quick Point and, if additional acreage is needed, within appropriate areas under the existing Ringling Bridge proposed for removal or other areas within Sarasota Bay. Seagrass planting will be conducted with a rotary plugging apparatus operated on a pontoon boat. The combination of these activities with other enhancement & restoration activities at Quick Point provide a diverse relationship of various habitats.**{tc "Mitigation Project – Quick Point Nature Preserve " \l 2}**

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): For the 0.27 acre of seagrass impacts associated with the Ringling Causeway Bridge (located 2 miles from Quick Point),**1.5 acres** of seagrass planting will occur in the area adjacent to Quick Point and, if additional area is required, within the shaded area under the existing Ringling Bridge span that will be removed in association with the new bridge construction. For the 0.32 acre of mangrove impact, a minimum **1.0 acre** of the disturbed mangrove area will be enhanced with eradication of exotic vegetation.

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 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 : This project is a coordinated effort between the Town of Longboat Key, FDEP, SWFWMD-SWIM and the National Estuary Program. Sarasota Bay is one of the few water bodies within the state that is nationally considered of such importance to receive priority and partial funding for enhancement through the "National Estuary Program (NEP)."

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Contractor selected by the Town of Longboat Key and/or public agency staff.
Contact Name: Steve Schield (Longboat Key- 941-316-1999)
Entity responsible for monitoring and maintenance: Town of Longboat Key
Proposed timeframe for implementation: Commence: October, 1998 Complete: Winter, 2002 (Mangrove Enhancement), Summer, 2003 (Seagrass Planting)

Project cost: $46,580 (total); attach itemized cost estimate
Design - $1,000
Enhancement (Mangrove Area, 1.0 acres) - $4,000
Planting (Seagrass Area, 1.5 acres) - $37,080
Maintenance & Monitoring - $4,500

Attachments

__X_ 1. Detailed description of existing site and proposed work. Attached description of existing vegetative conditions, refer to the following response to Question #4 for details on the proposed work.

__X__2. Recent aerial photograph with date and scale. Figure D - 1995 infrared aerial of Quick Point.

__X_ 3. Location map and design drawings of existing and proposed conditions. Figures A&B- Location Map, Figure C restoration plan view depicting the work areas relative to the mitigation proposed for the three DOT projects.

__X__4. Detailed schedule for work implementation, including any and all phases. The proposed schedule for work implementation includes finalizing the design by end of 2004. The mangrove enhancement activities will be conducted during winter 2004 by the Longboat Key Parks Dept. Seagrass planting will be conducted in the Spring--Summer, 2004. If areas under the existing Ringling Bridge span require planting in order to achieve the total 1.5 acres, the seagrass planting may be deferred and/or extended until after the new bridge has completed construction. Other areas within Sarasota Bay will be evaluated for seagrass planting. A local nursery contractor specifically grows seagrass plugs and pallets that are planted using a stainless steel rotary drum mounted on a pontoon boat. The drum rotates and installs the seagrass directly into the sand bottom grades.

Mitigation Project – Quick Point Nature Preserve, Page 3

__X_5. Proposed success criteria and associated monitoring plan. The success criteria for the mangrove area will include greater than 85% cover of desirable species, and less than 10% exotic/nuisance species. Monitoring will be conducted semi-annually the first year after planting, and annually thereafter for a minimum three years and until success criteria is met. In the past, seagrass planting by various methods and locations have variable results. The use of the rotary drum planting method has exhibited the same or better success rates, but at the same time can plant much larger areas in less time than manual planting. Due to the past success of seagrass planting, the proposed mitigation plan includes planting 1.5 acres of bay bottom, compared to 0.27 acres of proposed seagrass impacts (0.07 ac. from fill, 0.20 ac. from shading) at the Ringling Causeway or other designated area in Sarasota Bay. The proposed planting rate compared to the impact is a ratio of 5.6-to-1. With a success criteria requiring a minimum 30% survivorship for at least three years, that results in a minimum 0.45 acres of total survivorship area, which is a 2-to-1 ratio compared to the impact area. Monitoring will be conducted annually for three years to evaluate the survivorship. The proposed planting area is a site known to have supported seagrass in the past, and survivorship is anticipated to be much higher than planting in an area where seagrasses haven't been documented (refer to Figure C and site photographs). However, if additional opportunities are available at the area under the existing Ringling Bridge span to be removed or other areas within Sarasota Bay, those areas will also be evaluated for potential seagrass planting in lieu of Quick Point.

__X__6. Long-term maintenance plan. Maintenance will be conducted as needed during the first three years, proposed quarterly inspections to control exotics/nuisance species during the first year, and semi-annually afterward for the minimum three years of monitoring. Maintenance will continue as necessary by the City of Longboat Key Parks Dept. to minimize regeneration of exotic and nuisance species.

_X__7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous response to Issue D and Question 4. The quantity of DOT projects to be mitigated at Quick Point has decreased from several projects with a cumulative 5 acres of impacts to the proposed 0.59 acres associated with the two aforementioned DOT projects. Other restoration aspects associated with Quick Point will be funded by different sources. If some time in the future, restoration opportunities are still available at Quick Point and a DOT project has proposed saltwater wetland impacts that could possibly be mitigated at the site, the WMD and City of Longboat Key will coordinate with the ACOE and other agencies toward evaluating those opportunities.

Quick Point Nature Preserve
100 Gulf of Mexico Drive
Longboat Key, Florida 34228

For more information contact
TOWN OF LONGBOAT KEY
501 Bay Isles Road
Longboat Key, Florida 34228
941-316-1959

The Quick Point Nature Preserve restoration was made possible through a cooperative effort of:

WHAT YOU CAN DO TO HELP

Motorboats can also damage grass beds. Surveys show almost half of local motorboats run aground in grass beds, spinning their propellers and carving out bare, sandy sanctuaries that cause irreversible damage.

What you can do to avoid running through grass beds with your motorboat?

- Keep track of the tides, even at high tides some beds are vulnerable.
- Look for buoys, which mark the edges of some grass beds.
- Read navigation charts. Seagrass is shown as light green or with "Gra."
- Read the water. A grass bed may appear as a large dark new underwater.

If you do run into a grass bed, you'll be leaving behind a road trail where your prop has churned up the bay bottom, clouded the water, and likely cut seagrass roots. Do what you do over this course:

- Stop the engine.
- Tilt the motor down, pole or walk out of the shallow grass flat.

Be a part of the restoration process of Sarasota Bay by helping to protect this vital seagrass habitat!

SARASOTA BAY OVERVIEW

Sarasota Bay is a highly productive estuary, but because of rapid population growth since the 1940's and beyond, substantial negative impacts have occurred to the bay and its natural resources.

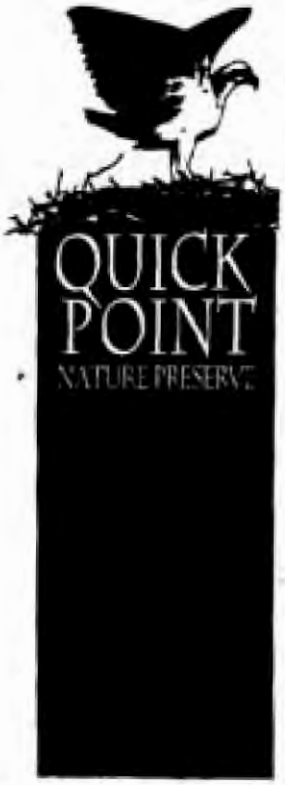
Certain measures have been having a significant beneficial impact for the restoration of Sarasota Bay, for example wastewater and stormwater treatment technologies. But furthering the restoration goals depends on each one of you making a difference.

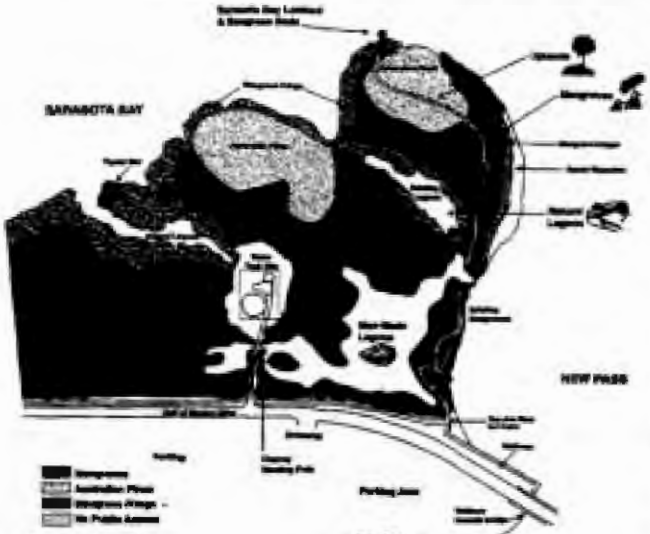
Here's a couple suggestions to get you started:

- Get involved in community plantings and exotic removal projects.
- Get involved in Adopt-a-Shore or community coastal cleanup projects to remove harmful marine debris from our waterways.
- Reduce, recycle and reuse paper, glass, aluminum and plastic materials.
- Learn about environmentally-friendly ways to landscape your Florida Yard so as to reduce stormwater runoff pollution from entering the bay.

And, here is where to go for further information and assistance for environmental education:

Town of Longboat Key
(941) 316-1959
Sarasota Bay National Estuary Program
(941) 359-5841
Keep Sarasota Beautiful
(941) 364-4667
Keep Manatee Beautiful
(941) 795-8272
Florida Department of Environmental Protection
(813) 744-6100





MAN-MADE LAGOON

The man-made tidal lagoon area was restored to different elevations and depths to attract different kinds of animals. You may see whelks, crucks, juvenile crabs and many kinds of small fish, including mullet, black drum, and others. The pond may also contain blue-green and brown algae, an important food chain for some of the lagoon's residents. Make sure to be on the look out for wading birds within the lagoon area such as the Snowy Egret, White Ibis, Herring Gull, Great Blue Heron, Great American Egret and Osprey.

NATURAL LAGOON

This pristine mangrove lagoon area was protected 100 years ago and still serves today as a serene natural setting of mangroves for utilization by shore birds and human enjoyment. The natural lagoon area also serves as vital habitat for juvenile fish and crabs just like the new man made lagoon.

MANGROVES

During the 1950's and 1960's extensive ditching of the mangroves occurred for mosquito control purposes. Connecting low marshy areas with a series of crisscrossing ditches was the method used to drain lowlands and allow fish into ditches. The fish would feed on the mosquito larvae thereby effecting biological control of this problem. The ditches were dug by the use of a mechanical dragline, with the spoil being placed on the mangroves.

Today we know the beauty, wildlife value, erosion protection, and importance in estuary ecology that make mangroves an important natural resource, which all Floridians should strive to protect.

Here is identification tips on the four different mangrove species found throughout the Quick Point Nature Preserve. Red mangroves will be found closest to open water. They have striking prop roots and their seeds, or propagules, look something like green cigars. Their leaves are large and bright green. Black mangroves will usually be found growing landward of red mangroves. Black mangroves "sweat" out from their leaves and send up twiggy protrusions from their roots called pneumatophores, which provide oxygen to the root zones. Their leaves are dull green with silver undersides. White mangroves usually grow landward of fan are interspersed with black mangroves.

UPLANDS

There are two large areas at the Quick Point site that are the result of previous dredge spoil deposition. Australian pine has heavily colonized these areas. Removal of the Australian pine is part of the overall restoration plan for Quick Point. Australian pine and Brazilian Pepper are invasive exotics which spread easily and take over the indigenous or native beneficial vegetation. Other upland canopy species, which are beneficial to the Quick Point ecosystem, include the Cabbage Palm and Red Bay. Shrubs include the Myrtle Oak, Seagrape, Sea Myrtle and White Stopper. The understory includes herbs such as the Arrow leaf Morning Glory, Narrow-leafed Sunflower and Seaside Goldenrod to name a few.

SARASOTA BAY LOOKOUT

Seagrass beds enrich our bay life and are prevalent along the entire Quick Point shoreline.

For centuries the grassflats of Sarasota Bay have supported a rich array of wildlife. Unfortunately, though, the bay had lost about 50 percent of its seagrass since the 1940's and 1950's due to wastewater and wastewater discharge. Wastewater and stormwater have high levels of nitrogen, that cause algae to grow in the bay and ultimately kill the seagrass. Recently, however, improvements in wastewater and stormwater treatment and technologies have led to the recovery of seagrass beds, by 7 percent since 1988, within the central and northern portions of the bay.

HABITATS

For the purposes of this section, habitat will be described as an area of land having a set of vegetation types, animal species and internal biological relationships of a character separate and distinct from other areas within the boundary of the site. The Quick Point property contains a number of distinct habitats which reflect historical alterations to the site.

An accurate and extensive understanding of the native habitats which exist at Quick Point was essential to the development of the park design. The preservation of valuable marine habitat and the minimization of disturbance to other sensitive areas was a primary component of the design philosophy. With this in mind, a habitat mapping of the property was conducted to specifically identify the various distinct exo-systems which comprised the Quick Point area.

The following is a listing and brief introduction of the six habitats and a description of the fauna found on the Quick Point property.

Sandy Shoreline

The sandy shoreline spans 200 feet section on the southern section of the property adjacent to new Pass. The quartz sands do not support any vegetation due to salinity and wave action. The shoreline does support various marine wildlife, including ghost crabs, hermit crabs and various shorebirds.

Disturbed Uplands

This area is located adjacent to and east of Gulf of Mexico Drive in the southern portion of the property. since it has been previously disturbed, it is dominated mostly by ruderal vegetation. Canopy species include Australian Pine and Cabbage Palm. Brazilian Pepper and Seagrape are the dominant shrubs. Herbs include Flat Sedge (Cyperus striosus), Greenbriar (Smilax spp.), Guinea Grass (Panicum maxicum), Seaoxeye Daisy (Borrichia frutescens), Spiny Needles (Bidens pilosa), Wholly Mullein (Verbascum thapsus), and Woonbine (Parthenocissus quinquenervia).

Mangroves - General

Estuarine shoreline edges, such as Quick Point, provide important habitat to birds and invertebrates. With a few exceptions, all of the coastal breeding colonies of Heron, Ibis, Cormorant and Pelican are in mangroves. In addition, rails, ducks and numerous other shorebirds rely upon marsh habitat.

Mangroves thrive in low-engery intertidal areas. Each type of mangrove has special adaptations for growing in or near salt water and for being daily or seasonally inundated by tides. Sensitive to frost, they are tropical in their geographic distribution.

Four species of mangrove are found at Quick Point. The two common intertidal species are Red Mangrove (Rhizophora mangle) and Black Mangrove (Avicennia germinans). White Mangrove (Languncularia

racemosa) and the Buttonwood Mangrove (Conocarpus erectus) grow adjacent to those two species, but generally on higher ground. Two succulents commonly found growing as ground cover within the mangroves include saltwork (Batis Maritma and Glass Wort (Salicornia spp.).

Mangrove (Ditched with Spoil Mounds)
On the Quick Point property, the area designated on the habitat map as mangroves (ditched with spoil mounds) was most probably once a combination saltmarsh, sandy area and mangrove swamp which was subsequently ditched for mosquito control purposes. Generally, the dominant species include red mangrove, black mangrove and white mangrove. In addition, Brazilian Pepper (Schinus terbinthifolius) and Australian Pine (Casuarina equistifolia are found extensively on the associated spoil mounds adjacent to the mosquito ditches.

Australian Pine Spoil Areas
There are two large areas at the Quick Point site which are probably the result of previous dredge spoil deposition. Australian pine has heavily colonized these areas. Other canopy species include Cabbage Palm (Sabal palmetto) and Red Bay (Persea borbonia). Shrubs include Brazilian Pepper, Marlbery (Ardesia escallonoides), Myrtle Oak (Quercus myrtifolia), Prickly Pear Cactus (Opuntia humifusa), Seagrape (Coccoloba uvifera), Spanish Bayonet (Yucca aliofolia), Sea Myrtle (Baccharis spp.), and White Stopper (Eugenia axillaris). The understory includes herbs such as Arrow-leaf Morning Glory (Ipomeoea sagitara), Coastal Panic Grass (Panicum amarulum), St. Augustine Grass (Stenotaphrum secundatum), Coastal Sanbur (Cenchrus incertus), Glasswort (Salicornia spp.), Narrow-leaved Sunflower (Helianthus augustifolus), Seaside Goldenrod (Solidago sempervirens), Sea Lavender (Limonium carolinianum), Sea Oxeye (Borrichia frutescens) and Sea Purslane (Sesuvium portulacastrum).

Seagrass Beds
Seagrass beds are prevalent along the entire quick Point shoreline. Turtle Grass (Thalassia testudinum) and Shoal Grass (Halodule beaudettei) are the dominant grasses. Intermittent wading birds were noted feeding in the seagrass beds along the entire periphery.

Mangrove (Shoreline Fringe)

Mature and healthy red and black mangroves constitute the majority of the Sarasota Bay shoreline and the inner fringe of the two estuarine lagoons. The eastern shoreline is dominated by all three species of mangroves in addition to buttonwood and some Australian Pine. The eastern lobe of the northerly shoreline is also dominated by all three species of mangroves, with Australian Pine being more prevalent. The remainder of the northern shoreline consists of mature red and black mangroves with the exception of an area of Australian Pines in the central portion. These Australian Pines are associated with a large inland spoil area.

LAND MANAGEMENT RECOMMENDATION

The proper management of publicly held lands can serve as an important example to other residents. The management of the Quick Point property provides and excellent opportunity to demonstrate proper ecological management techniques especially in and around estuarine systems, especially those with a history of previous alteration.

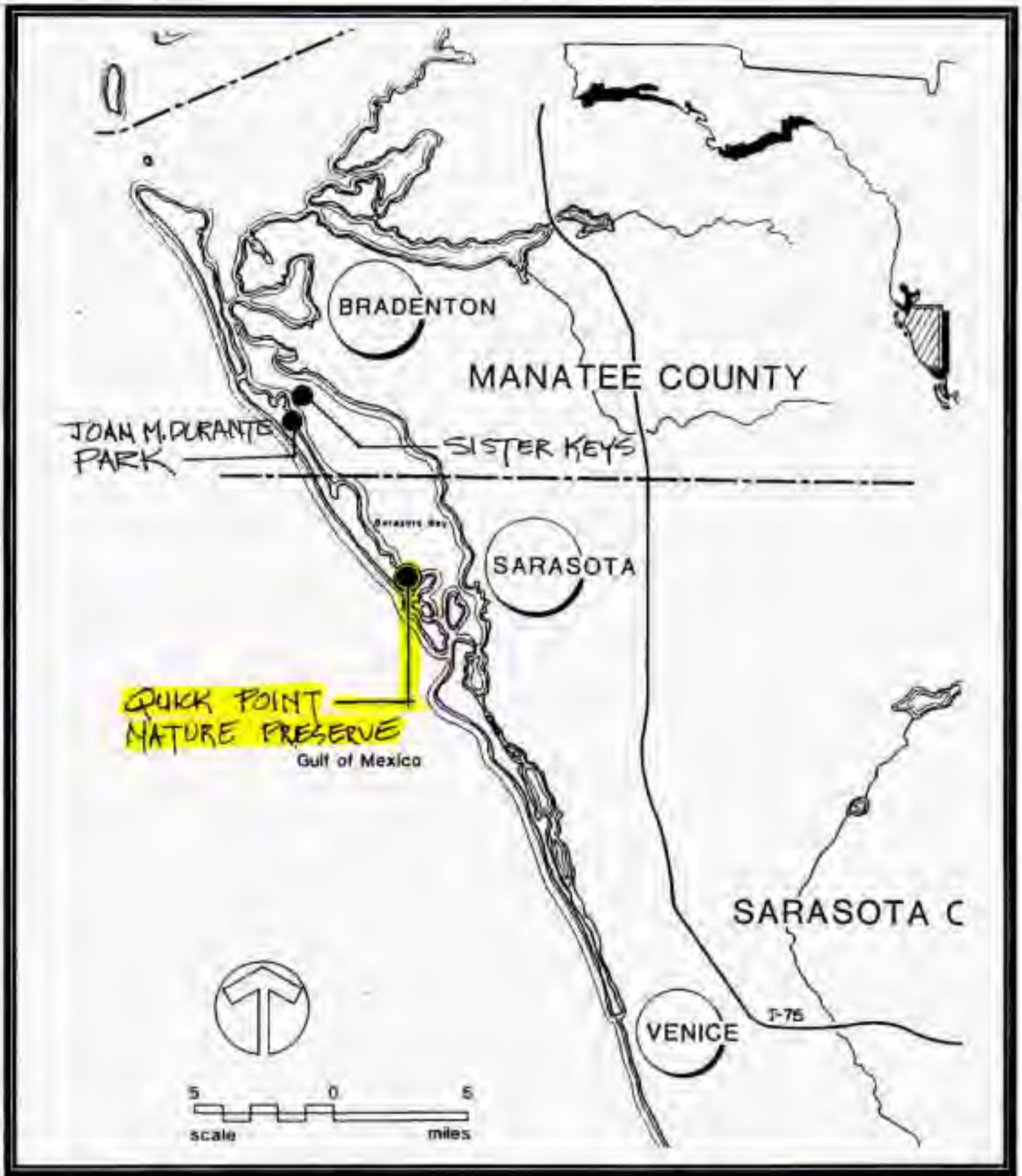
Because of its high environmental value and importance to the Sarasota Bay ecosystem, management of the land should emphasize preservation of valuable habitat and improvement and protection of altered habitat. Areas where we would recommend that specific land management techniques be applied are:

1. Mangrove/Spoil Mound System While the mangrove-lined ditches create an environmental system with important ecological value to the bay and marine life, the subsequent spoil mounds which were created as a result of the ditching need to be properly managed. In time, it is possible that the exotic vegetation will out-compete the mangrove areas and eventually cause a decline in growth and productivity of the mangroves. A phased longterm maintenance program should be in place which addresses the removal of the exotic vegetation (such as the Australian Pine and Brazilian Pepper) while preserving the mangrove fringe. A management program for this area must be very specific and selective as traditional horticultural techniques do not work well in such a sensitive location.

2. Bay Shoreline Much of the Quick Point property is naturally stabilized and protected through a mature mangrove growth fringe. However, portions of the eastern shoreline have experienced sever erosion, probably due to boat wake. This area should be re-established with mangroves and salt marsh grasses at appropriate locations and elevations. The use of some low level wave protection may be necessary, though we would not recommend considering a revetment or any other shoreline hardening techniques. In general, the entire Quick Point shoreline should be managed for the continued growth and health of the mangrove fringe. Australian Pines and other exotic vegetation which compromises the health, vigor and future growth of this fringe should be removed and natives replanted, if necessary.

3. Seagrass Beds The extensive seagrass beds in the northern lagoon shows signs of some damage, probably caused by propeller scar. These seagrass beds are particularly vulnerable at low tide and should be protected from further damage. Propeller scars in seagrass beds are particularly damaging as most destroyed areas will not naturally recolonize for a very long time.

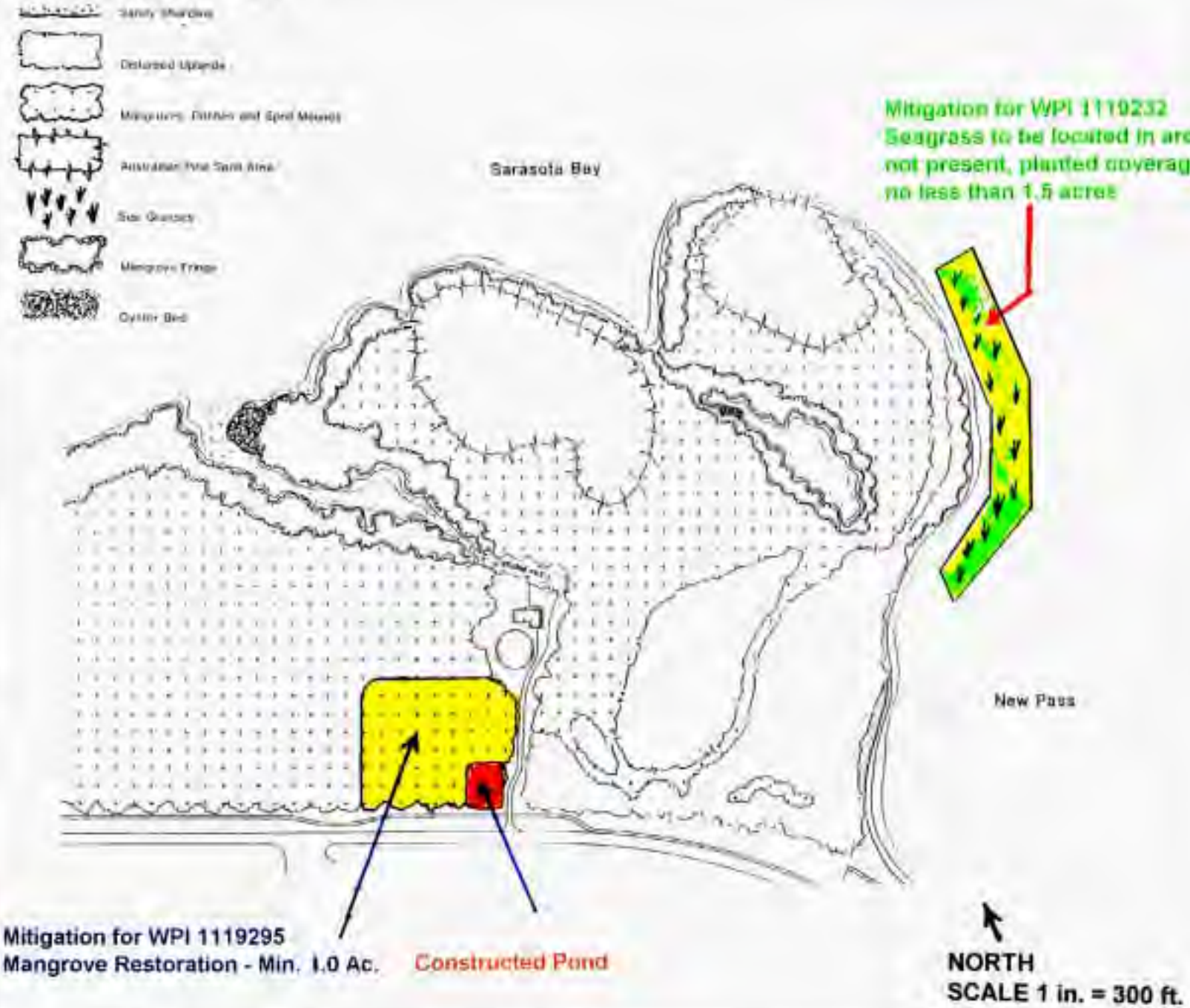
4. Mixed Uplands A program of phased removal of Australian Pines should be considered in this area, along with the introduction of native coastal hammock species. This program would also facilitate the eventual recolonization of the shoreline by mangroves and would eliminate maintenance and safety problems associated with dead Australian Pines.



FDOT - District 1 MITIGATION SITE (Lower Coastal Basin)	**QUICK POINT NATURE PRESERVE (SW 38)**	**FIGURE A REGIONAL LOCATION**

FDOT - District 1 MITIGATION SITE (Lower Coastal Basin)	**QUICK POINT NATURE PRESERVE (SW 38)**	**FIGURE B SITE LOCATION**

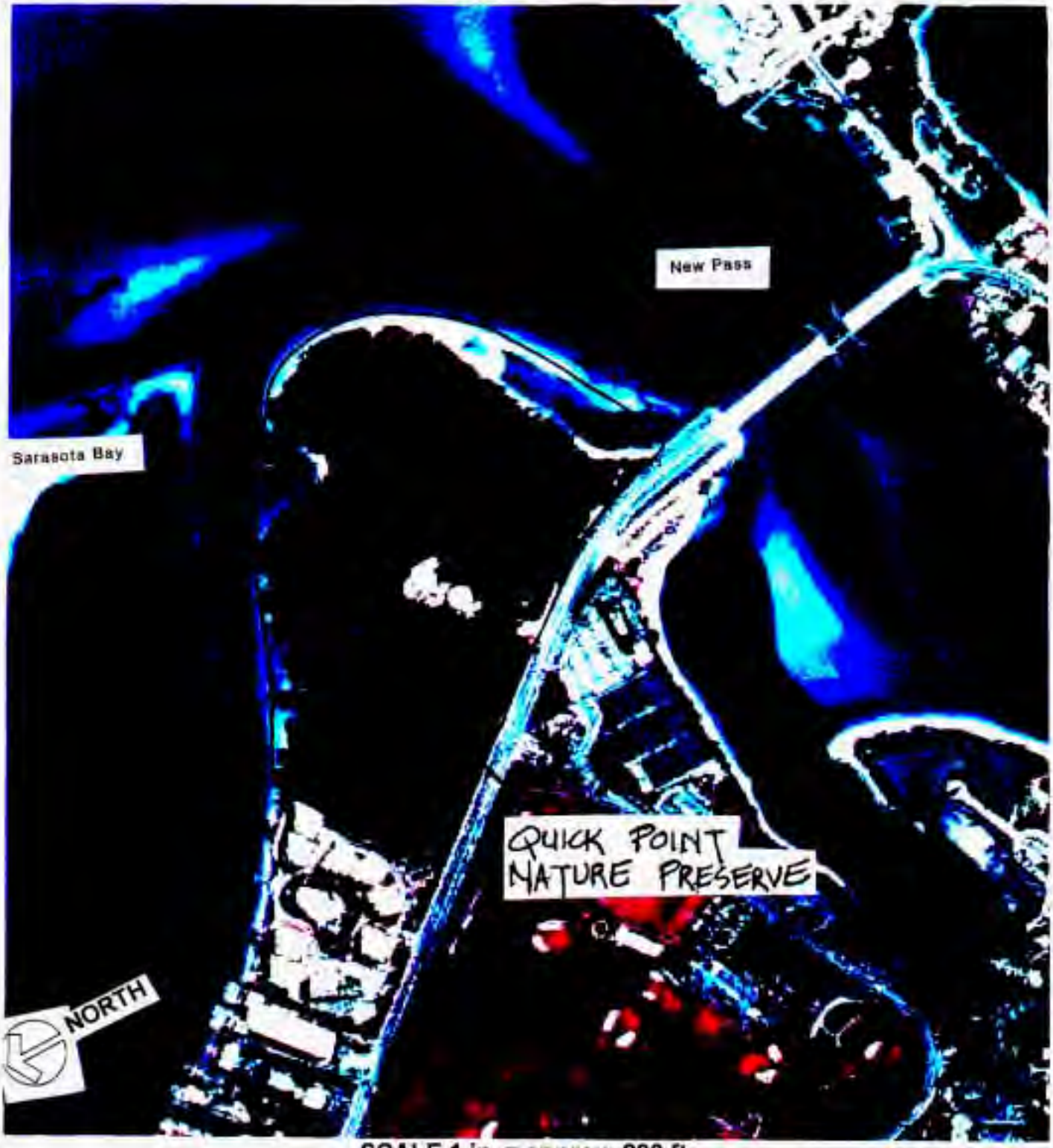
HABITAT MAP



FDOT - District 1
MITIGATION SITE
(Lower Coastal Basin)

QUICK POINT
NATURE PRESERVE
(SW 38)

FIGURE C
HABITAT & PROPOSED
RESTORATION



SCALE 1 in. = approx. 200 ft.

FDOT - District 1 MITIGATION SITE (Lower Coastal Basin)	QUICK POINT NATURE PRESERVE (SW 38)	FIGURE D INFRARED AERIAL (1995)

Restoration effort is a joint project with funding, design, and construction provided by partnering between local, state, and federal programs.

The 0.3 acre intertidal pond has been constructed by removing exotic vegetation and fill material. Mangroves have naturally recruited around the perimeter and there is substantial wildlife use of the lagoons at the Preserve.

FDOT - District 1 Mitigation Site (Lower Coastal Basin)	Quick Point Nature Preserve (SW 38)

Within the mangrove areas, spoil adjacent to mosquito ditches have coverage of Australian pine and Brazilian pepper that will be eradicated; once removed, periodic maintenance will keep these species under control.

View from the bridge crossing over New Pass, along the northern perimeter of Quick Point. The light colored, sandy bottom areas depicted above were historically covered with seagrass
Since natural recruitment is so slow, these areas will be replanted with seagrass.

FDOT - District 1 Mitigation Site (Lower Coastal Basin)	**Quick Point Nature Preserve (SW 38)**

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(ies): Pinellas Location: Sec. 12, T30S, R16E

IMPACT INFORMATION

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

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, all referenced water bodies connect to Tampa Bay

Impact Acres/ Type:

(1) FM 2569051 0.10 ac. 540 (Fluccs)
0.50 ac. 642
TOTAL 0.60 acres

(2) FM 2569571 4.90 ac. 612 (Fluccs)
3.20 ac. 619
0.50 ac. 641
0.50 ac. 642
TOTAL 9.10 acres

(3) FM 2556301 3.70 ac. 540 (Fluccs)
4.40 ac. 612
4.10 ac. 642
TOTAL 12.20 acres

(4) FM 2570931 1.30 ac. 612 (Fluccs)
0.20 ac. 642
TOTAL 1.50 acres

(5) FM 4062531 TOTAL 0.20 ac. 612 (Fluccs)

(6) FM 2557341 1.00 ac. 612 (Fluccs)
0.50 ac. 619
TOTAL 1.50 ac.

(7) FM 2583981 2.00 ac. 612 (Fluccs)
0.30 ac. 641x
TOTAL 2.30 ac.

TOTAL 27.40 acres

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation X Restoration X Enhancement ___ Preservation Mitigation Area: **96.8 ac.**
Project Site: 176 Acres - Preservation of mangroves (42 acres) not included in the mitigation acreage.

Mitigation:		
	Saltwater Marsh Restoration	42.93 Acres (Fluccs 642)
	Open Water Inlets & Lagoons	7.78 Acres (Fluccs 540)
	Mangrove Enhancement	42.48 Acres (Fluccs 612)
	Upland Enhancement	3.60 Acres
	Mitigation Area	**96.8 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 coastal habitats along publicly-owned (Pinellas County) parcels within the Gateway corridor south of the Howard Franklin Bridge in Pinellas County. Construction commenced in 2004, starting with removal of the extensive exotic vegetation that had invaded the entire site, followed by restoring the grade of filled wetlands to the appropriate marsh elevations and planted with native intertidal and estuarine species. This will restore the lost estuarine habitat historically located on the site. The uplands received eradication of the extensive exotic species and were

planted with native coastal upland species. Over a third (35.0 acres) of the existing 92-acres of mangrove habitat were enhanced with initial herbicide treatment (Garlon) of the Brazilian pepper, followed by backfilling spoil into mosquito ditches to eliminate the potential for B. pepper regeneration. Mangrove seedlings will naturally recruit and generate within the filled mosquito ditches and adjacent spoil removal areas. Open water and lagoon components will reconnect the estuarine habitat and improve tidal flushing, increasing access for aquatic micro-organisms, fish, and invertebrates throughout the Gateway habitat area.

B. Brief description of current condition: Large portions of the historically pristine mangrove forest and intertidal marsh within the project area were adversely impacted by dredge & fill activities associated with extensive mosquito ditching, urban development, and highway construction (Figures B & C). The filled upland, transitional wetland habitat, and spoil mounds adjacent to the mosquito ditches were heavily invaded by exotic vegetation including Brazilian pepper, Melaleuca, and Australian pine.

C. Brief description of proposed work: Construction commenced early, 2004 with removal of exotic vegetation from the uplands and followed by herbicide treatment of the B. pepper on the spoil ridges adjacent to the mosquito ditches. Proper erosion control methods were installed on the site, followed by earthwork activities. The unique spoil removal method utilized high-pressure water hoses to spray and displace the majority of the soil into the adjacent mosquito ditches. Grading of the adjacent upland area was conducted, followed by planting of the historic salt-marsh, intertidal zones, and former upland habitats.

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 will 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 (27.4 acres) are mitigated with habitat enhancement and restoration covering 96.8 acres, a cumulative mitigation ratio of 3.5-to-1 (refer to mitigation table). Approximately 30% (9.1 acres) of the total proposed impact will occur in association with the I-275 project adjacent to the mitigation area, essentially resulting in an on-site mitigation option. There is an additional 9 acres of habitat improvements that have not been designated for DOT mitigation purposes. These enhancement activities are associated with the potential of any additional impacts for the last remaining designated FDOT project that hasn't been permitted as of 2004. No additional DOT projects are proposed for mitigation within this first phase of Gateway.

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 project.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: A designated 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: SWFWMD or designee

Mitigation Project - Gateway Restoration Site

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

Project cost: $1,488,000 (total);
$ 92,000 Design, permitting, and construction monitoring
$1,336,000 Construction & Planting
$ 60,000 Maintenance & Monitoring

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 mitigation table and design plans depict each of the proposed wetland impacts and associated designated mitigation portion at Gateway.

ATTACHMENT A - Existing Site & Proposed Work

This first phase of Gateway is 176-acres, covered with 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 being restored with a combination of exotics removal, 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 DOT mitigation requirements, a minimum 35-acres of the 92-acre mangrove habitat will also be enhanced. Historically, enhancing and restoring mangrove habitat with mosquito ditching has been a very problematic procedure. Unless continuously maintained, cutting Brazilian pepper from the spoil mounds is only a temporary solution since they will regenerate as long as the spoil is still present. To rid a mangrove area of exotics without continuous maintenance, the spoil mounds have to be graded below high tide elevations. However, utilizing construction equipment usually results in mangrove impacts due to the entangled pepper and mangrove. 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 agencies associated with saltwater habitat enhancement have essentially avoided attempting to restore mosquito ditch systems in the last decade.

In recent years, a new method of spoil removal has been implemented with success in Texas. After herbicide and manual removal of the B. pepper and other exotics, staked silt screens and floating barriers were 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. This method of mosquito ditch regrading had not been attempted before elsewhere in Florida. As of 2004, the initial evaluation has indicated this method to be a valuable ecological yet economical construction method for mangrove enhancement.

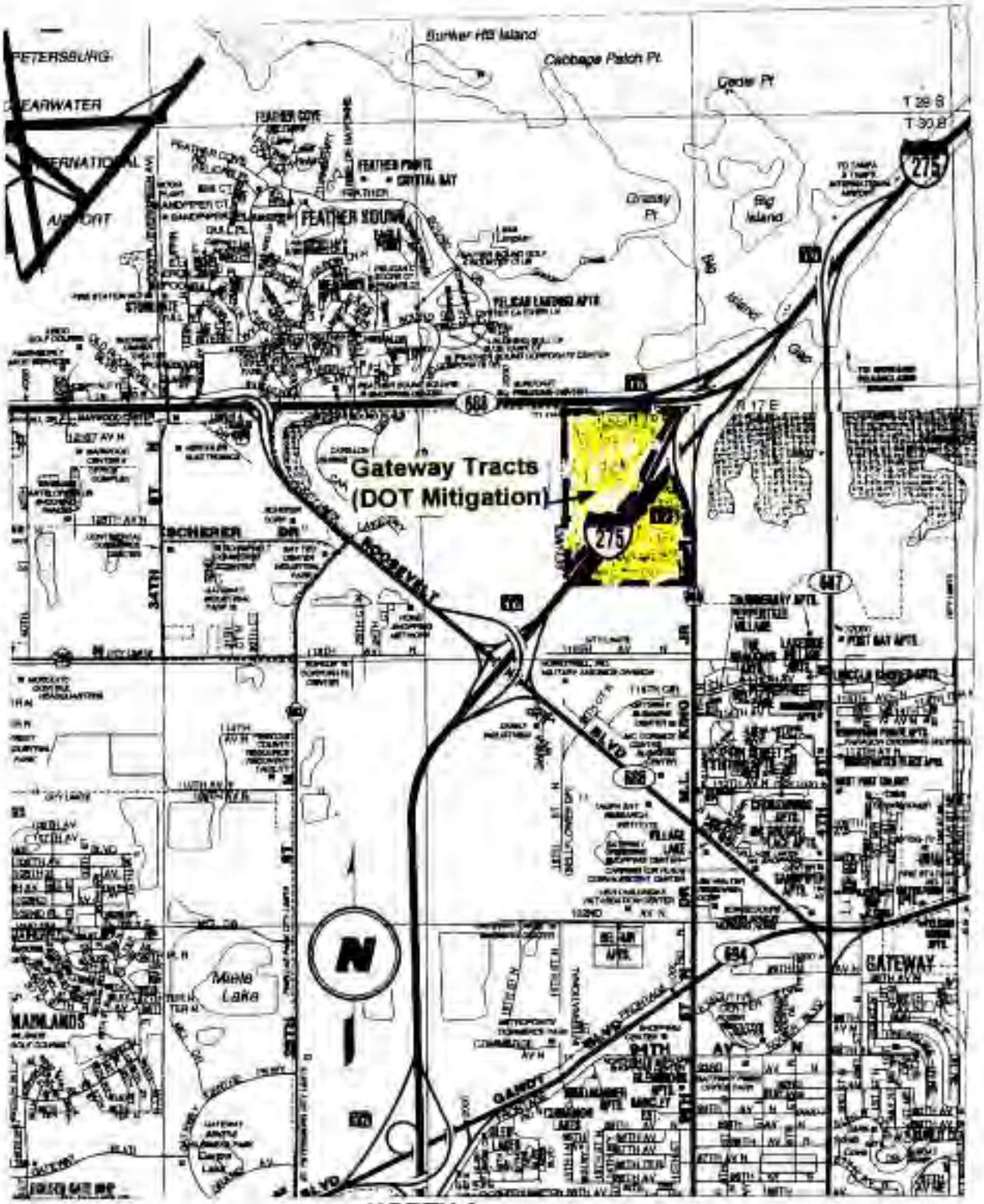
ATTACHMENT B - Schedule

Construction and planting will be complete by fall, 2004. 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 monitoring period.

ATTACHMENT C - Maintenance & Monitoring Plan, Success Criteria

The mitigation is associated with a larger restoration objective for the Gateway land jointly purchased by the WMD and 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 vegetation will survive and recruit throughout the site. Maintenance will primarily be related to control of debris from the site and conducting supplemental planting. Salt water limits the re-establishment of exotic vegetation. The control of nuisance/exotic vegetation within the restored upland area will be maintained through use of herbicide application. Maintenance will be conducted as needed, expected to be quarterly for the first year after planting, 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 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 information, 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
									9.70	Saltwater Marsh Restoration
						4.10	642 - Saltwater Marsh	3 to 1	11.53	Saltwater Marsh Restoration
									2.00	Upland Enhancement
4	SR 60, Clearwater Harbor Bridge Replacement	2570931	44021540.001	200004966 (IP-TF)	1.50	0.20	540 - Bays & Estuaries	2 to 1	0.98	Open Water Restoration
						1.30	612 - Mangrove	3 to 1	3.00	Mangrove Enhancement
5	SR 686 (Roosevelt) at 49th Street	4062531	44007482.001	200206320	0.20	0.20	612 - Mangrove	12 to 1	2.40	Mangrove Enhancement
6	SR 676 - Maritime Blvd. to SR 60	2557341	44137356.003	199502501 (IP-ES)	1.50	1.00	612 - Mangrove	4 to 1	4.00	Mangrove Enhancement
	(SR 45, Causeway Blvd & US 41, Licata Bridge)					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

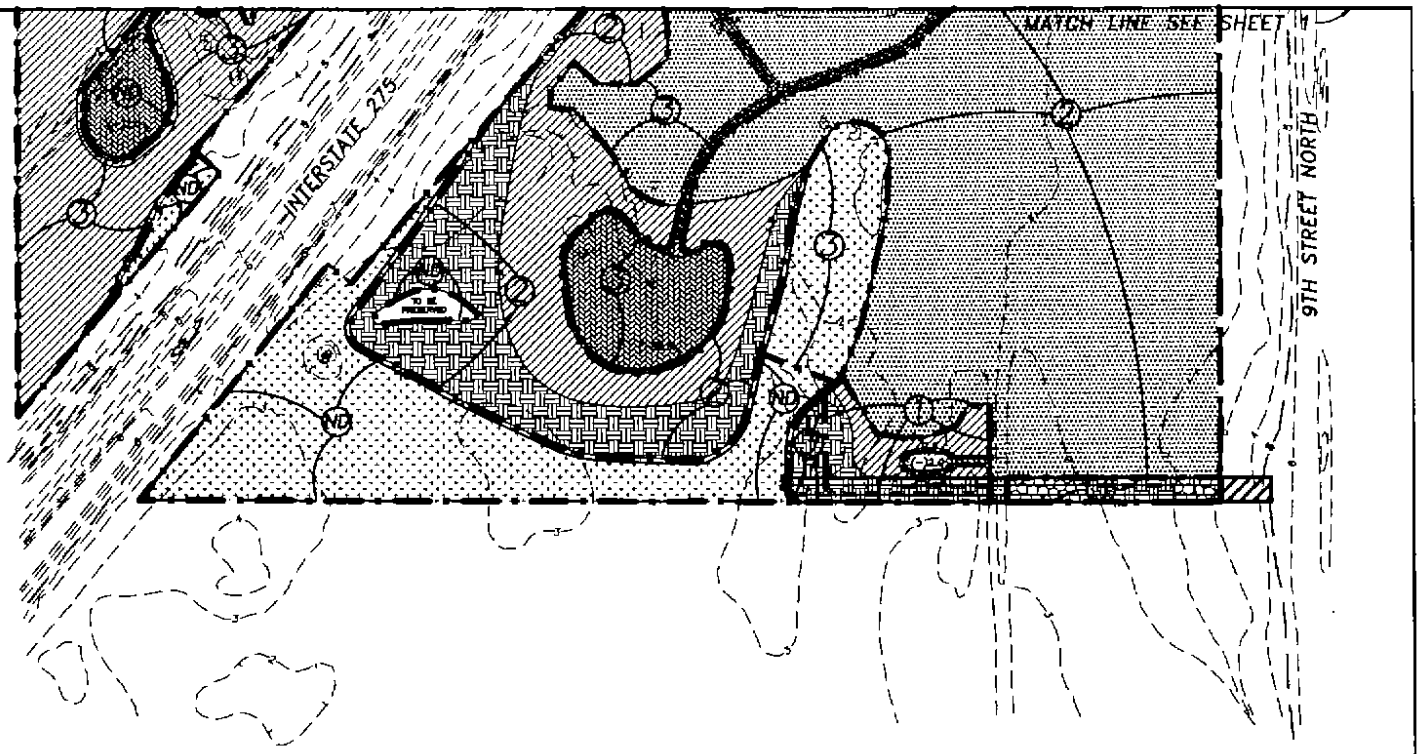
540 - Bays & Estuaries	3.8
612 - Mangrove	13.8
619 - Exotic Hardwood	3.7
641 - Freshwater Marsh	0.5
641x - Freshwater Ditch	0.3
642 - Saltwater Marsh	5.3
TOTAL	27.4

Gateway Mitigation Acreage

Total Open Water	10.63
Total Mangrove Enhancement	42.50
Total Saltwater Marsh	42.93
Total Upland Enhancement	10.25
TOTAL	106.31

Mitigation Acreage Committed To FDOT

Total Open Water	7.78
Total Mangrove Enhancement	42.48
Total Saltwater Marsh	42.93
Total Upland Enhancement	3.50
TOTAL	96.69



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	200004966
5	SR 686 (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 BOUNDRY
- 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

0 100 200 400
Scale in feet

PURPOSE: MITIGATION/RESTORATION
DATUM: NGVD 1929

SWFWMD
GATEWAY TRACT

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

SHEET 2 OF 2 DATE: JULY, 2002

FOR PERMIT PURPOSES ONLY

Prepared by: URS Corporation Southern

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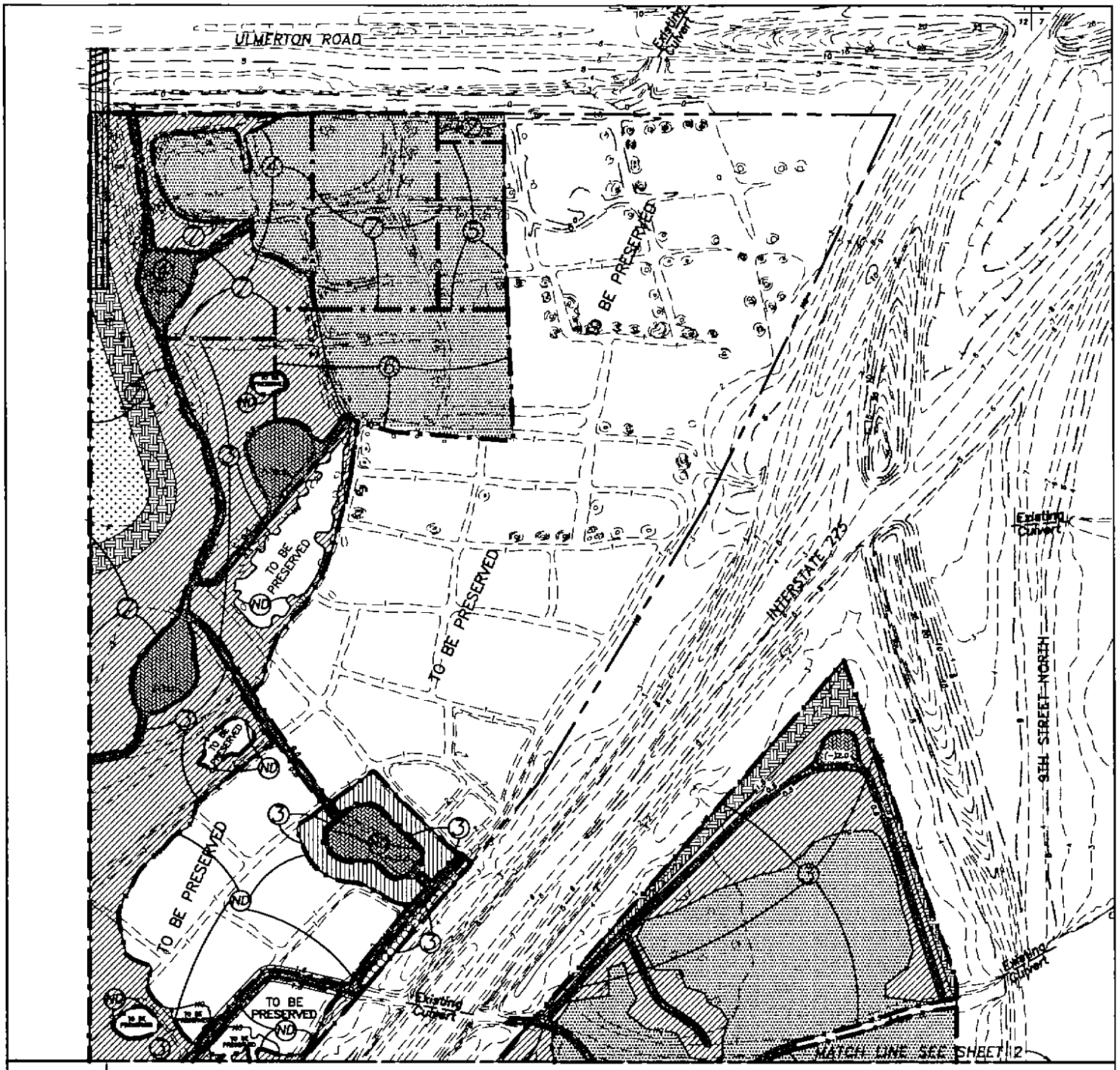


FOR LEGEND SEE SHEET 2

0 100 200 400
Scale in feet

PURPOSE: MITIGATION/RESTORATION
DATUM: NGVD 1929

SWFWMD
GATEWAY TRACT

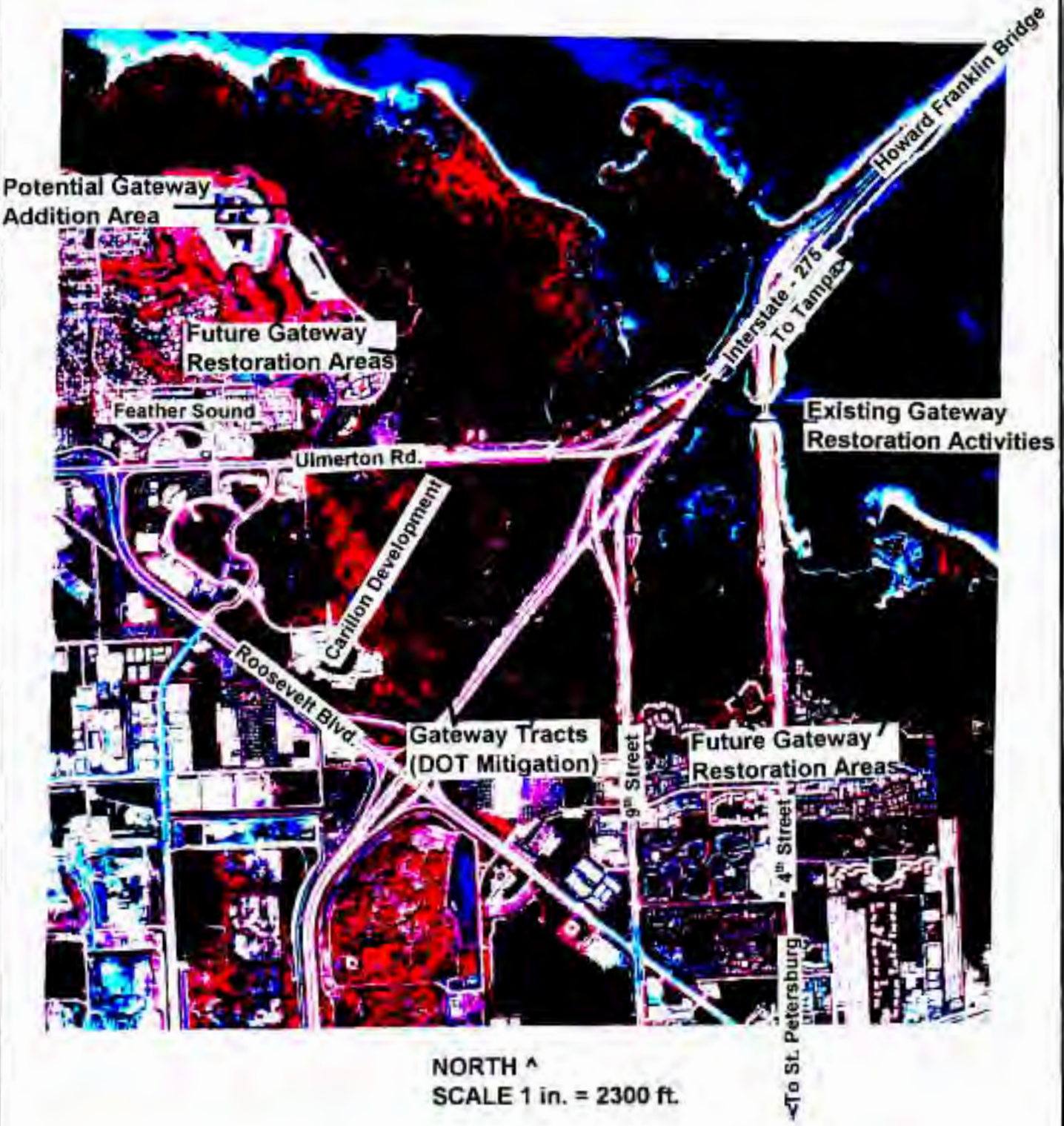
F.D.O.T. PROJECT APPROPRIATION MITIGATION PLAN

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

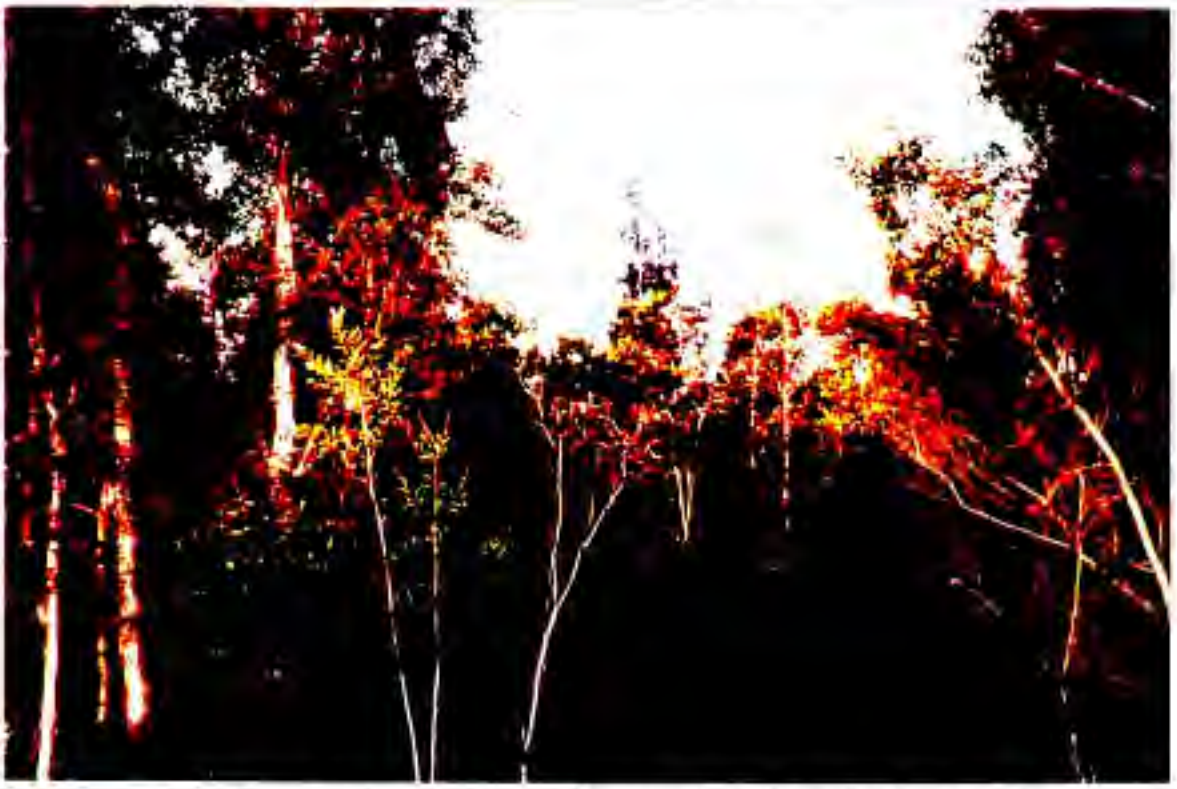
SHEET 1 OF 2 DATE: JULY, 2002

FOR PERMIT PURPOSES ONLY

Prepared by: URS Corporation Southern



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)
1.79 ac. – 611 (Fluccs code)
TOTAL 1.89 Acres

(2) FM 1974751
0.59 ac. – 610 (Fluccs code)
0.33 ac. – 611 (Fluccs code)
2.86 ac. – 615 (Fluccs code)
1.35 ac. – 617 (Fluccs code)
0.74 ac. – 641 (Fluccs code)
TOTAL 5.87 Acres

(3) FM 1974711
0.06 ac. -- 640 (Fluccs code)
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 25.1acre 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).

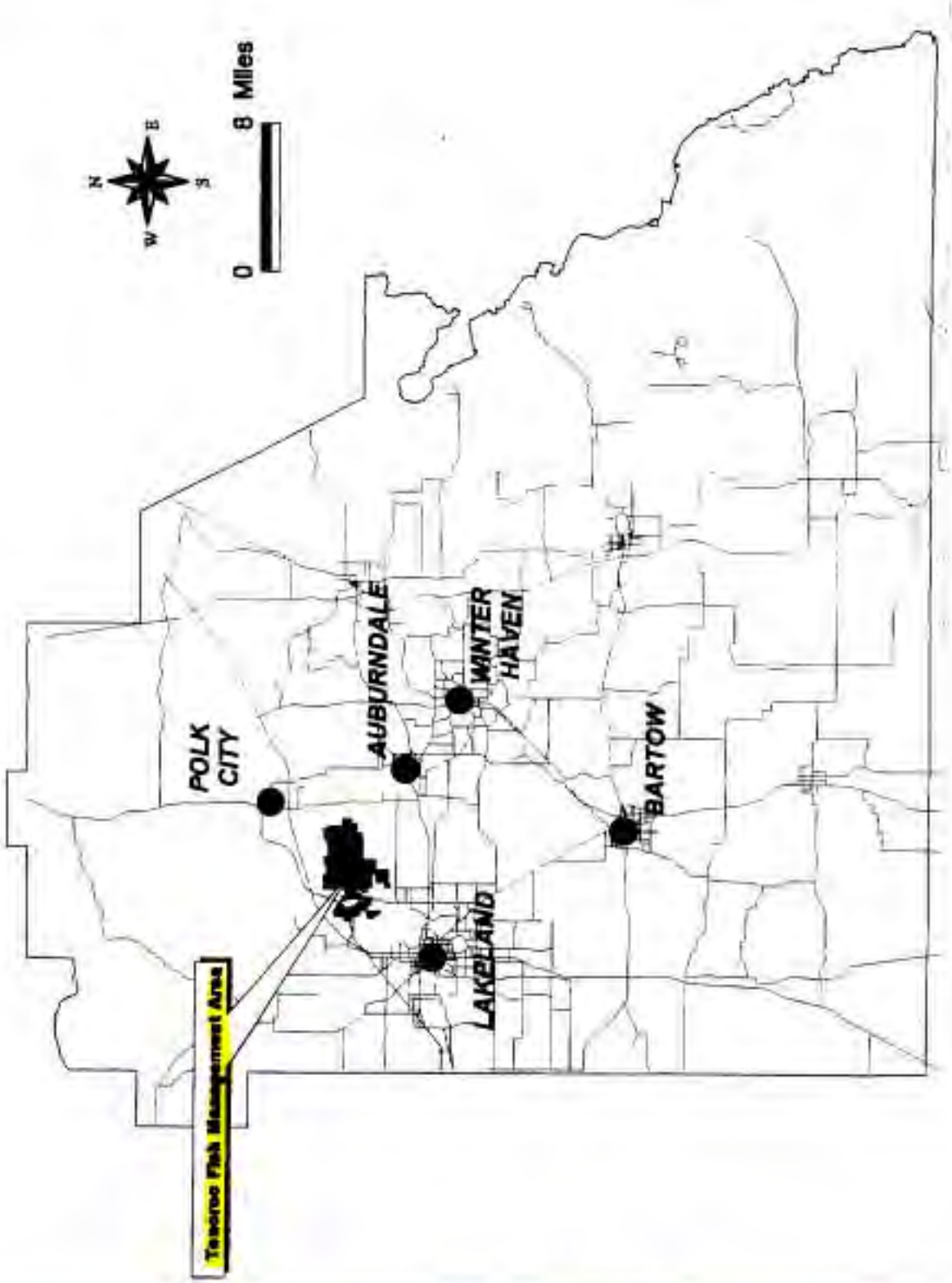
X 3. Location map and design drawings of existing and proposed conditions. Refer to Figs. A, B for location map, Figures C & D for proposed wetland creation area.

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.

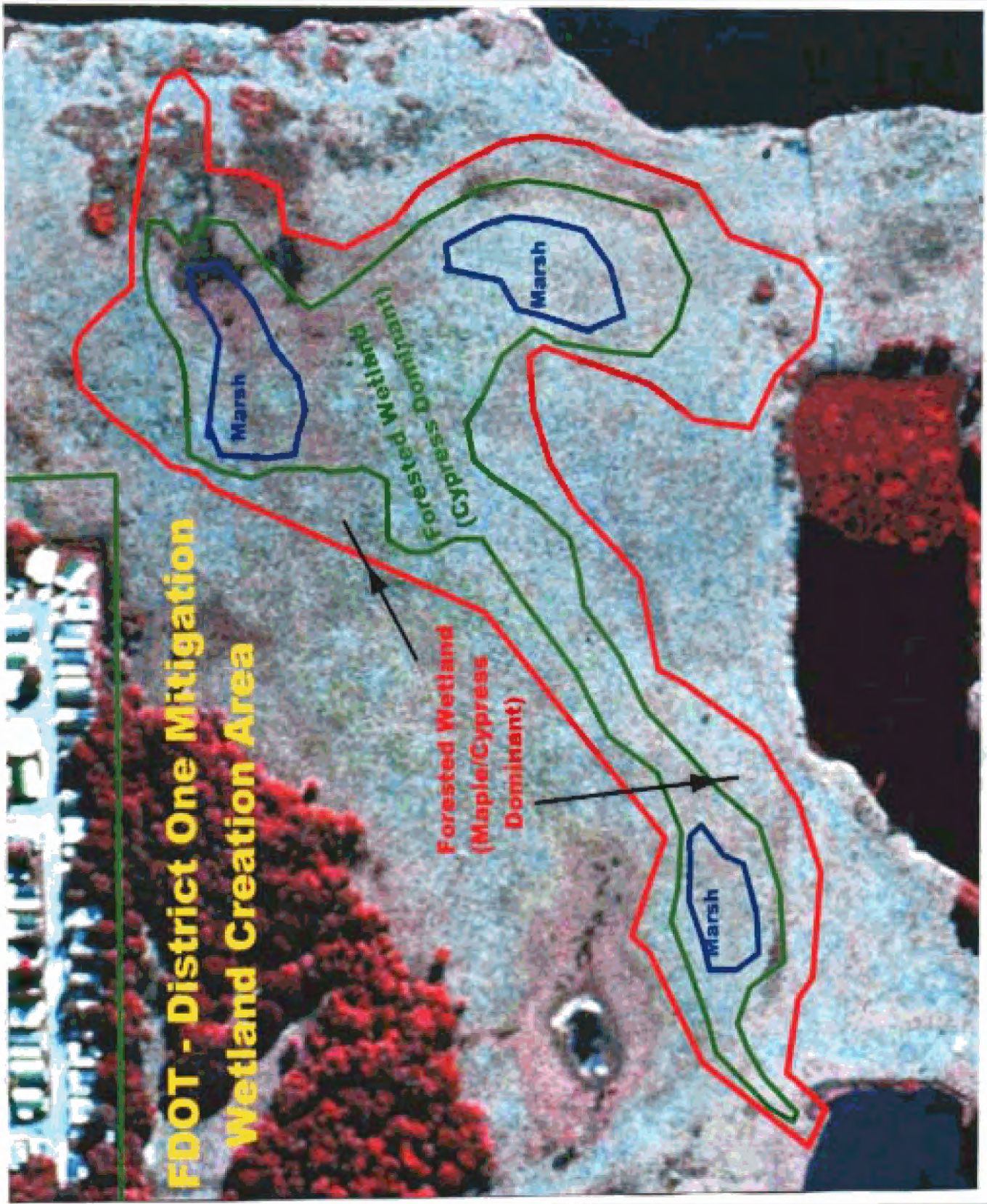
X 6. Long term maintenance plan. Maintenance will include herbicide control of nuisance, exotic, and undesirable species for a minimum 5 years and until the success criteria is met. After the 5 years, the FFWCC will be responsible to periodically conduct additional herbicide maintenance as necessary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

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

__X__1. Detailed description of existing site and proposed work. Refer to previous discussion.

__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, Figure B depicts wetland enhancement & preservation, upland restoration areas.

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

__X__5. Proposed success criteria and associated monitoring plan. Reference permit conditions.

__X__6. Long term maintenance plan. Reference permit conditions.

__X__7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

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

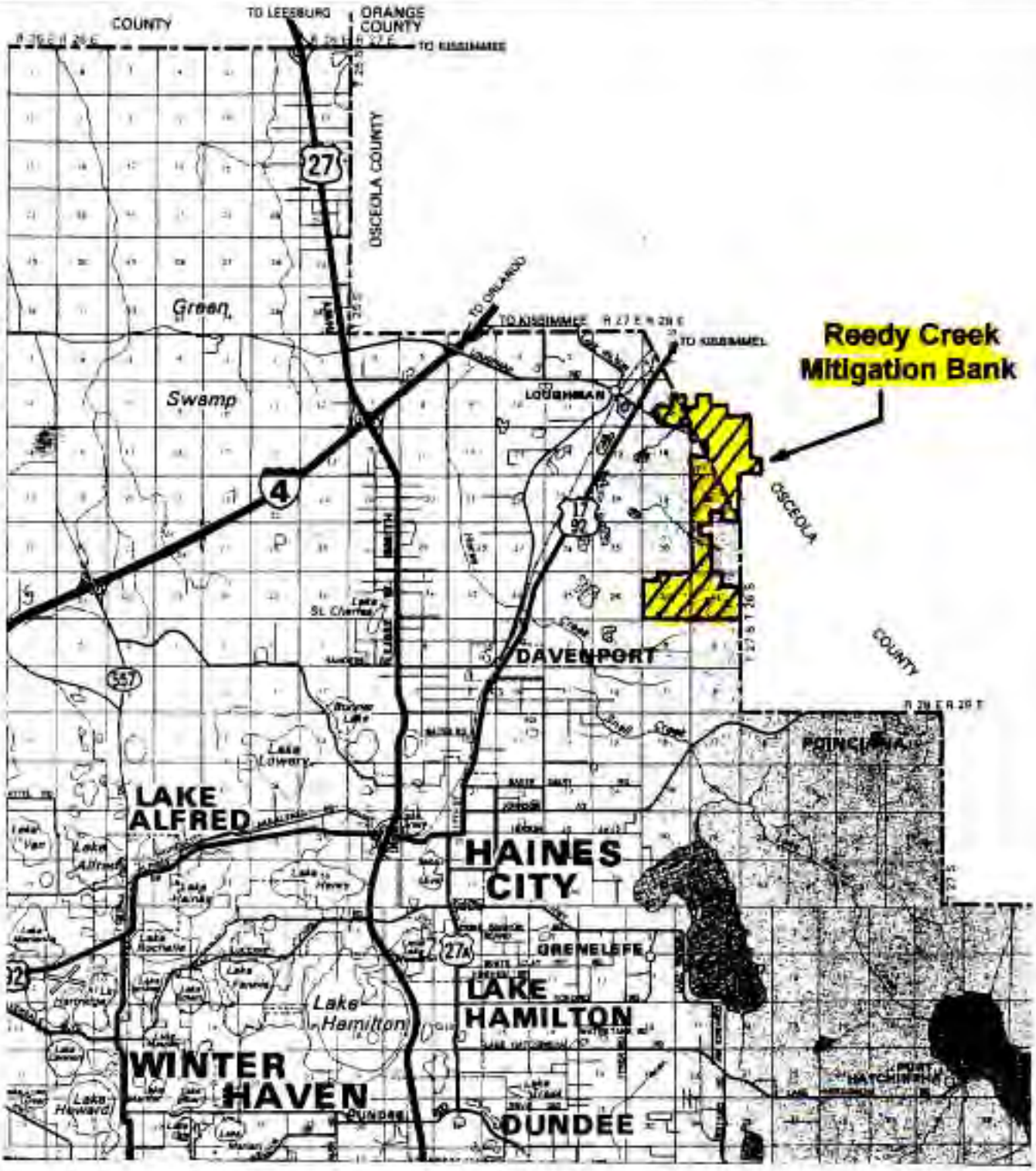
Project Description

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.

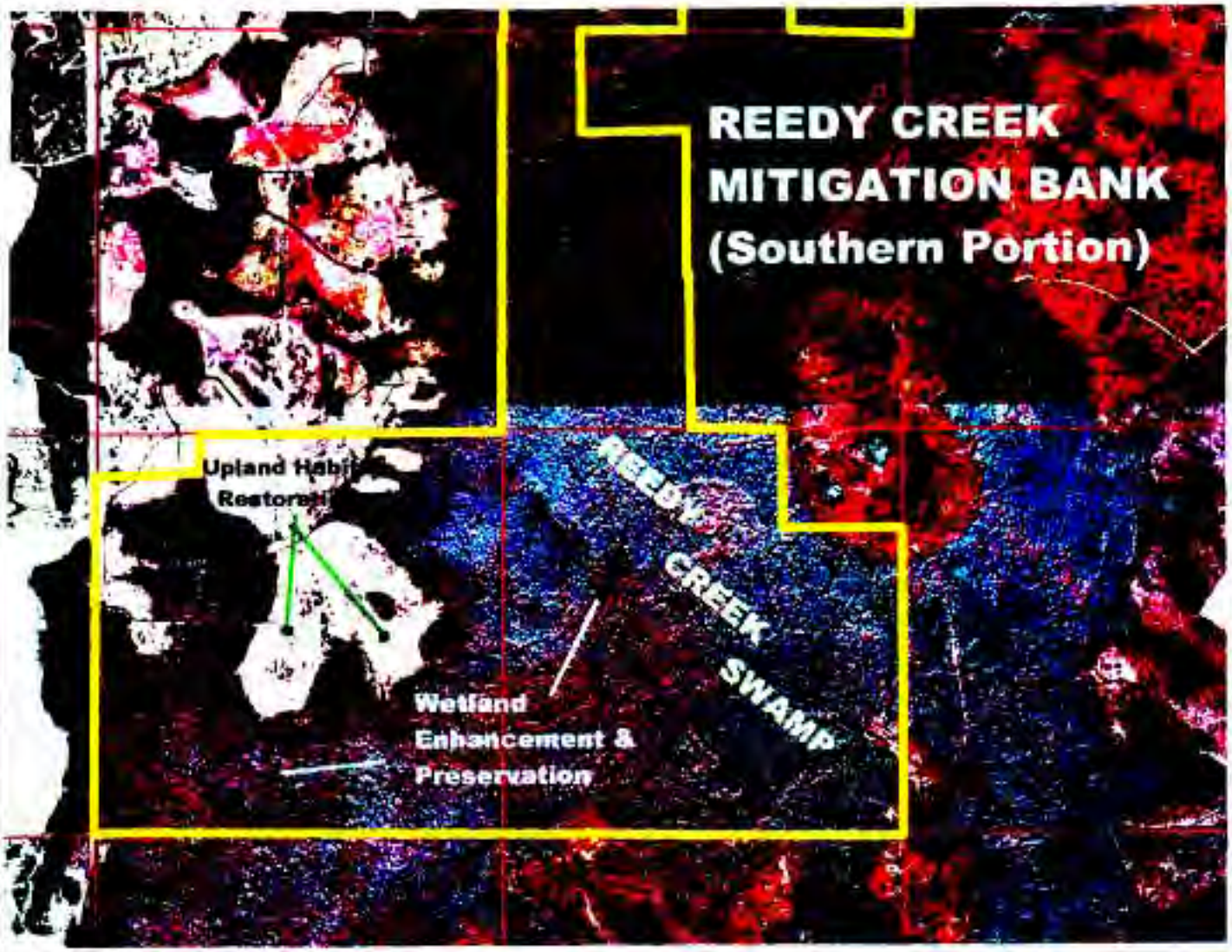


NORTH ^ SCALE 1 in. = 3 miles

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 Number: **SW 50**
Project Manager: Brandt F. Henningsen, Ph.D. , SWIM Sr. Env. Scientist Phone: (813) 985-7481 ext. 2202
County(ies): Manatee 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 (0.41acre) (**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

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

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

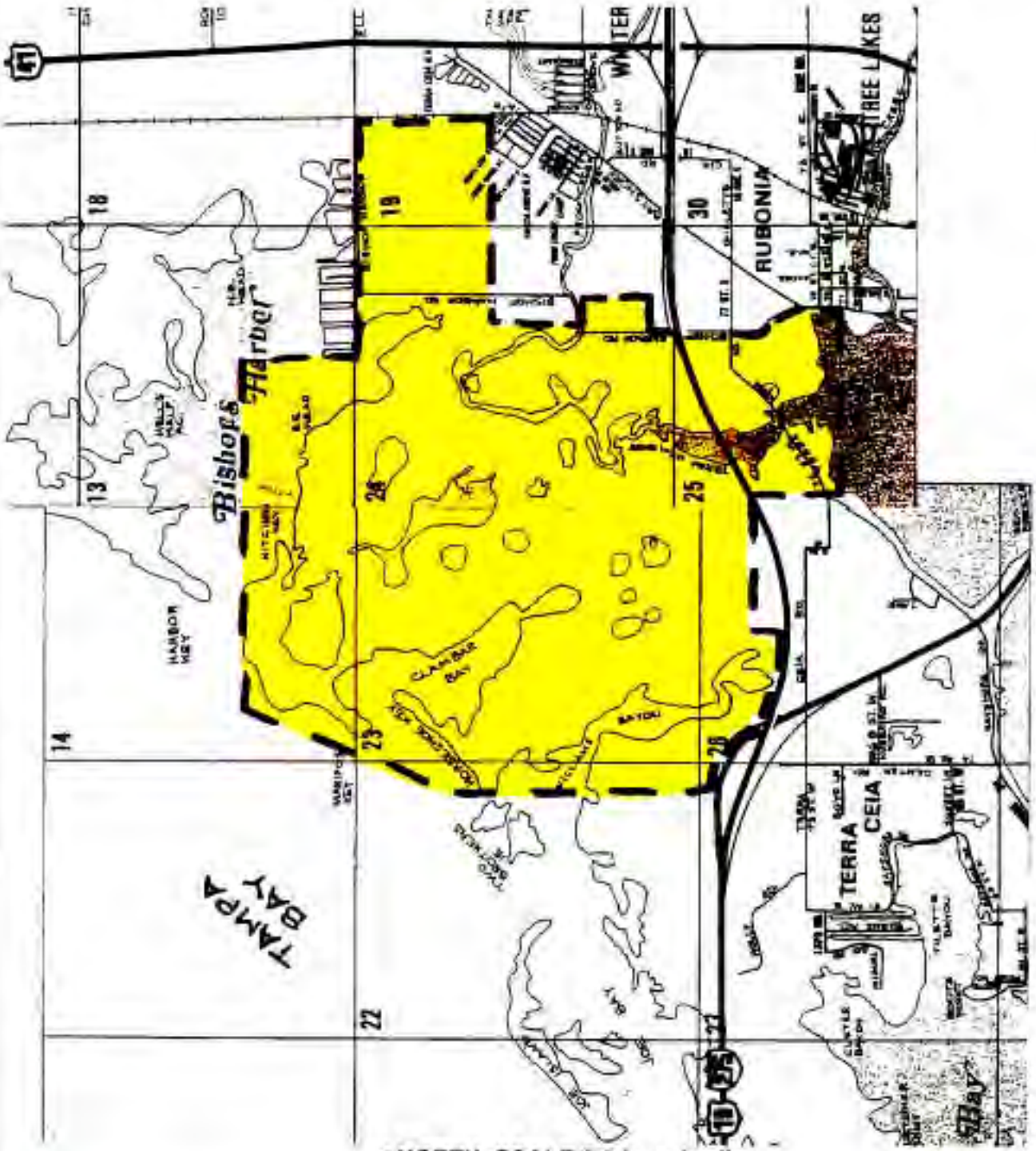
x 3. Location map and design drawings of existing and proposed conditions. Fig. A - Location Map, Fig D - Design.

x 4. Detailed schedule for work implementation, including any and all phases. The exotic species were eradicated and the area planted in 2002.

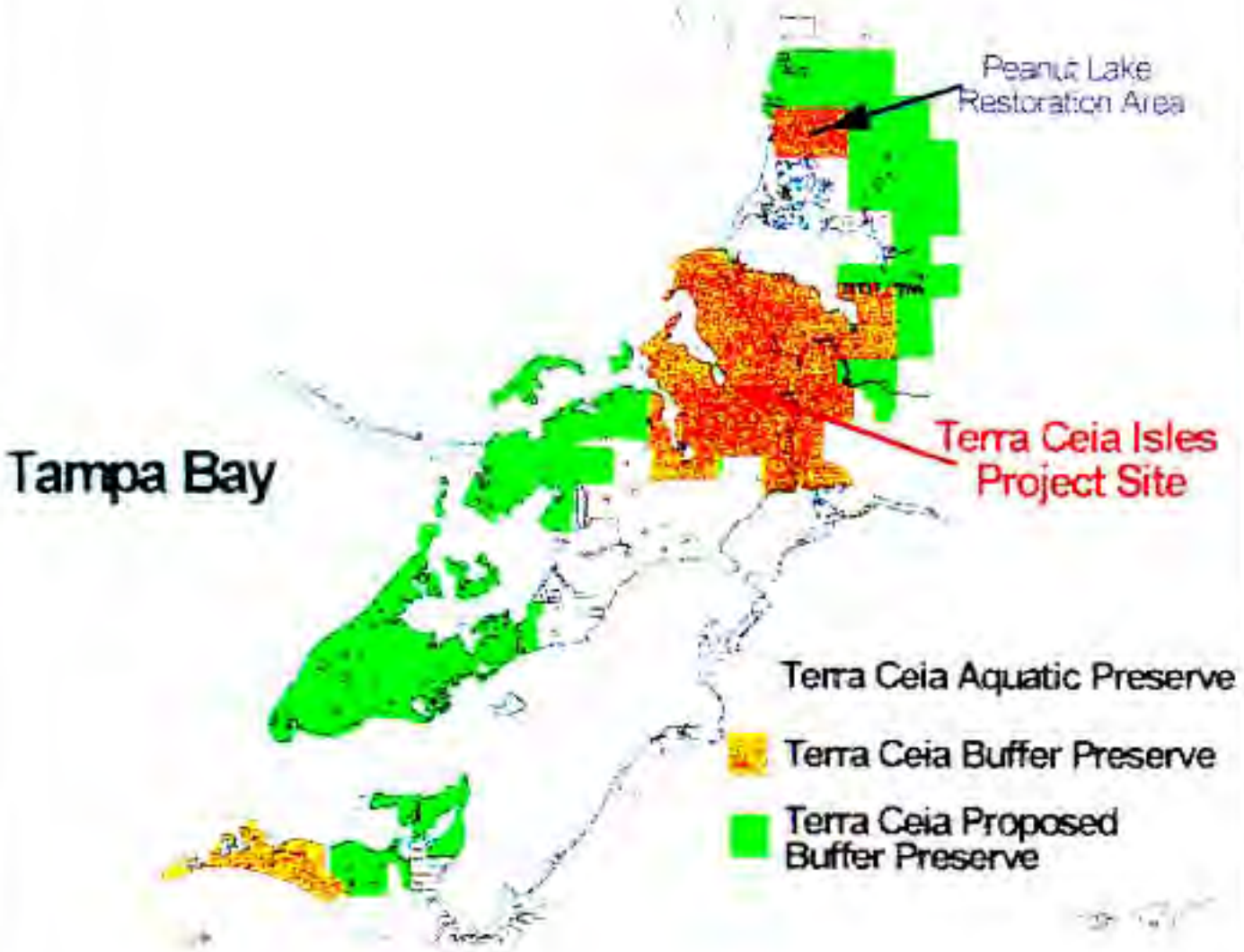
x 5. Proposed success criteria and associated monitoring plan. The success criteria includes less than 10% cover of exotic/nuisance vegetation for the minimum 7- acre area providing mitigation for DOT wetland impacts. The monitoring will occur on an annual basis for 3 years, qualitative evaluation of species survival, cover, exotic/nuisance vegetation, hydrologic conditions, wildlife use, and recommended actions needed to ensure or enhance success.

x 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.

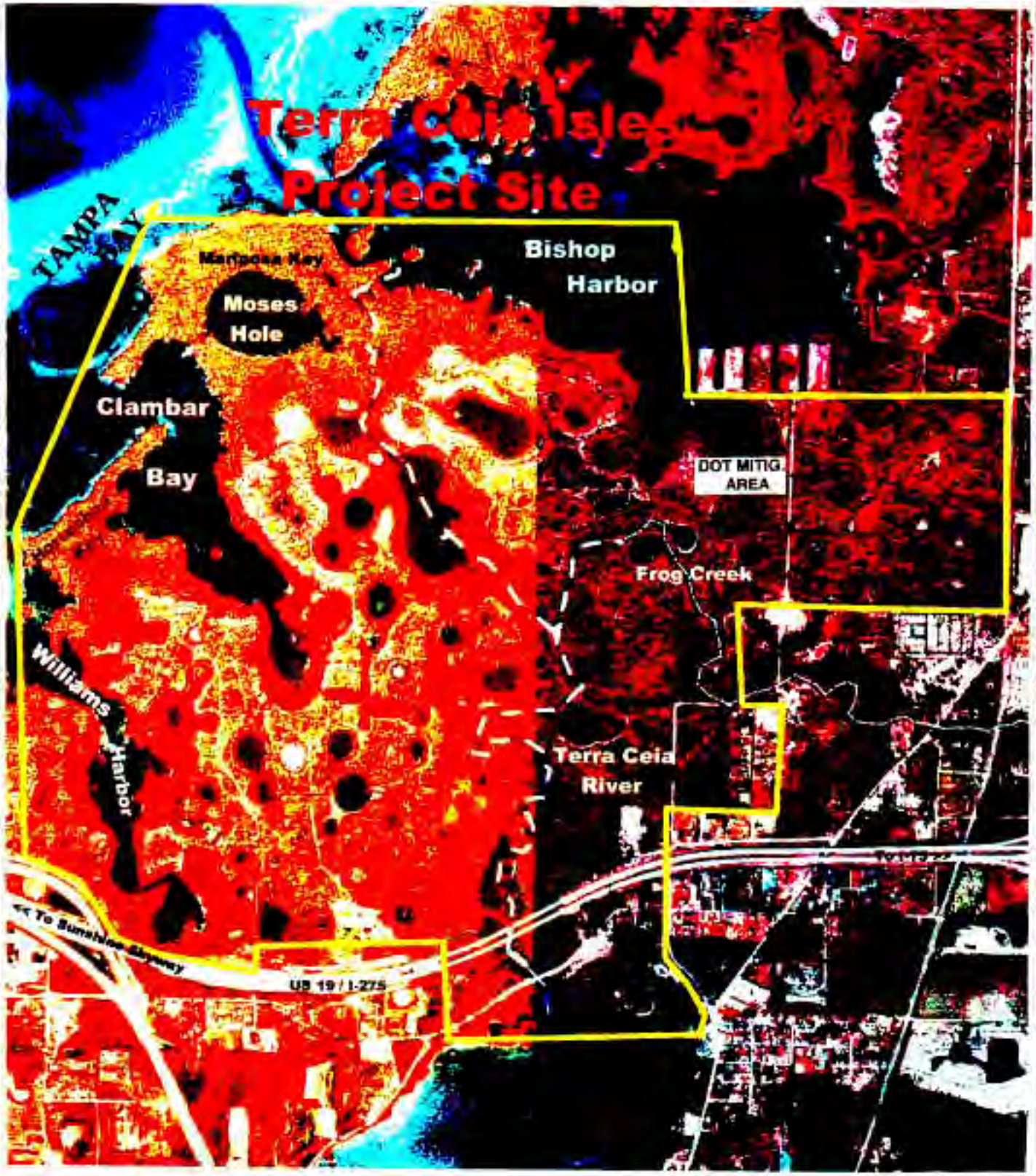
x 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Please refer to previous discussion.



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 1in. = 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) FM 1979251, SR 72 - Big Slough to DeSoto County Line ERP#: 4318471.00 COE #: 199802683
(2) FM 1980131, SR 72 - Deer Prairie to Big Slough ERP#: 4418399.00 COE #: 199802683
(3) FM 4138871, SR 72 – Myakka River to Big Slough 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 0.30 ac. 615 (Fluccs)
1.19 ac. 641
TOTAL 1.49 acres

(3) FM 41388712.5 ac. 510 (Fluccs)
0.5 ac. 610
0.5 ac. 630
2.5 ac. 641
0.5 ac. 641x
TOTAL 6.5 acres

(2) FM 1119303 0.87 ac. 641 (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

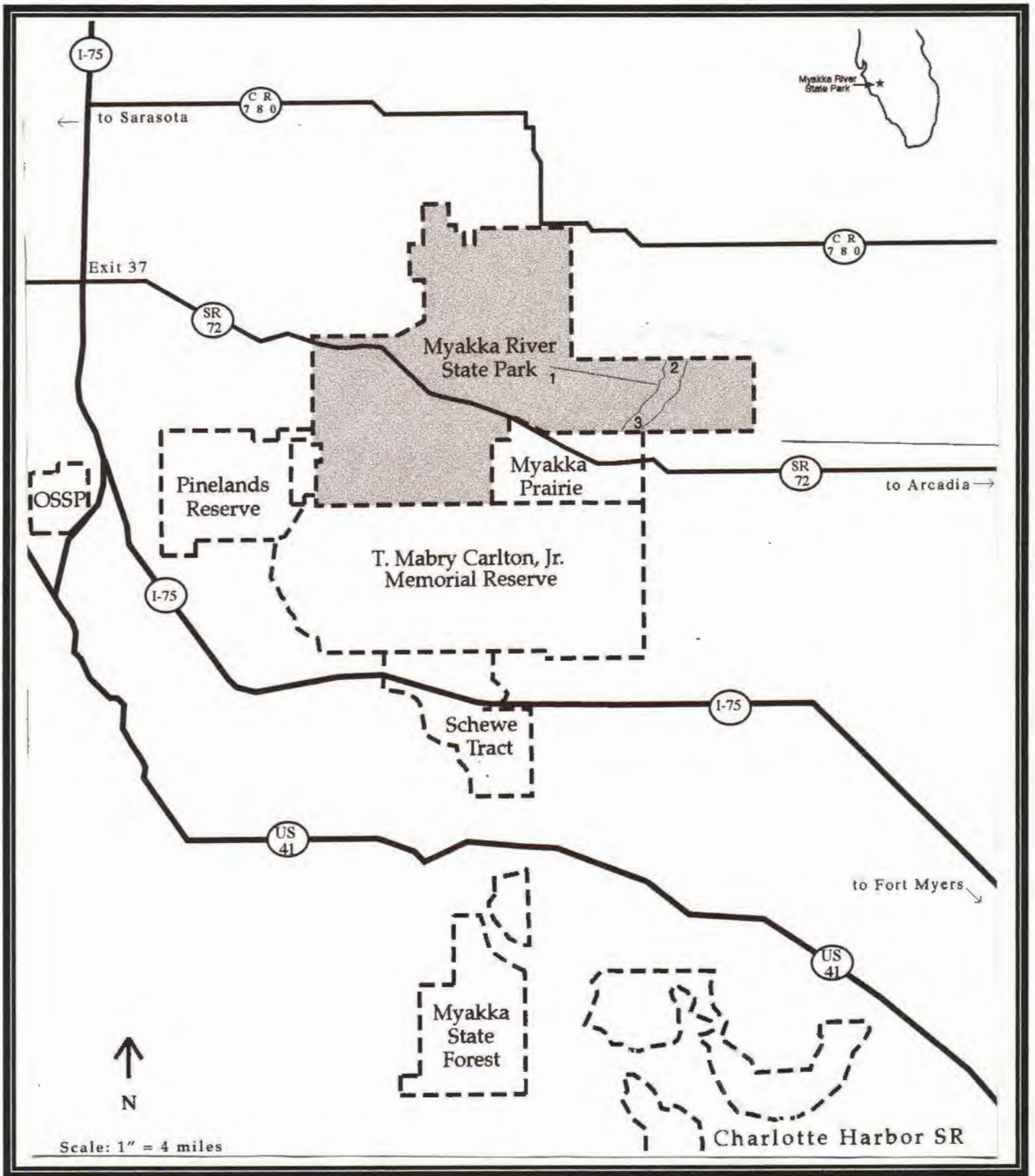
__X__3. Location map and design drawings of existing and proposed conditions. Fig. C – Design Drawings

__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.

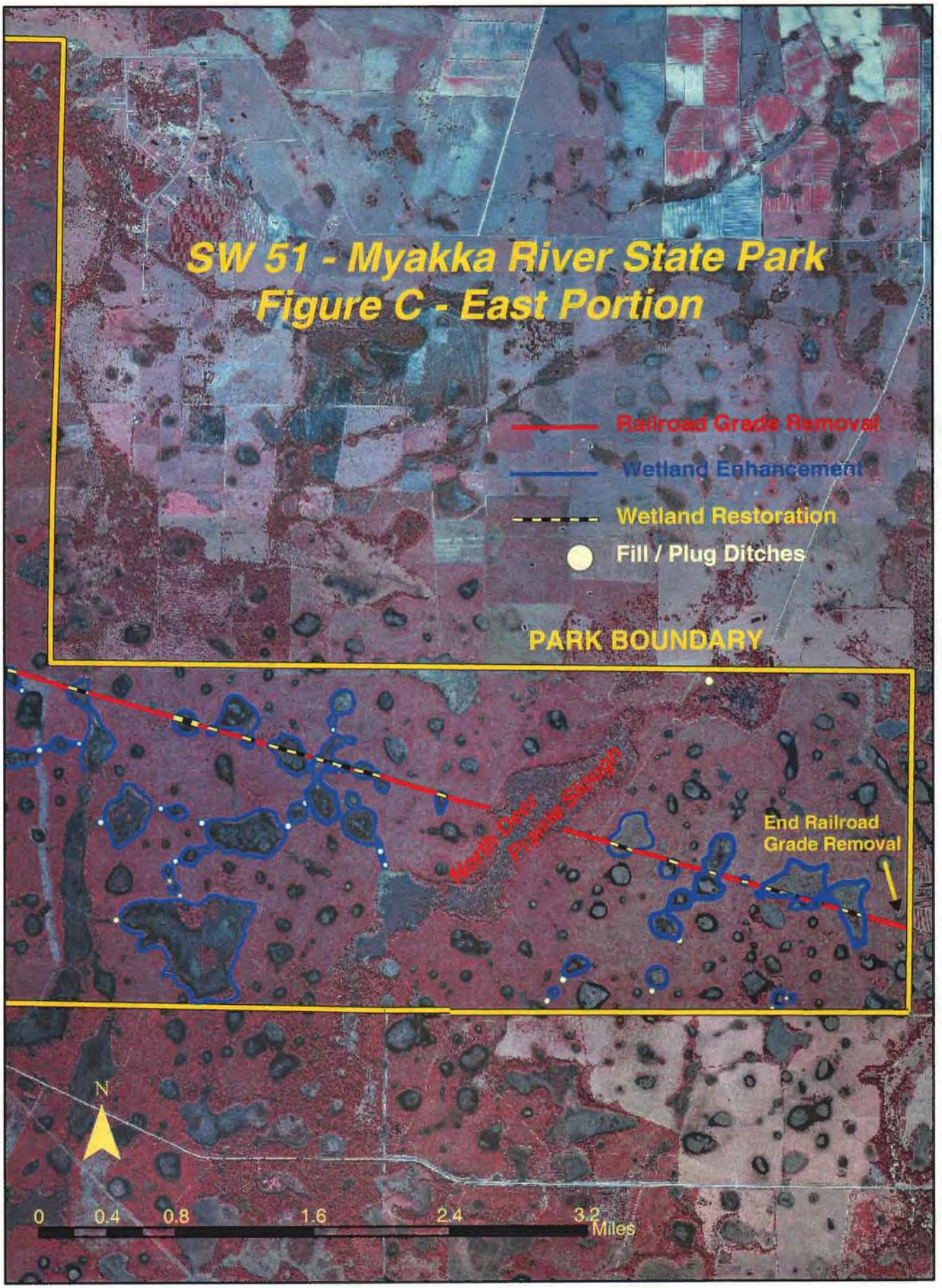
__X__6. Long term maintenance plan. Maintenance will be conducted as needed to ensure proper erosion control measures until vegetative cover is achieved in the wetlands and uplands. Maintenance to eliminate exotic & nuisance vegetative cover within the restored wetlands can be manually conducted or herbicide 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
Railroad Grade Removal
Wetland Enhancement
Wetland Restoration
Fill / Plug Ditches
State Road 72
N
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
North Deer Prairie Slough
End Railroad Grade Removal
N
0
0.4
0.8
1.6
2.4
3.2
Miles

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 Number: **SW 52**
Project Manager: Ray Pavelka Phone No: (941) 481-2011
County(ies): Lee 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
(4) FM: 1984781, CR 765A at Bridge #010005 ERP #: _____ COE#: _____

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: (1) FM 1937941 2.08 ac. 540 (Fluccs)* (3) FM 4046971 2.75 ac. 612 (Fluccs code)**
(2) FM 1984711 0.16 ac. 540 (4) FM 1984781 0.10 ac. 615 (Fluccs code)
TOTAL: 5.09 Acres

* Note - This roadway project has an additional 8.92 acres of wetland impacts being mitigated through restoration activities at SW 31-Cattle Dock Point.
** Note - The bridge project has an additional 0.8 acres of proposed mangrove impacts that will be mitigated through on-site restoration activities, as noted under SW 69 - Peace River Bridge Restoration.

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation _x__ Restoration _x__ Enhancement ___ Preservation Mitigation Area: **5.49 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 that has extensive cover 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 previously disturbed or impacted 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. The mitigation service area includes portions of the 100 year flood plain of Charlotte, Lee, Sarasota, and Collier counties.

B. Brief description of current condition: Mangrove species exist within undisturbed portions of the island, particularly within the perimeter (approx. 3500 of the total 5000 acres). However, prior to current restoration, the exotics (particularly melaleuca) has overwhelmed the native vegetation. As restoration activities have taken place, native estuarine herbaceous and shrub species have naturally regenerated with minimal need for additional planting.

C. Brief description of proposed work: Due to the fact a private entity has been conducting restoration on public lands, extensive construction conditions have been required 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 mulcher. 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 burned as a fuel source in a sugar processing plant. Once the exotic vegetation is cut and removed from the site, herbicide treatment of the stumps and spraying of any regenerated exotic vegetation is 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 DOT 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 property.

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 : A SWIM project (Cattle Dock Point) is located in the Myakka River basin, and partially mitigates for FM 4138871, a roadway project within a few miles and similar habitat impacts as the proposed restoration components of Cattle Dock Point.

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

Project cost: $233,430 (total)

(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)
(4) FM 1984781	0.10 Ac. x $48,000/credit = $4,800

Attachments

__x__1. Detailed description of existing site and proposed work. Refer to previous discussion & mit. bank permits.

__x__2. Recent aerial photograph with date and scale. Attached aerial and site photographs.

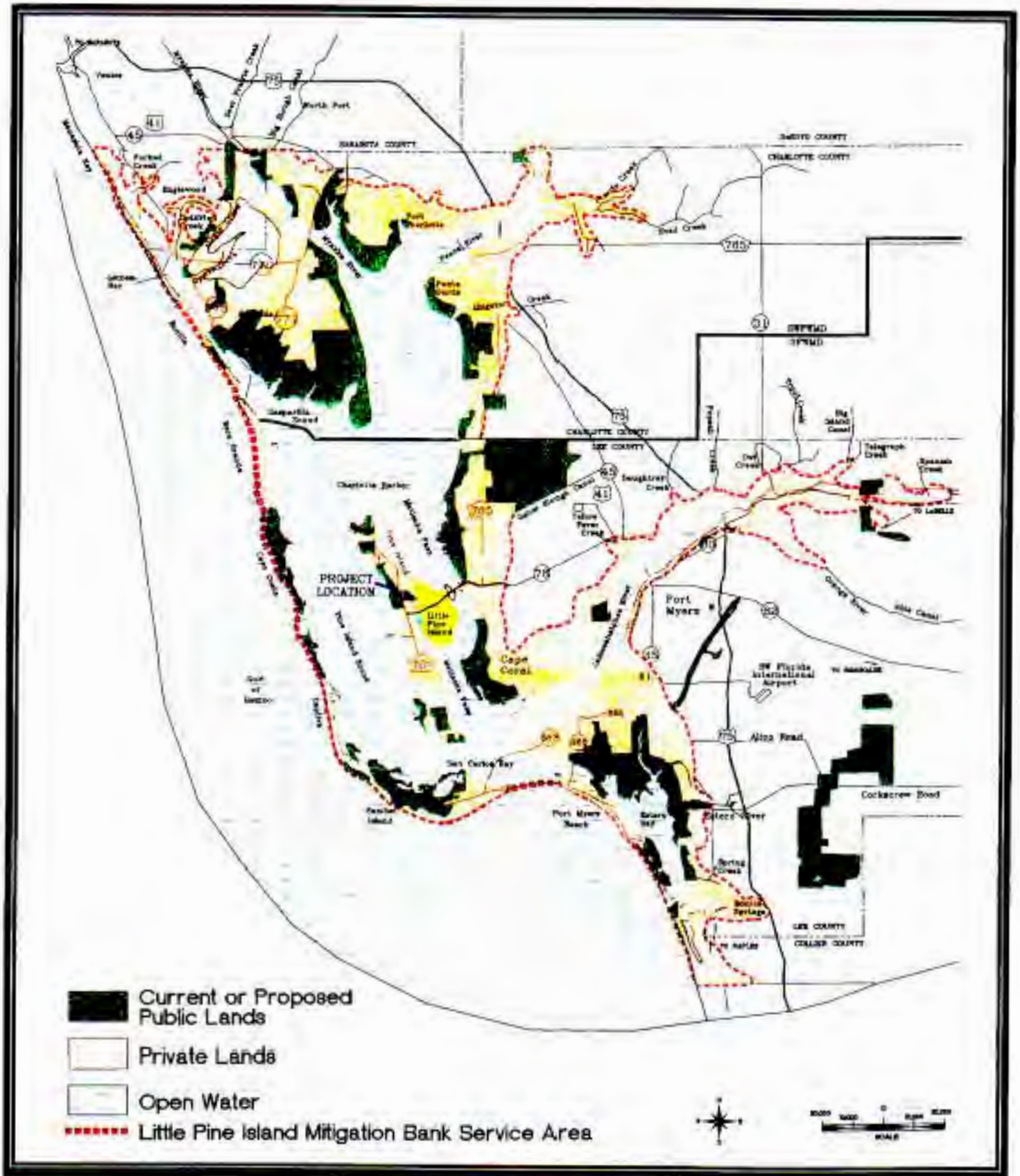
__x__3. Location map and design drawings of existing and proposed conditions. Figure A - Location Map, Figures B & C - cross section drawings of existing vegetative conditions and proposed ditch blocks.

__x__4. Detailed schedule for work implementation, including any and all phases. Construction activities are ongoing for seven phases until complete.

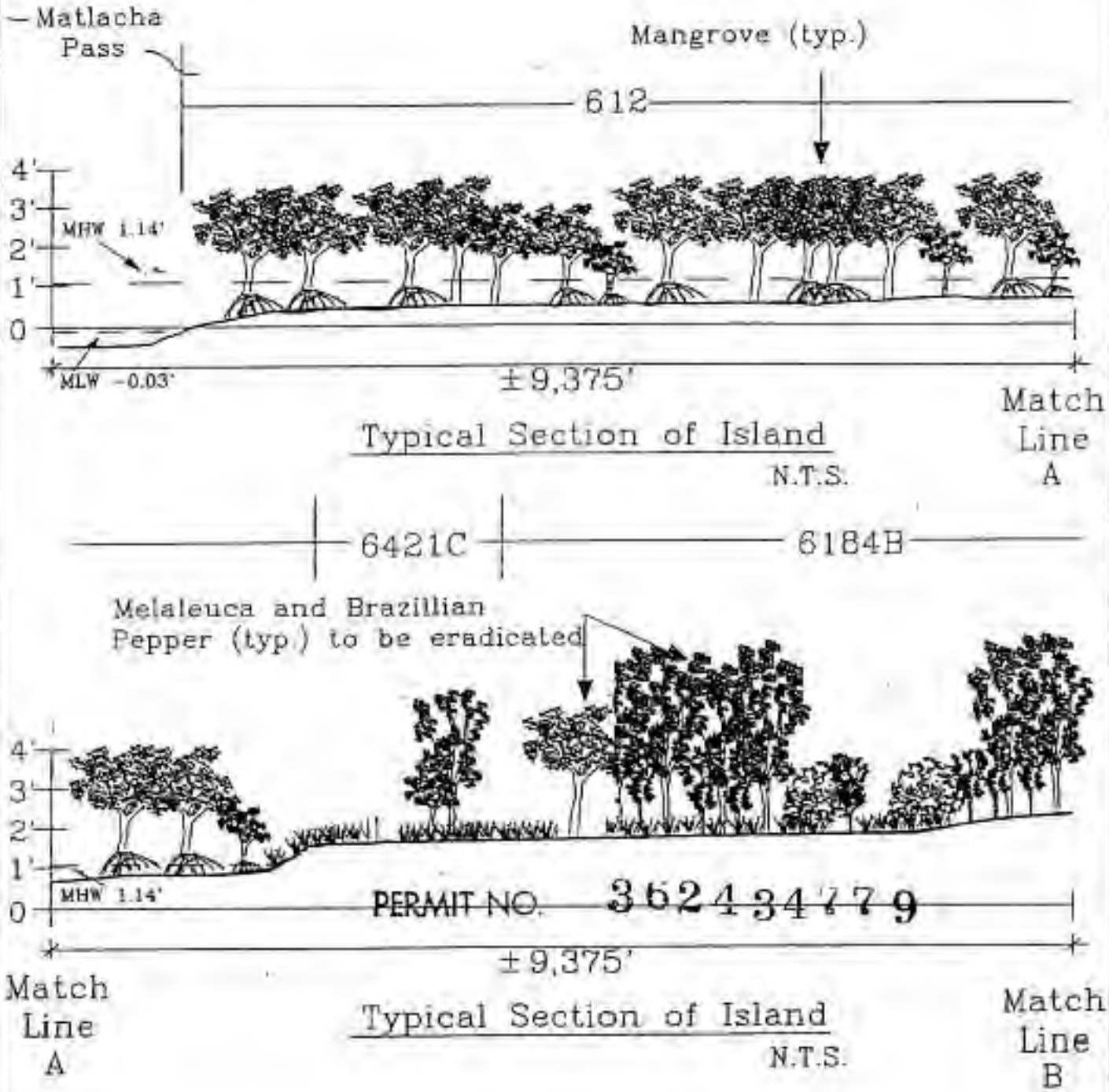
__x__5. Proposed success criteria and associated monitoring plan. The monitoring plan includes an extensive quantitative analysis procedure that includes hydrologic, vegetative, and wildlife evaluation as stipulated in the permit. The success criteria requires percent cover, presence, and richness of various flora and fauna species, also stipulated in the mitigation bank's permits.

__x__6. Long term maintenance plan. In order to achieve the success criteria, the mitigation banker has incorporated a routine maintenance schedule to ensure exotic and nuisance species are substantially minimized from regeneration.

__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.

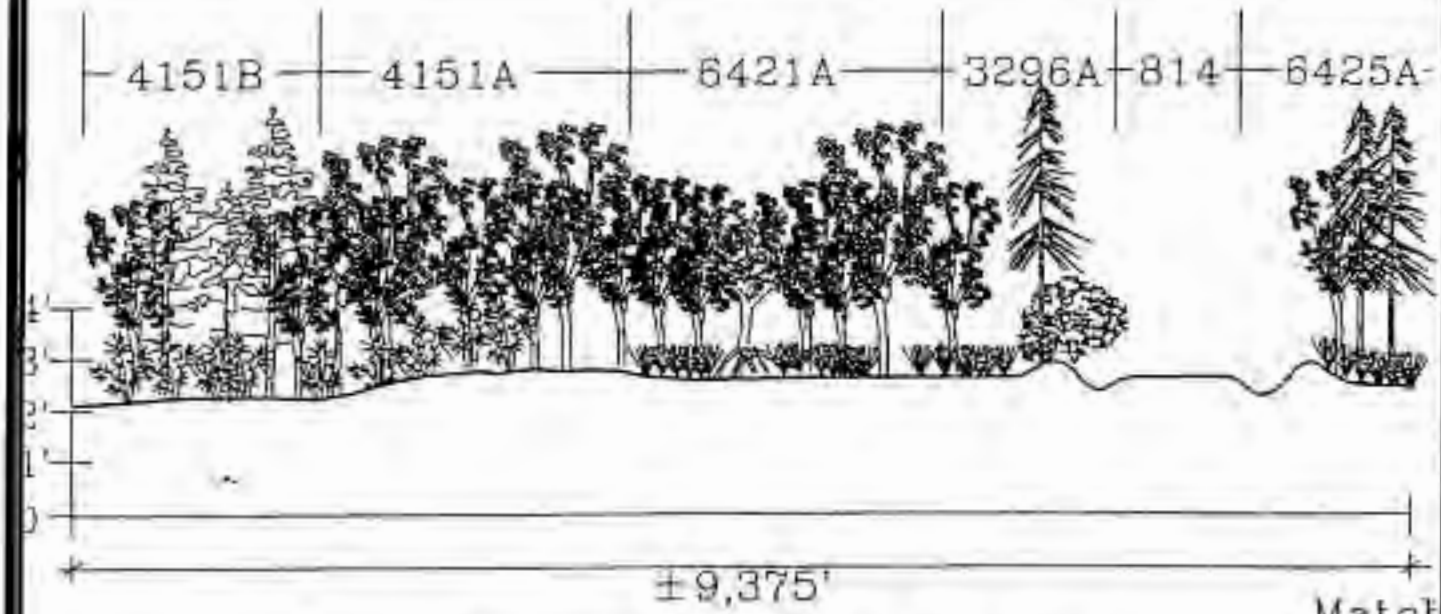


FDOT - District 1 MITIGATION AREA (Charlotte Harbor)	LITTLE PINE ISLAND MITIGATION BANK (SW 52)	FIGURE A PROJECT LOCATION & SERVICE AREA



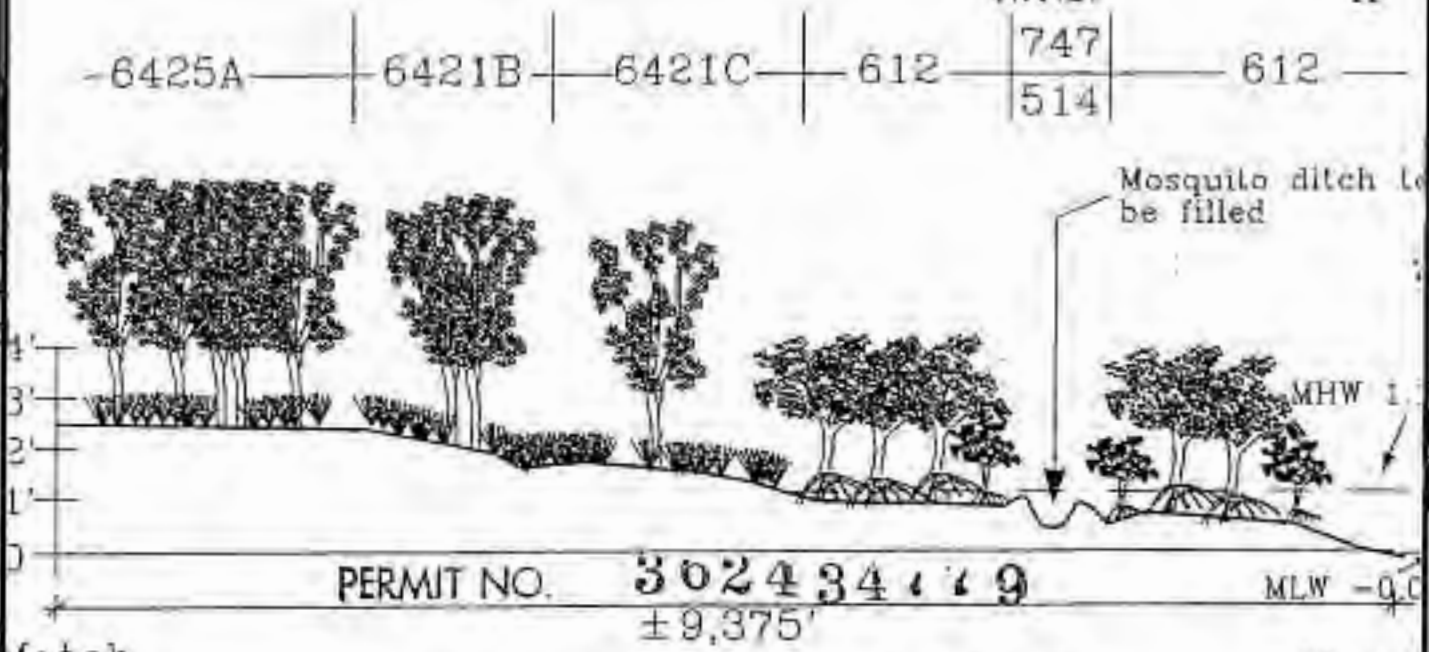
PERMIT NO. 362434779

FDOT - District 1 MITIGATION AREA (Charlotte Harbor)	LITTLE PINE ISLAND MITIGATION BANK (SW 52)	FIGURE B TYPICAL VEGETATIVE CROSS SECTION



Typical Section of Island

N.T.S.



Typical Section of Island

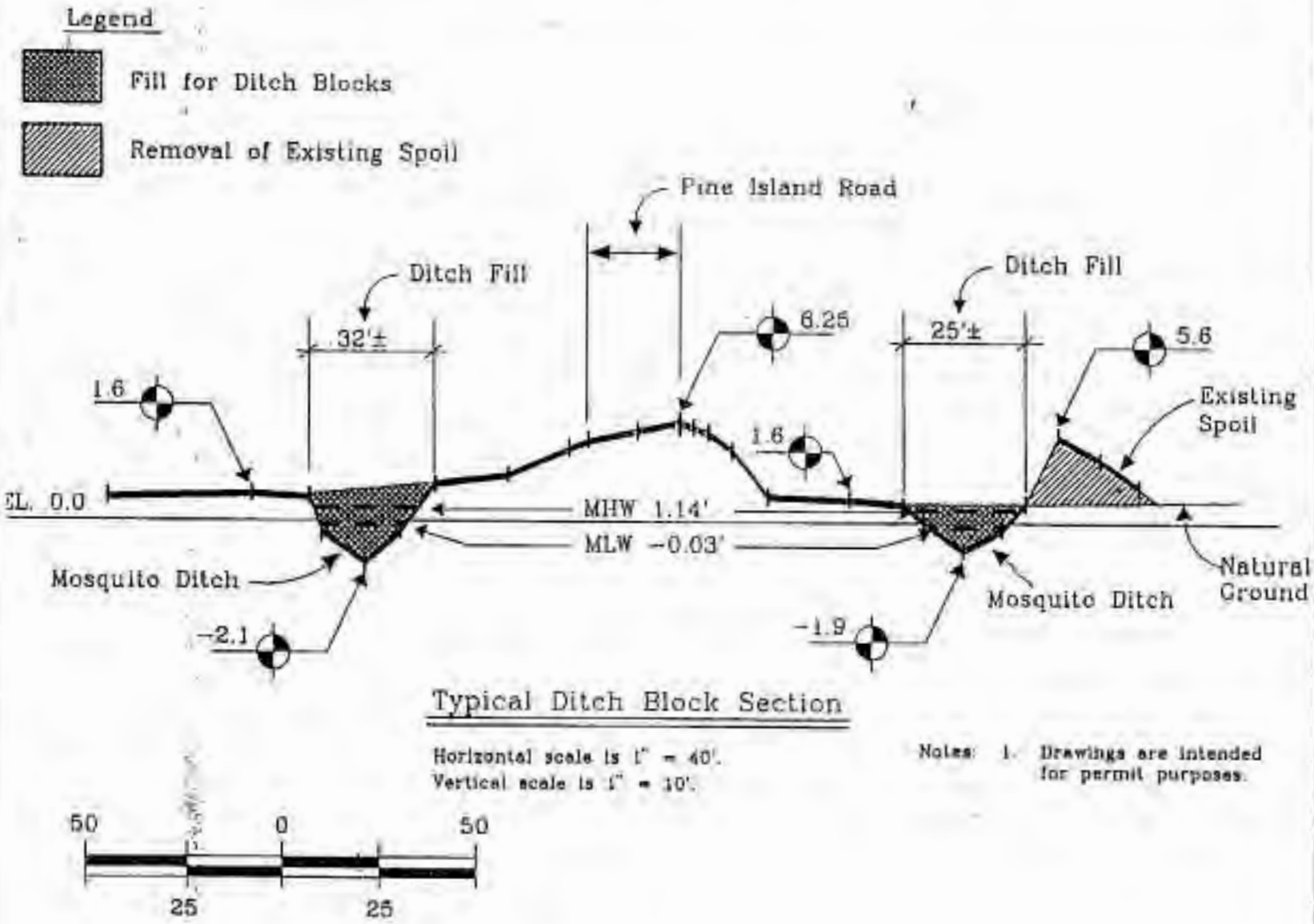
N.T.S.

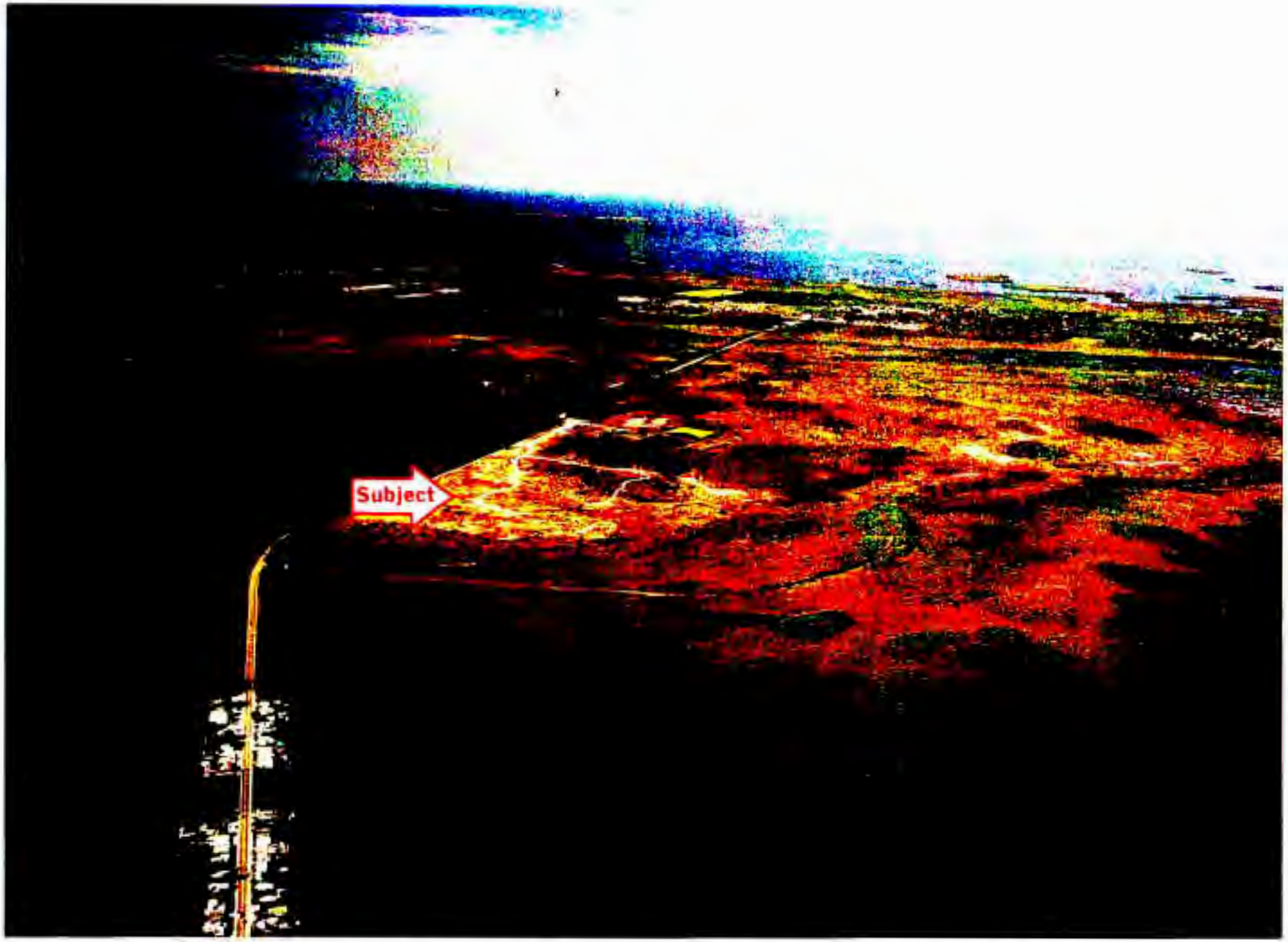
FDOT - District 1 MITIGATION AREA (Charlotte Harbor)	LITTLE PINE ISLAND MITIGATION BANK (SW 52)	FIGURE B TYPICAL VEGETATIVE CROSS SECTION

FDOT - District 1
MITIGATION AREA
(Charlotte Harbor)

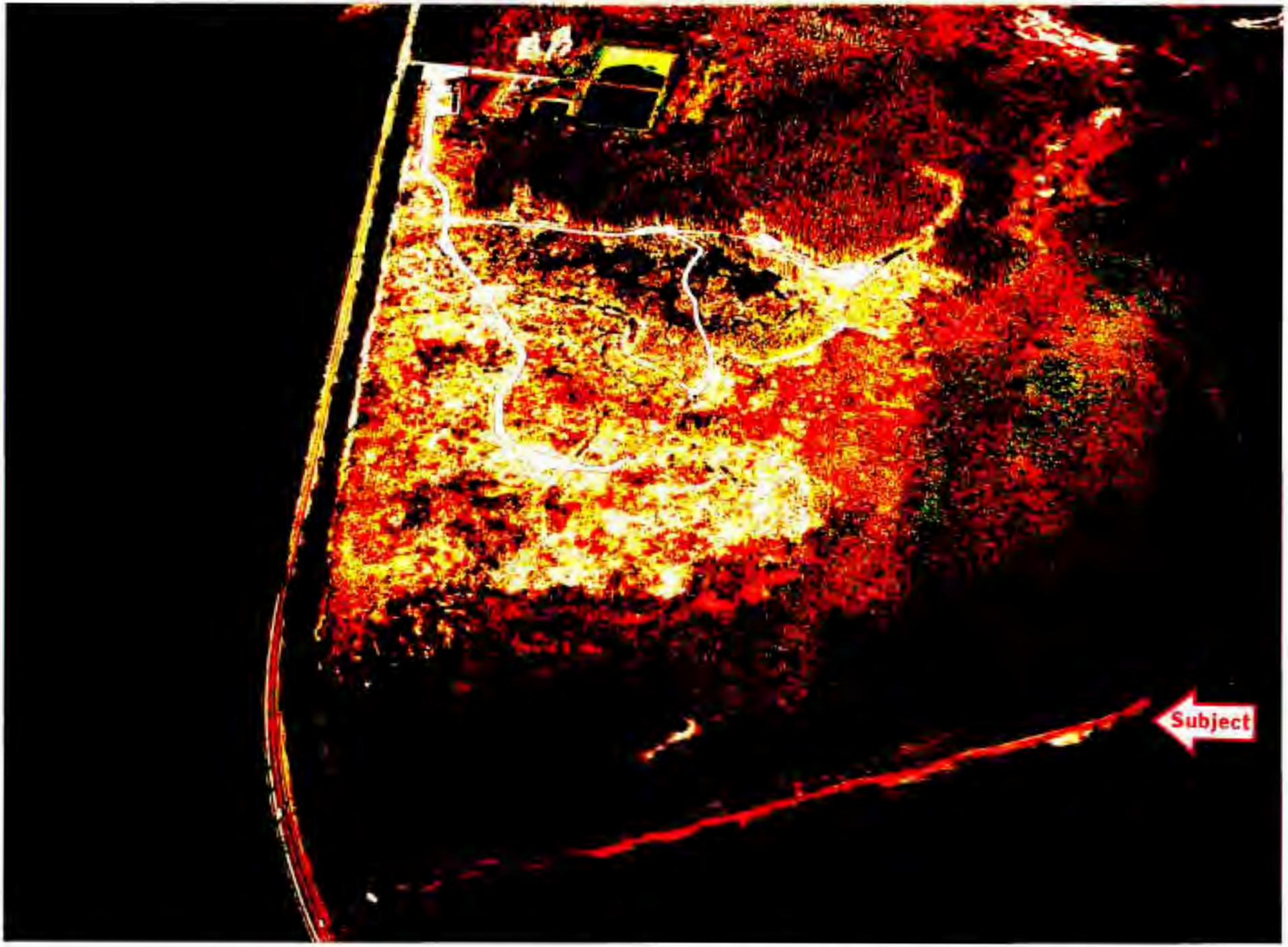
LITTLE PINE ISLAND
MITIGATION BANK
(SW 52)

FIGURE C
MOSQUITO DITCH
FILL CROSS SECTION

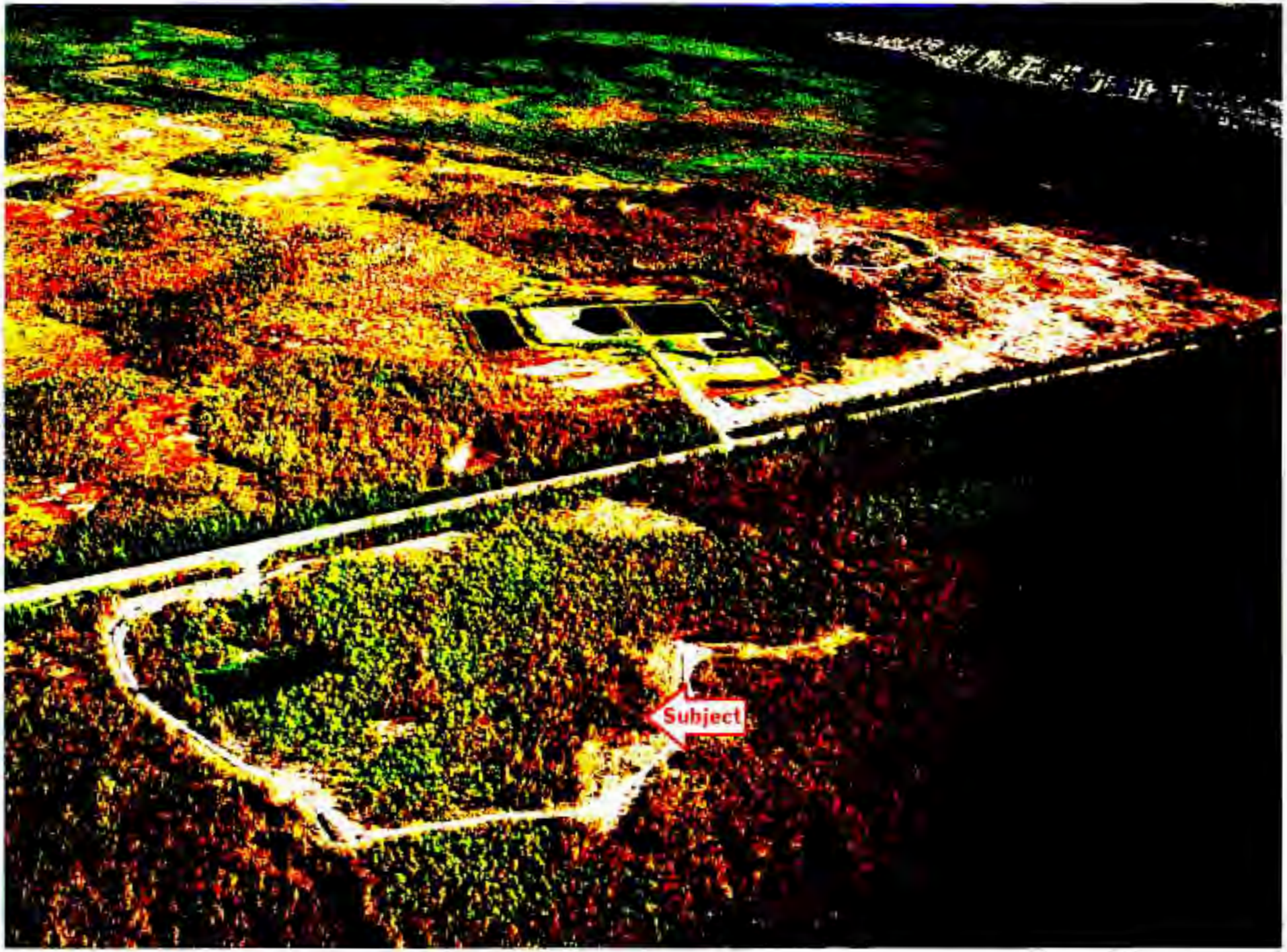




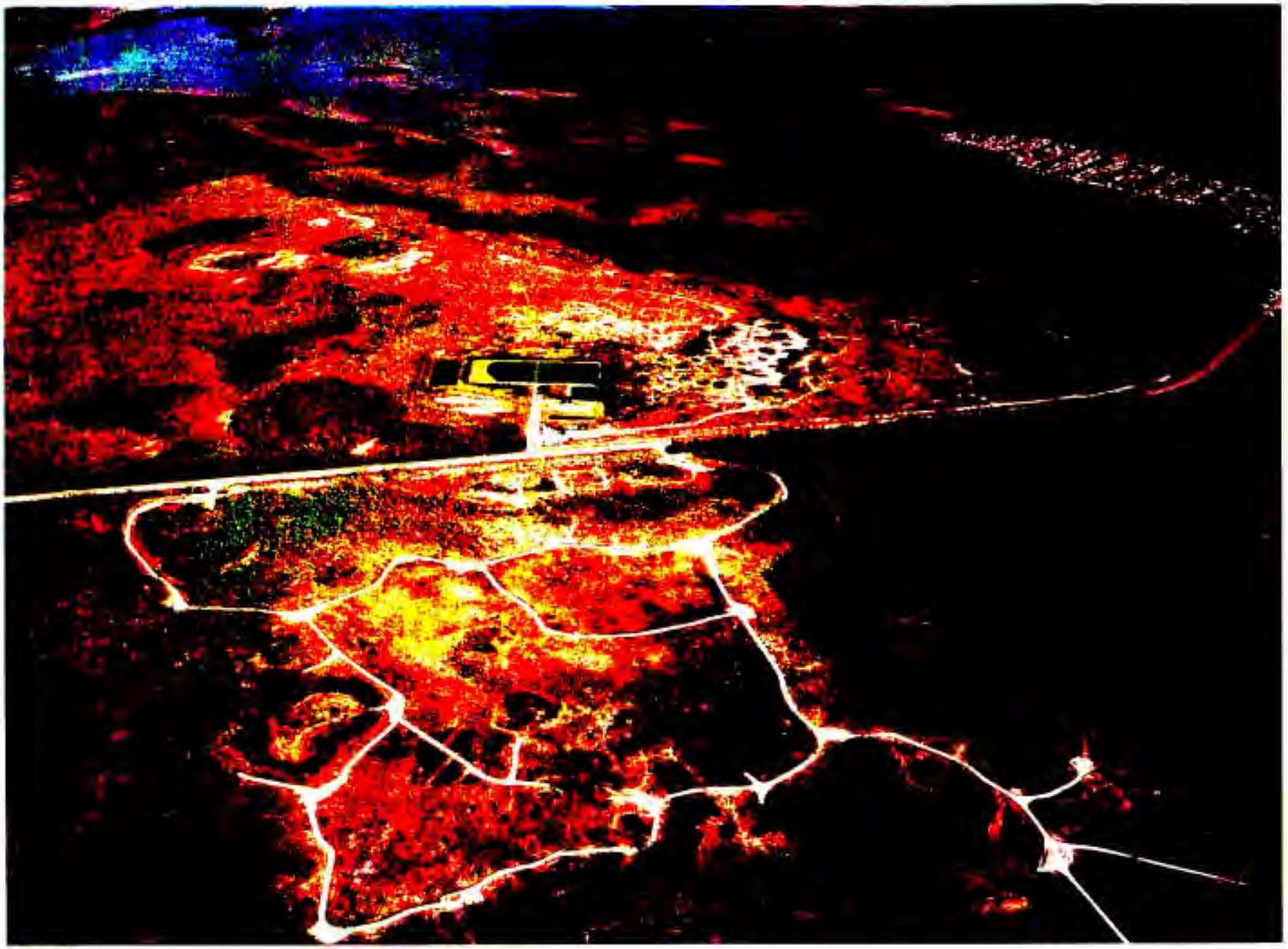
SEPTEMBER 1997 - PHASE I EXOTIC VEGETATION REMOVAL COMPLETE AT LITTLE PINE ISLAND - VIEW FROM MATLACHA PASS AQUATIC PRESERVE



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: Don Ross, Charles Kocur - Earth Balance, Inc. Phone No: (941) 624-2911

County: DeSoto Location: Section 29, T38S, R23E

IMPACT INFORMATION

(1) WPI 1121259, FM 1986401, Ft.Green/Ona Rd.- (Seg. 1)	ERP #:4317734.000	COE #:199801201
(2) WPI 1110453, FM 1938851, SR 72 – Sarasota Co. Line to SR 70	ERP #:4317646.000	COE#: 199801103
(3) WPI 1111286, FM 1941021, US 17 (SR 35)-SR 64 to Peace Bridge	ERP #:4316955.000	COE#:199405245
(4) WPI 1110145, FM 1937911, US 17 (SR 35)-CR 74 to CR 764 North	ERP #:4113562.002	COE #:199500627
(5) WPI 1121257, FM 1986371, Ft.Green/Ona Rd.- (Seg. 2)	ERP #:4317734.001	COE #:199801201
(6) WPI 1121256, FM 1986371, Ft.Green/Ona Rd.- (Seg. 3)	ERP #:4317734.002	COE #:199801201
(7) WPI 1110152, FM 1937981, US 17-CR 764 S. to CR 764 N.	ERP #:4317646.002	COE #:199500267

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

(1) WPI 1121259 – 2.08 ac. - 617 (Fluccs code)
(2) WPI 1110453 - 1.19 ac. – 615 (Fluccs code)
(3) WPI 1111286 – 1.84 ac. – 615 (Fluccs code)
0.46 ac. – 641 (Fluccs code)
TOTAL 2.30 ac.

(4) WPI 1110145 – 0.27 ac. – 630 (Fluccs code)
(5) WPI 1121257 – 7.22 ac. – 641 (Fluccs code)
(6) WPI 1121256 - 0.68 ac. – 615 (Fluccs code)
0.43 ac. - 617 (Fluccs code)
4.12 ac. - 640 (Fluccs code)
TOTAL 5.23 ac.

(7) WPI 1110152 – 3.00 ac. – 630 (Fluccs code)
0.58 ac. – 641 (Fluccs code)
TOTAL 3.58 ac.

TOTAL - 21.87 acres

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation _x_ Restoration _x_ Enhancement _x_ Preservation Mitigation : **22.46 credits**
SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N

Mitigation Bank? _Y 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? N

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 have been drained by agricultural ditches and converted to improved pasture for cattle grazing (Figure C – Aerial). Since restoration & enhancement activities have been conducted in 1997-98, vegetative composition within former wet pastures have reverted to more diverse, desirable hydrophytic species (refer to pre-post construction photos).

C. Brief description of proposed work: Installed riser structures in three existing 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 backfilled across the pasture, which has allowed appropriate hydroperiods for creation and regeneration of marsh and wet prairie habitat. The existing native upland habitat has been preserved and converted uplands have been planted with appropriate species. The project is currently in the maintenance & monitoring period, which will include implementing a prescribed burn plan (refer to Figure F).

C. 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. The following information indicates the credits for six of the seven DOT projects that have been permitted for credit purchase at Boran Ranch.

Project 1 – WPI 1121259 – 2.08 ac. impacts – 2.08 credits of mesic hammock

Project 2 – WPI 1110453 – 1.19 ac. impacts – 1.19 credits of mesic hammock

Project 3 – WPI 1111286 – 2.30 ac. impacts – 1.84 credits of mesic hammock, 0.46 credits of marsh

Project 4 – WPI 1110145 – 0.27 ac. impacts – 0.27 credits of mesic hammock

Project 5 – WPI 1121257 – 7.22 ac. impacts – 7.22 credits of marsh

Project 6 – WPI 1121256 – 5.23 ac. impacts – 1.11 credits of mesic hammock, 4.71 credits of marsh

Project 7 – WPI 1110152 – 3.58 ac. impacts – 3.47 credits of mesic hammock, additional 0.11 credits to be purchased 9/03 to compensate for additional impacts.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The Boran Ranch Mitigation Bank was selected because it provided the most cost-effective means to offset the proposed impacts, including cumulative impacts in the 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 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: Don Ross or Charles Kocur, Earth Balance. Inc. Phone Number: (941) 624-2911

Entity responsible for monitoring and maintenance: Same
Proposed timeframe for implementation: Commence: 1998 Complete: Construction complete, currently monitoring.

FDOT Mitigation – Boran Ranch Mitigation Bank, Page 3

Project cost: $670,500 (TOTAL through 2002 DOT Mit. Plan)

Project 1 – WPI 1121259 – 2.08 credits x $30,000 = $62,400 (Purchased Summer, 2001)

Project 2 – WPI 1110453 – 1.19 credits x $30,000 = $35,700 (Purchased Spring, 2002)

Project 3 – WPI 1111286 – 2.30 credits x $30,000 = $69,000 (Purchased Spring, 2002)

Project 4 – WPI 1110145 – 0.27 credits x $30,000 = $8,100 (Purchased Summer, 2001)

Project 5 – WPI 1121257 – 7.22 credits x $30,000 = $216,600 (Purchased Summer, 2001)

Project 6 – WPI 1121256 – 5.82 credits x $30,000 = $174,600 (Purchased Spring 2002)

Project 7 – WPI 1110152 – 3.47 credits x $30,000 = $104,100 (Purchased Summer, 2001)
Additional 0.11 credits x $30,000 = $3,300 (Purchase Fall, 2003)

Attachments

__x__1. Detailed description of existing site and proposed work. Reference previous discussion, ACOE & SWFWMD Permits, attached site photographs of pre- (April, 1997) and post- (Sept., 2000) construction during monitoring.

__x__2. Recent aerial photograph with date and scale. Figure C - 1995 Infrared Aerial.

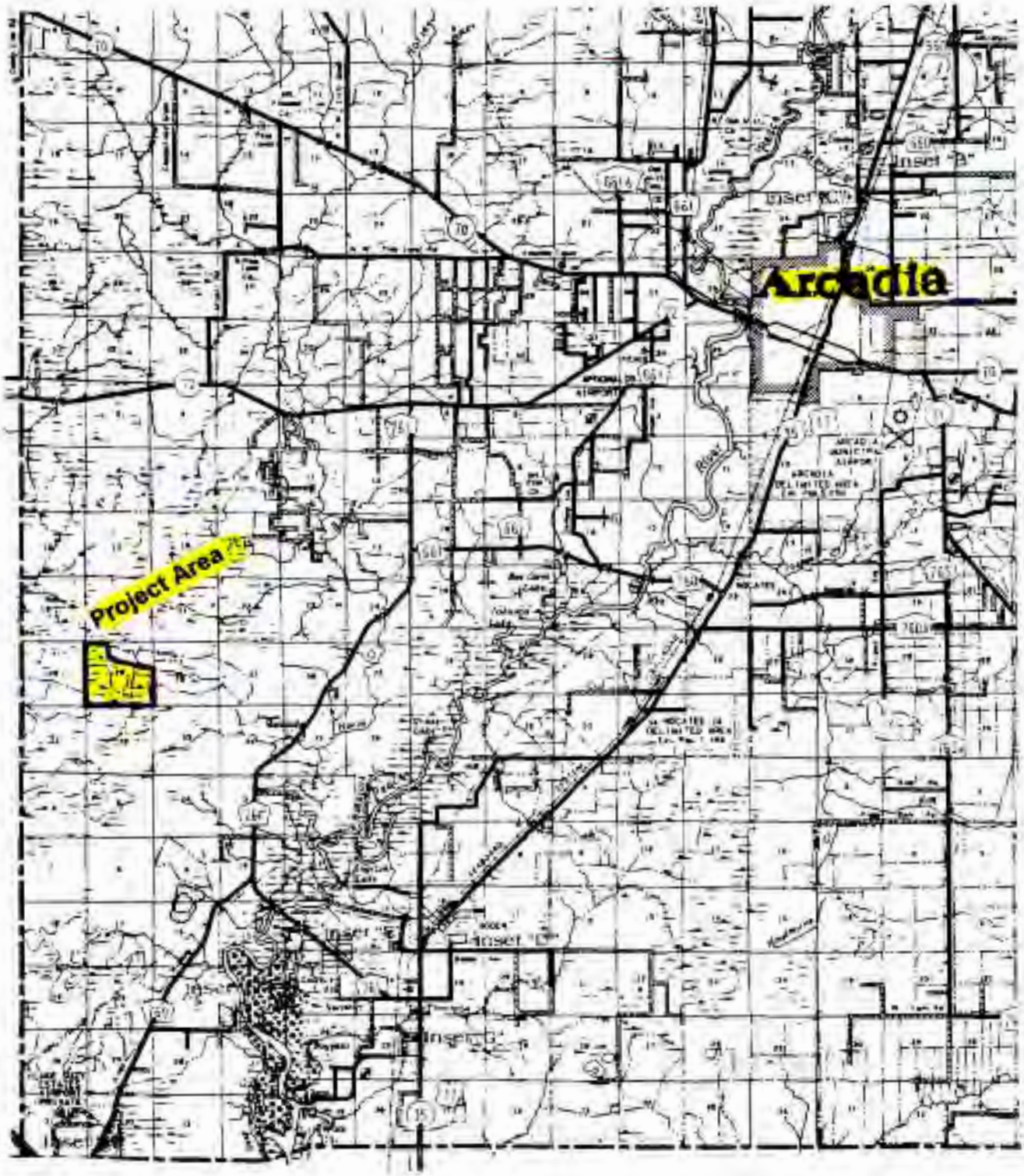
__x_ 3. Location map and design drawings of existing and proposed conditions. Figure A – Location Map, Figures B & D Existing & Proposed Habitat Conditions.

__x_4. Detailed schedule for work implementation, including any and all phases. Construction activities are complete, current maintenance & monitoring until required success criteria are met.

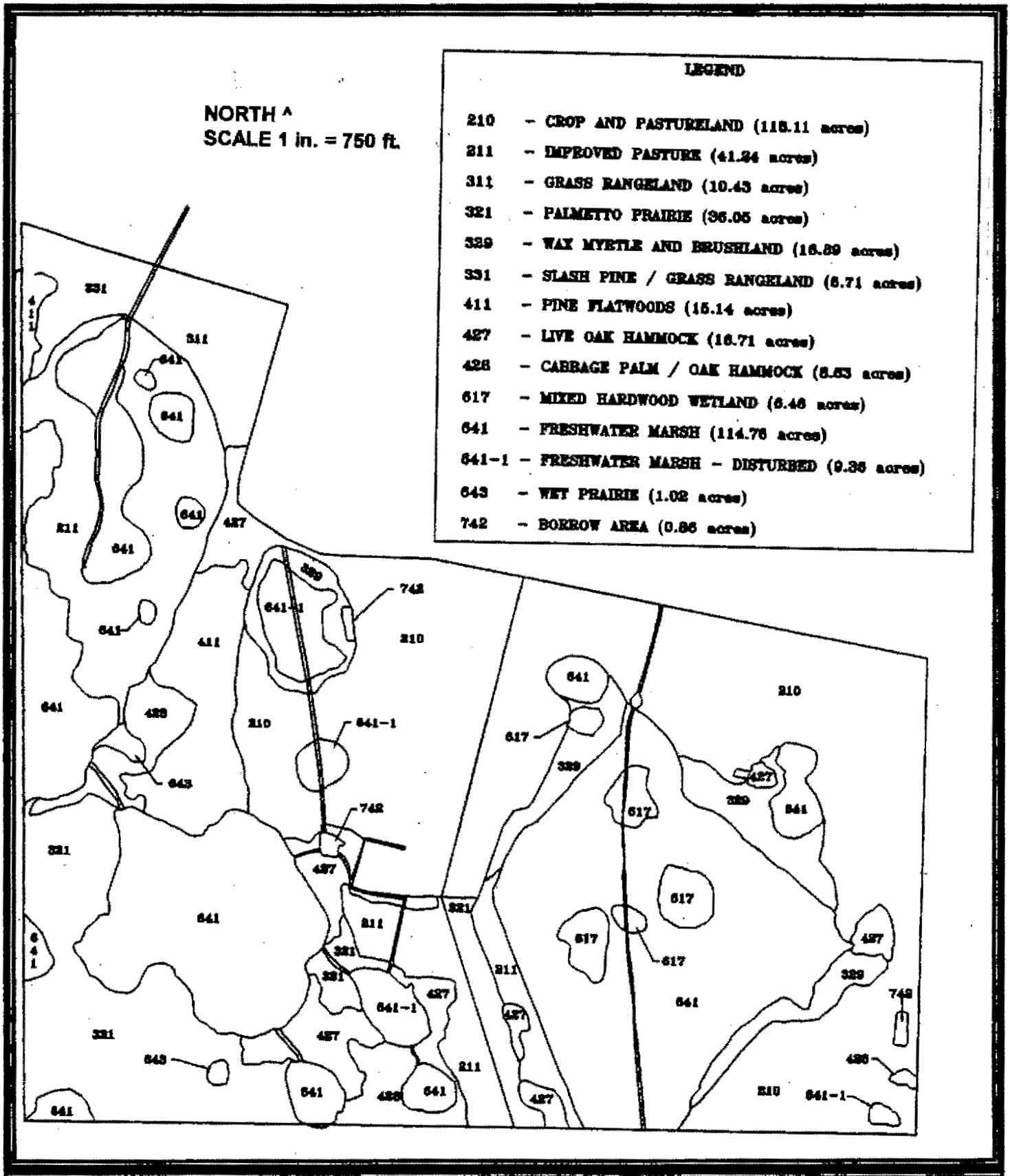
__x_5. Proposed success criteria and associated monitoring plan. Success criteria for each enhancement & restoration habitat area (upland & wetland) are specified in the permits, monitoring plan is depicted on Fig. E.

__x_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).

__x_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.

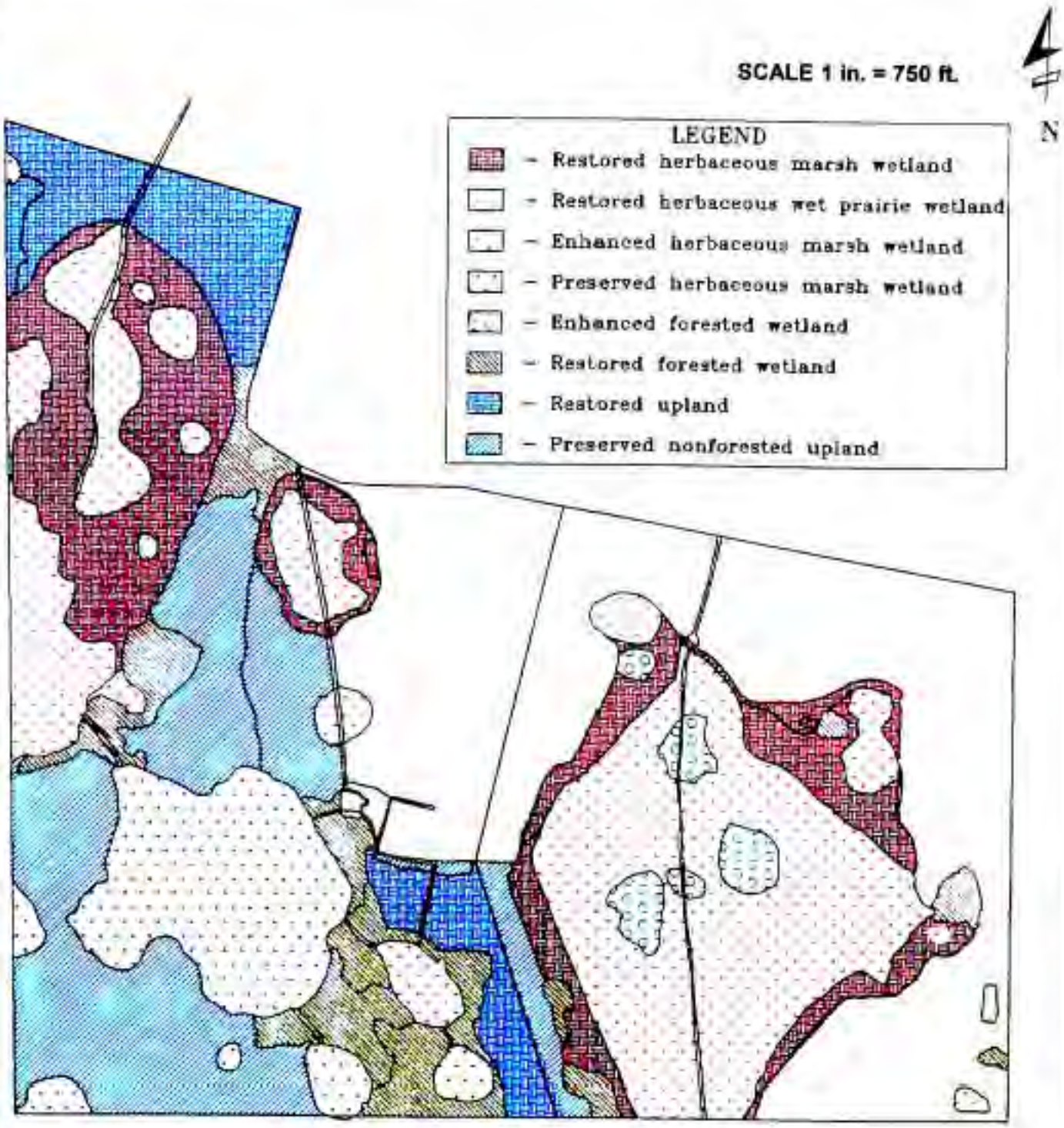


FDOT - District 1 MITIGATION AREA (Peace River Basin)	BORAN RANCH MITIGATION BANK (SW 53)	FIGURE A PROJECT LOCATION

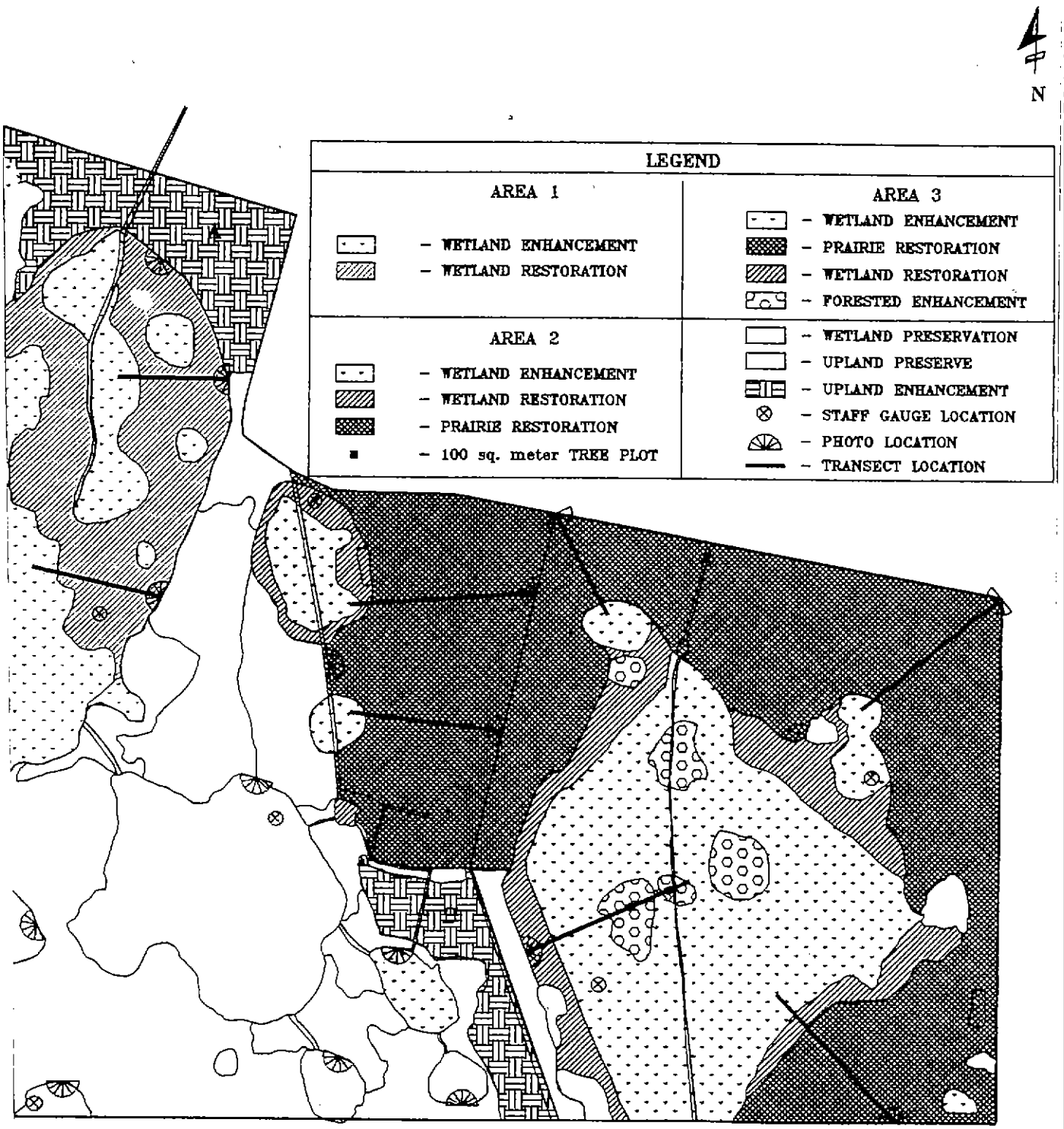


FDOT - District 1 MITIGATION AREA (Peace River Basin)	BORAN RANCH MITIGATION BANK (SW 53)	FIGURE B EXISTING LAND USE / HABITAT TYPES

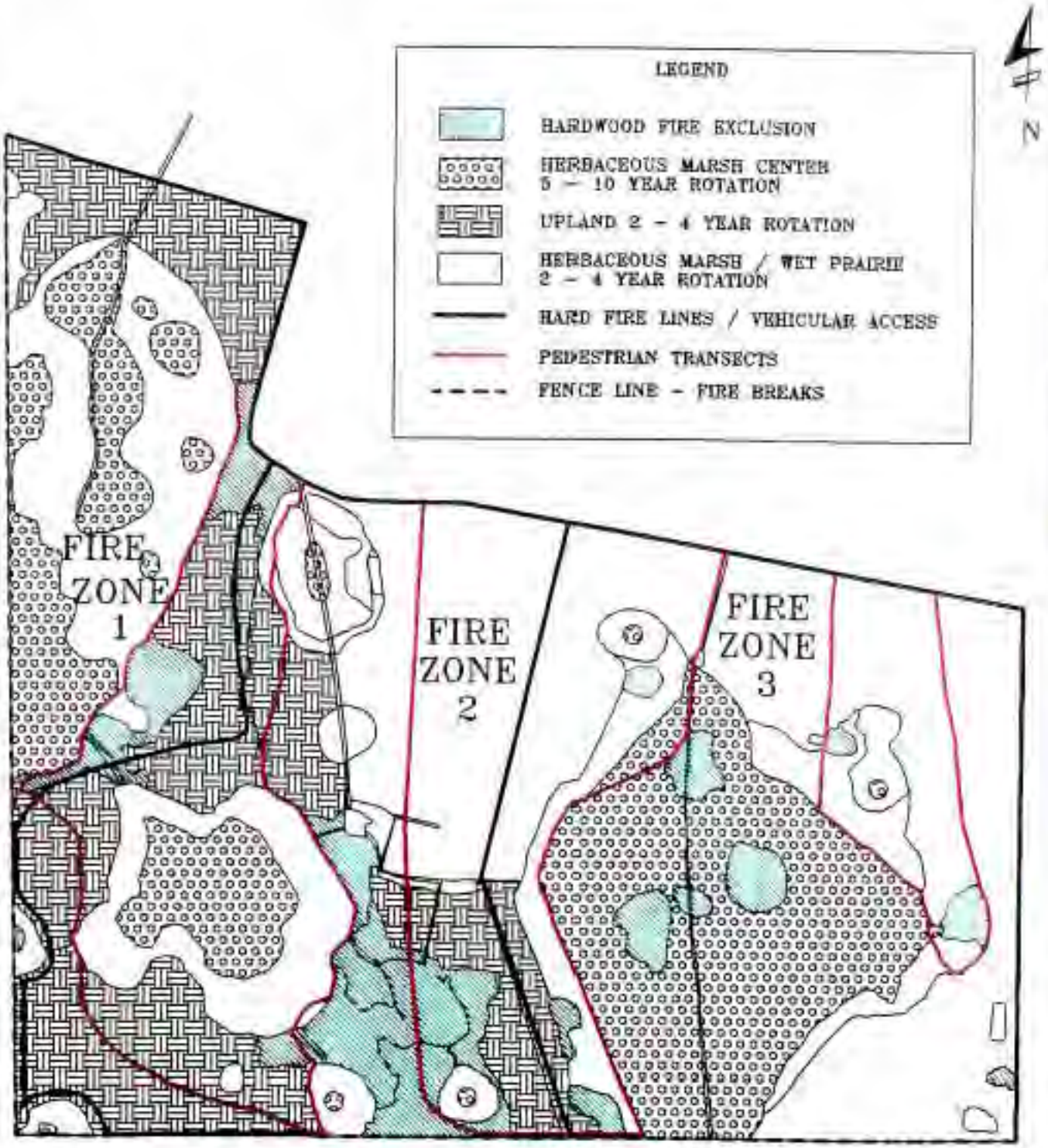
FDOT - District 1 MITIGATION AREA (Peace River Basin)	BORAN RANCH MITIGATION BANK (SW 53)	FIGURE C INFRARED AERIAL (1995)



FDOT - District 1 MITIGATION AREA (Peace River Basin)	BORAN RANCH MITIGATION BANK (SW 53)	FIGURE D PROPOSED LAND USE / HABITAT TYPE



FDOT - District 1 **MITIGATION AREA** **(Peace River Basin)**	**BORAN RANCH** **MITIGATION BANK** **(SW 53)**	**FIGURE E** **MONITORING PLAN** **Scale 1 in. = 750 ft.**



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

T8 Restoration Area - April 1997

T8 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)

1.6 ac. 621 (Fluccs code)
2.8 ac. 630 (Fluccs code)
2.2 ac. 641 (Fluccs code)
TOTAL: 6.6 acres

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

1.3 ac. 617 (Fluccs code)
0.8 ac. 619 (Fluccs code)
3.0 ac. 621 (Fluccs code)
0.5 ac. 641 (Fluccs code)
1.4 ac. 641x (Fluccs code)
TOTAL 7.0 acres

TOTAL: 13.7 acres

MITIGATION ENVIRONMENTAL INFORMATION

{tc \l1 "MITIGATION ENVIRONMENTAL INFORMATION**}**

Mitigation: X Creation X Enhancement X Preservation Mitigation Area: **82 ac.** For WPI: 7115974
X Enhancement X 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 \l2 "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.

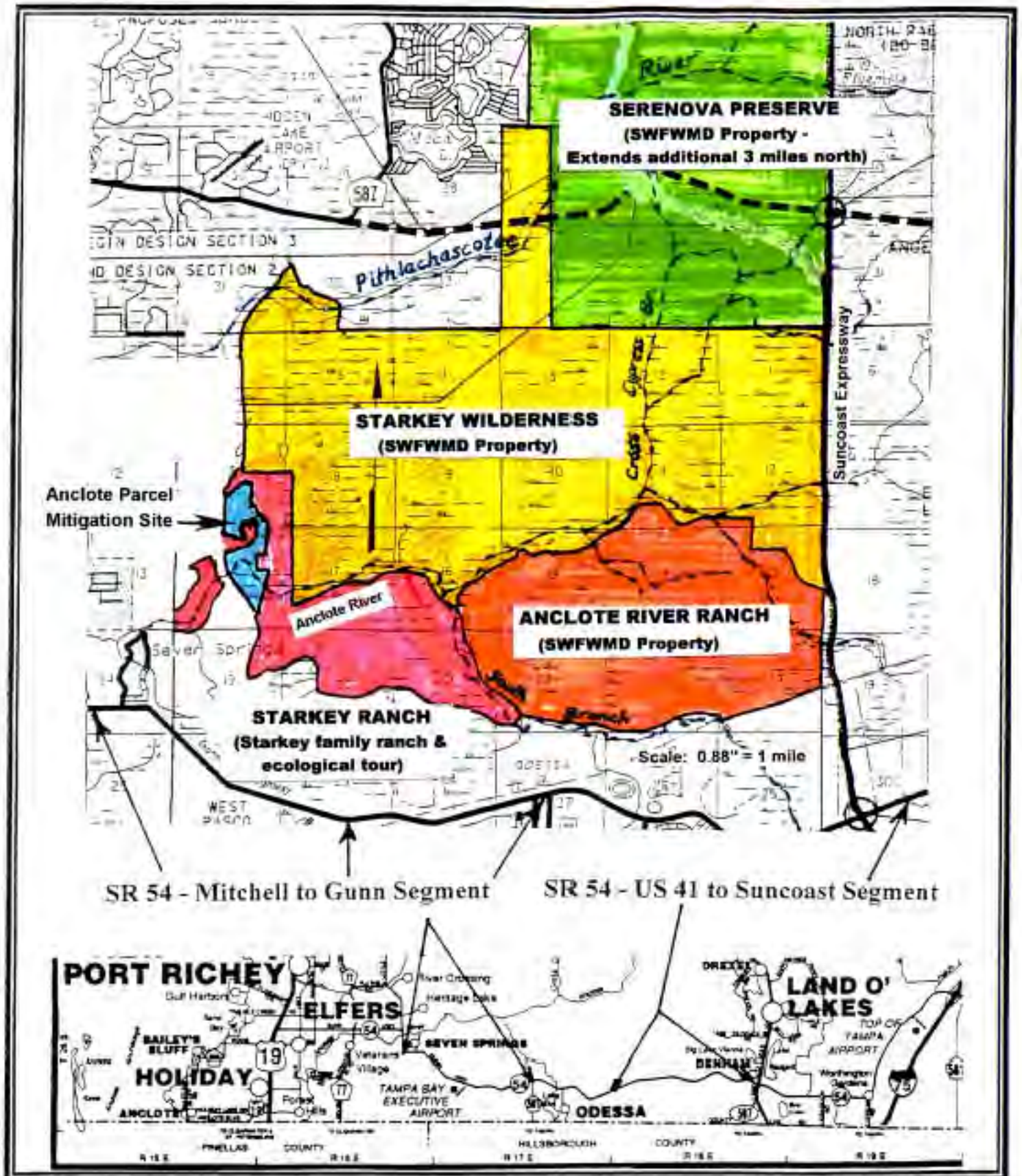
MITIGATION PROJECT IMPLEMENTATION

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.

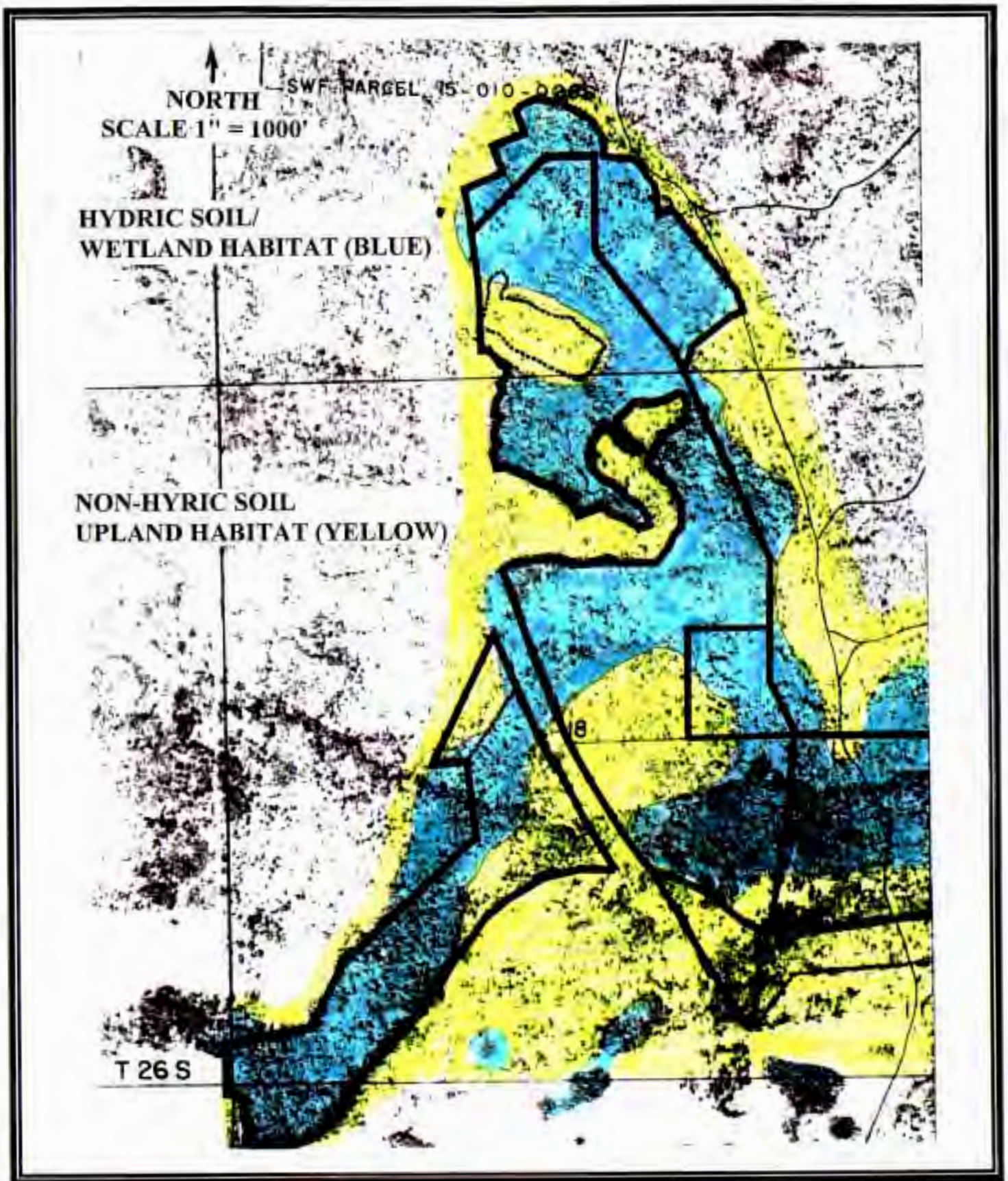
Attachments

X 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).
X 2. Recent aerial photograph with date and scale. Refer to Fig. D (1995 Infrared).
X 3. Location map and design drawings of existing and proposed conditions. Fig. A - Location Map, Figure D.
X 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).

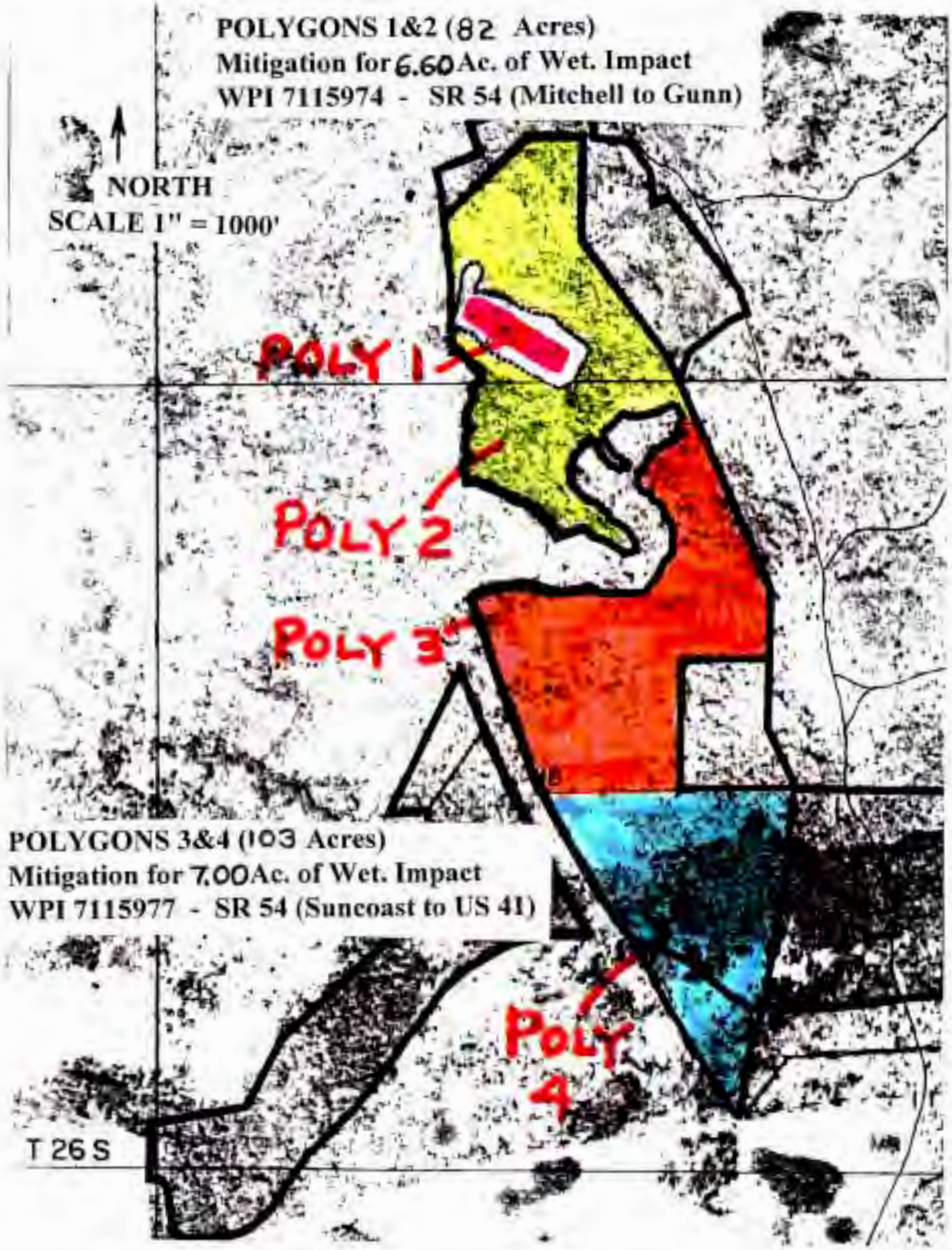
X 5. Proposed success criteria and associated monitoring plan. The native habitat is high quality that doesn't require success criteria & monitoring, the creation of marsh & cypress habitat has success criteria & monitoring associated with the permitting of the Starkey Blvd. mitigation plan. Currently within the maintenance & monitoring phase.
X 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).
X 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



SWFWMD-FDOT MITIGATION SITE	ANCLOTE RIVER TRACT PASCO COUNTY	FIGURE B -WETLAND & HYDRIC SOILS MAP



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 Number: **SW55**
Project Manager: Mary Barnwell, SWFWMD Sr. Land Management Specialist Phone No: (352)796-7211, ext. 4475
County(ies): Pasco Location: S 28 & 38, T 25 S, R 22 E

IMPACT INFORMATION

WPI: 1147946 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: WPI 1147946 6.57 ac. - 617 (Fluccs code)
6.98 ac. - 641 (Fluccs code) **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: The Upper Hillsborough (UH 4&5) tract covers 302 acres (Figures A-D), 15 wetland segments covering 110 acres have substantial opportunities for hydrologic enhancement and restoration (Fig. D). Large ditches (30-40 ft. across top-of-bank, 5-8 ft. deep, over 1.3 miles long) and a levee fill road were constructed adjacent and through a series of wetlands to effectively maintain the water levels below surface grades, resulting in very minimal wetland hydroperiods. Twelve forested wetlands (101.3 acres) and three non-forested wetlands (8.7 acres, Wetlands 9 and 15 are shallow borrow pits with vegetative cover) have been impacted by construction of the levee fill road, and adjacent large ditches that connect and drain wetlands to allow direct groundwater discharge into the Hillsborough River floodplain. The wetlands exhibit 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 has 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 filled from removal of the levee road during the spring and summer, 2001. 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. Vegetative ground cover species have recruited as well as naturally regenerated from hydrologically restoring the wetlands (110 acres). Eleven surficial aquifer monitor wells were installed within the proposed enhanced wetlands 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 spcified DOT project(s): Restoring the wetlands to historic conditions has resulted in a large-scale improvement in wetland functions. Being located within a dense industrial area along Interstate-4, the wetland impacts associated with the interstate improvements were low quality systems.

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. Thonotasassa 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. (Completed construction – Sept., 2001)

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: $160,000.00 (total);

Design	$82,000
Construction & Planting	$65,000
Maintenance & Monitoring	$13,000

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.

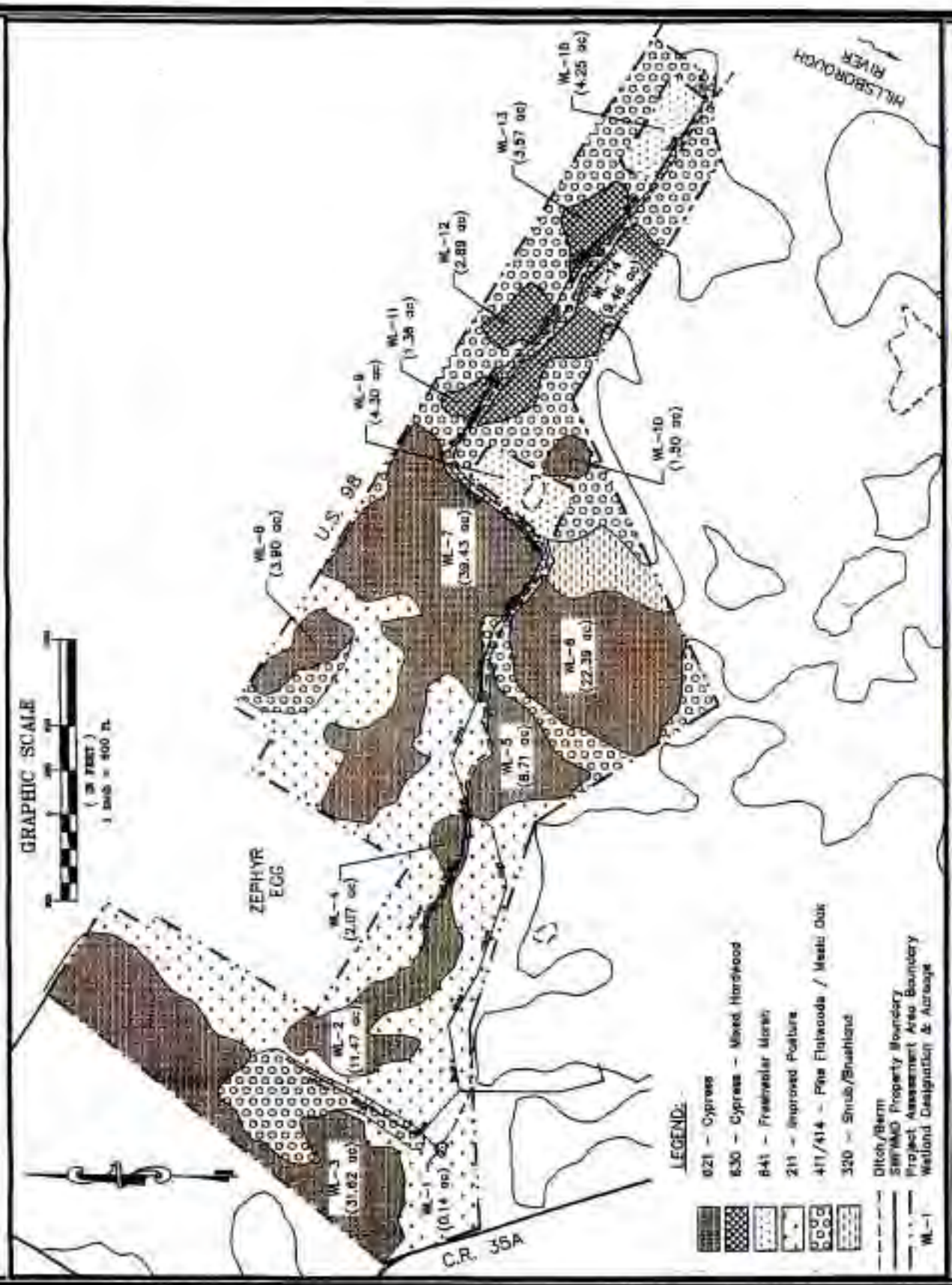
x 4. Detailed schedule for work implementation, including any and all phases. Construction was completed in Sept. 2001, followed by cypress planting, and a minimum three years of monitoring.

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. Monitoring will include qualitative evaluation of enhanced wetlands and measuring water levels within the 13 monitor wells on a quarterly basis for a minimum 3 years.

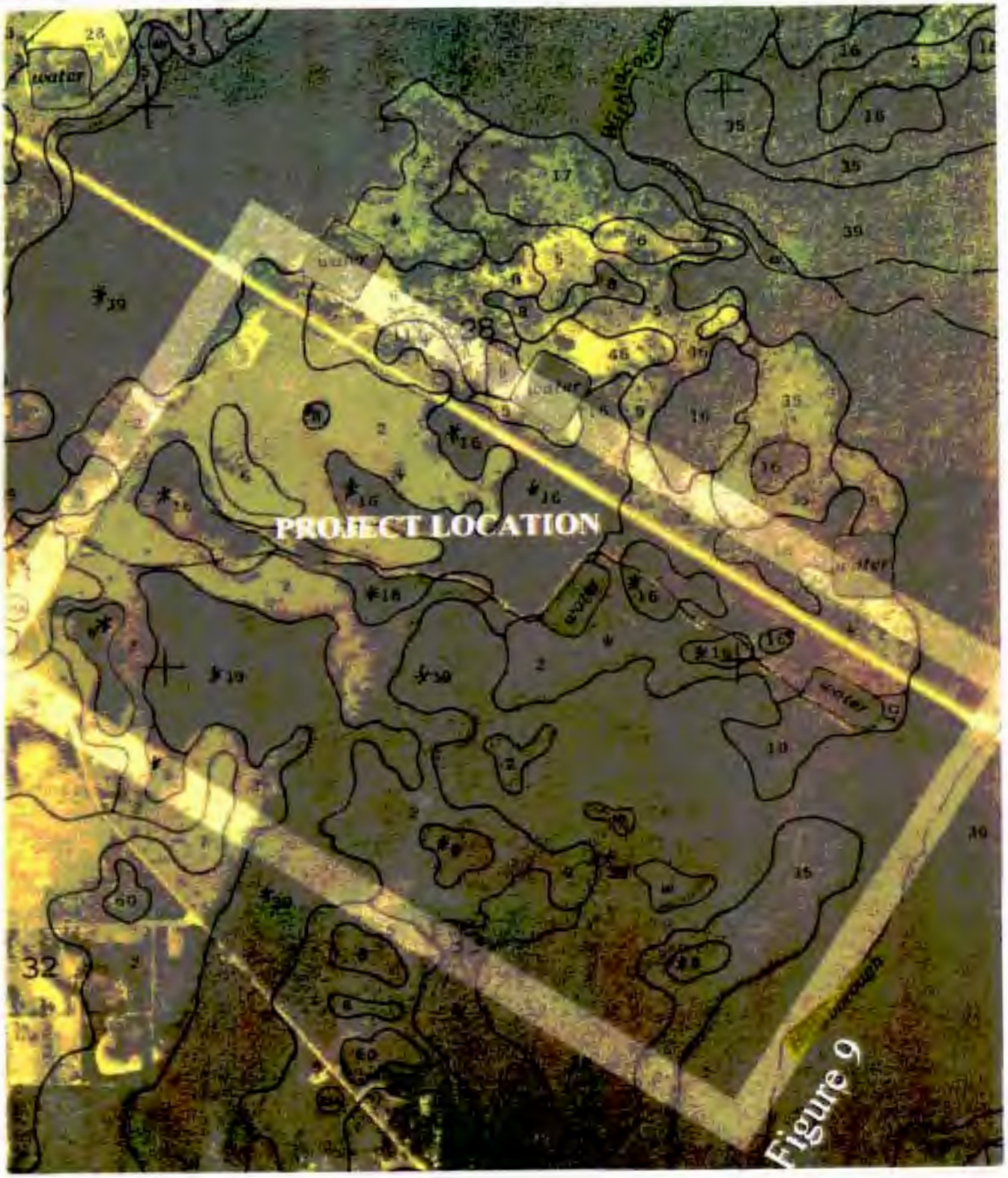
x 6. Long term maintenance plan. Maintenance to control nuisance & exotic vegetation will be conducted as needed for a minimum 3 years. No maintenance activities have been required within the first year post-construction.

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 A PROJECT LOCATION



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 ^

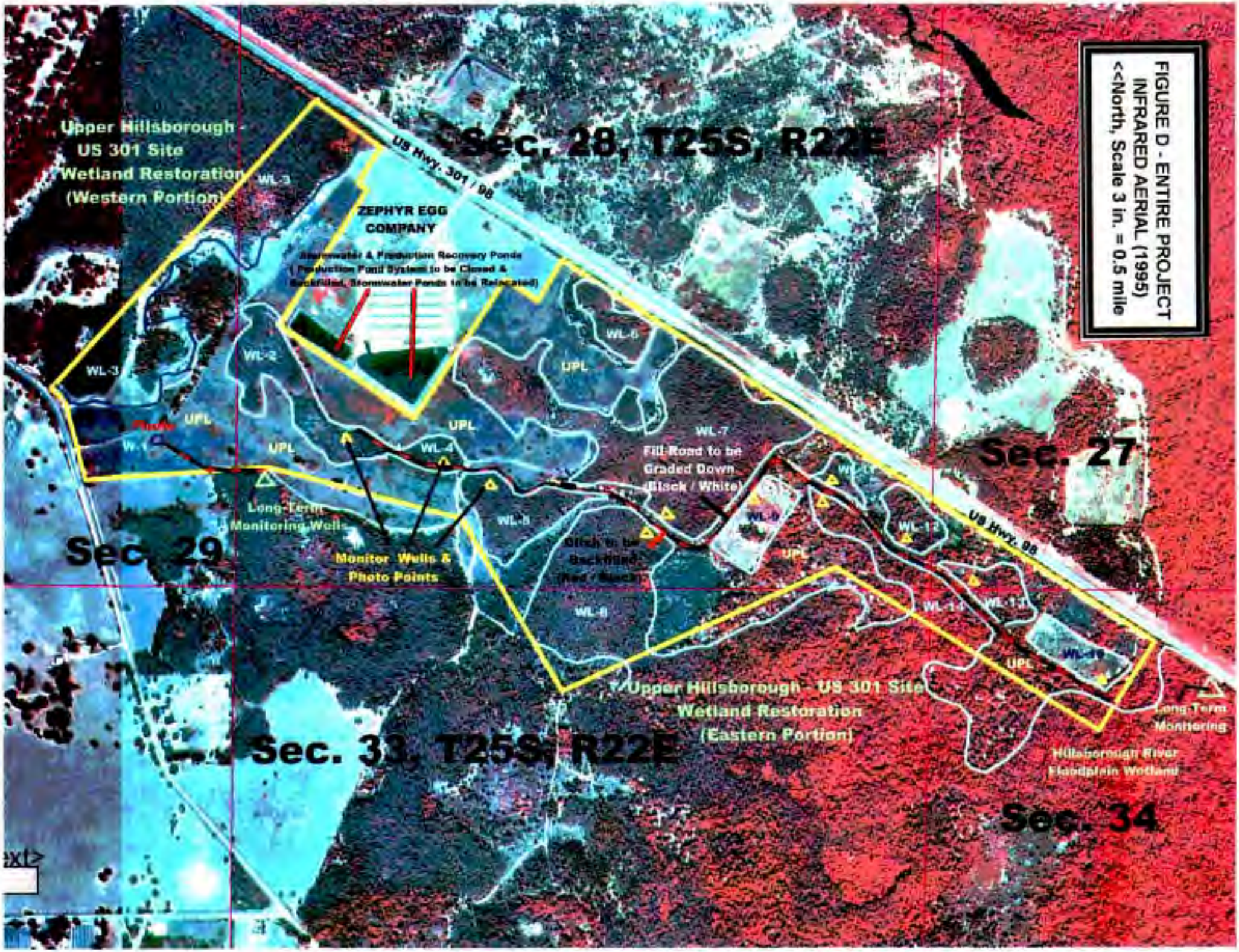


FIGURE D - ENTIRE PROJECT
INFRARED AERIAL (1995)
<<North, Scale 3 in. = 0.5 mile
Sec. 28, T25S, R22E
US Hwy. 301 / 98
Upper Hillsborough - US 301 Site Wetland Restoration (Western Portion)
ZEPHYR EGG COMPANY
Stormwater & Production Recovery Ponds (Production Pond System to be Closed & Backfilled, Stormwater Ponds to be Relocated)
WL-3
WL-2
WL-6
UPL
WL-7
Fill Road to be Graded Down (Black / White)
WL-4
WL-5
Long-Term Monitoring Wells
Monitor Wells & Photo Points
Ditch to be Backfilled (Red / Black)
WL-8
WL-9
WL-12
WL-11
WL-10
Sec. 27
Sec. 29
Upper Hillsborough - US 301 Site Wetland Restoration (Eastern Portion)
Sec. 33, T25S, R22E
Long-Term Monitoring
Hillsborough River Floodplain Wetland
Sec. 34

Upper Hillsborough -
US 301 Site
Wetland Restoration
(Western Portion)
FIGURE D
WESTERN PORTION
<<North, Scale 3 in.= 0.25 mile
US Hwy. 301 / 98
ZEPHYR EGG
COMPANY
Stormwater & Production Recovery Ponds
(Production Pond System to be Closed &
Backfilled, Stormwater Ponds to be Relocated)
WL-3
WL-3
WL-2
WL-6
UPL
UPL
UPL
UPL
W-1
WL-4
WL-5
Ditch to be

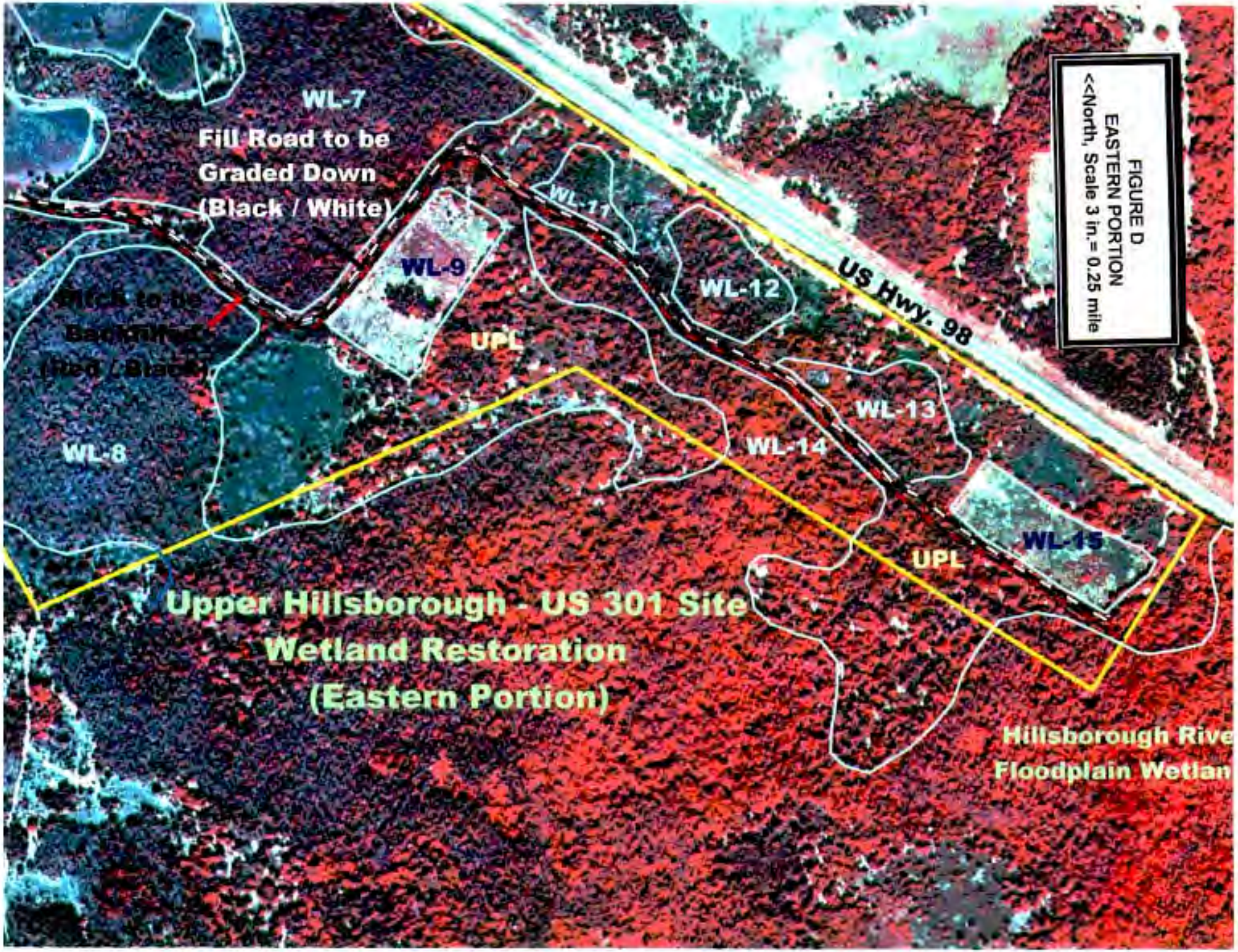


FIGURE D
EASTERN PORTION
<<North, Scale 3 in.= 0.25 mile
WL-7
Fill Road to be
Graded Down
(Black / White)
WL-9
WL-11
WL-12
US Hwy. 98
UPL
WL-13
WL-14
WL-8
WL-15
UPL
Upper Hillsborough - US 301 Site
Wetland Restoration
(Eastern Portion)
Hillsborough Rive
Floodplain Wetlan

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) FM: 2569571, US 19 - Drew to Railroad	ERP #: 4411760.000	COE #:199400606 (NW-PB)
(2) FM: 2557031, SR 60 – Cypress St. to Fish Creek *	ERP #:43002958.004	COE #:200205816 (IP-MN)
(3) FM: 2558881, US 301- Sligh to Tampa Canal **	ERP #:43024246.000	COE #:200206711 (IP-JF)
(4) FM: 2568812, US 19 (SR 55) – Seville Dr. to SR 60	ERP #:_____	COE #:_____
(5) FM: 2569941, CR 296 Connector, 40th St. to 28th St.	ERP #: 43008898.006	COE #:_____
(6) FM: 2555991, SR 676 (Causeway)-US 301 to US 41**	ERP #: 43027063.000	COE #:SAJ-2004-5583 (IP-MIS)

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 / Types:

(1)	0.2 ac. 618 (Fluccs)	(3)	3.0 ac. 641 (Fluccs)	(6)	0.1 ac. 640 (Fluccs)	(7)	0.2 ac. 510
	0.3 ac. 641	(4)	0.5 ac. 643		1.0 ac. 643		1.0 ac. 641
TOTAL: 0.5 Acres		(5)	0.7 ac. 643	TOTAL 1.1 acres		TOTAL 1.2 acres	

(2) 0.8 ac. 641 **TOTAL: 7.8 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 freshwater forested wetland impacts of these two projects are being mitigated at Boyd Hill Nature Park (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): Almost all of the proposed wetland impacts are low quality palustrine marshes (7.4 of the 7.8 total impact acres, Fluccs #640 series), open water canal (0.2 acre, Fluccs #510), and a minor amount of shrub habitat (0.2 acre, Fluccs #618). 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 4.4-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 palustrine wetlands, followed by salinity gradients of wetland habitats to estuarine wetlands. A saltwater wetland creation area (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) 985-7481ext. 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

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

x 2. Recent aerial photograph with date and scale. Figures B & C - 1995 Infrared Aerial.

x 3. Location map and design drawings of existing and proposed conditions. Figure A - Location Map, design plans on Figures E & F.

x 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.

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 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 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.

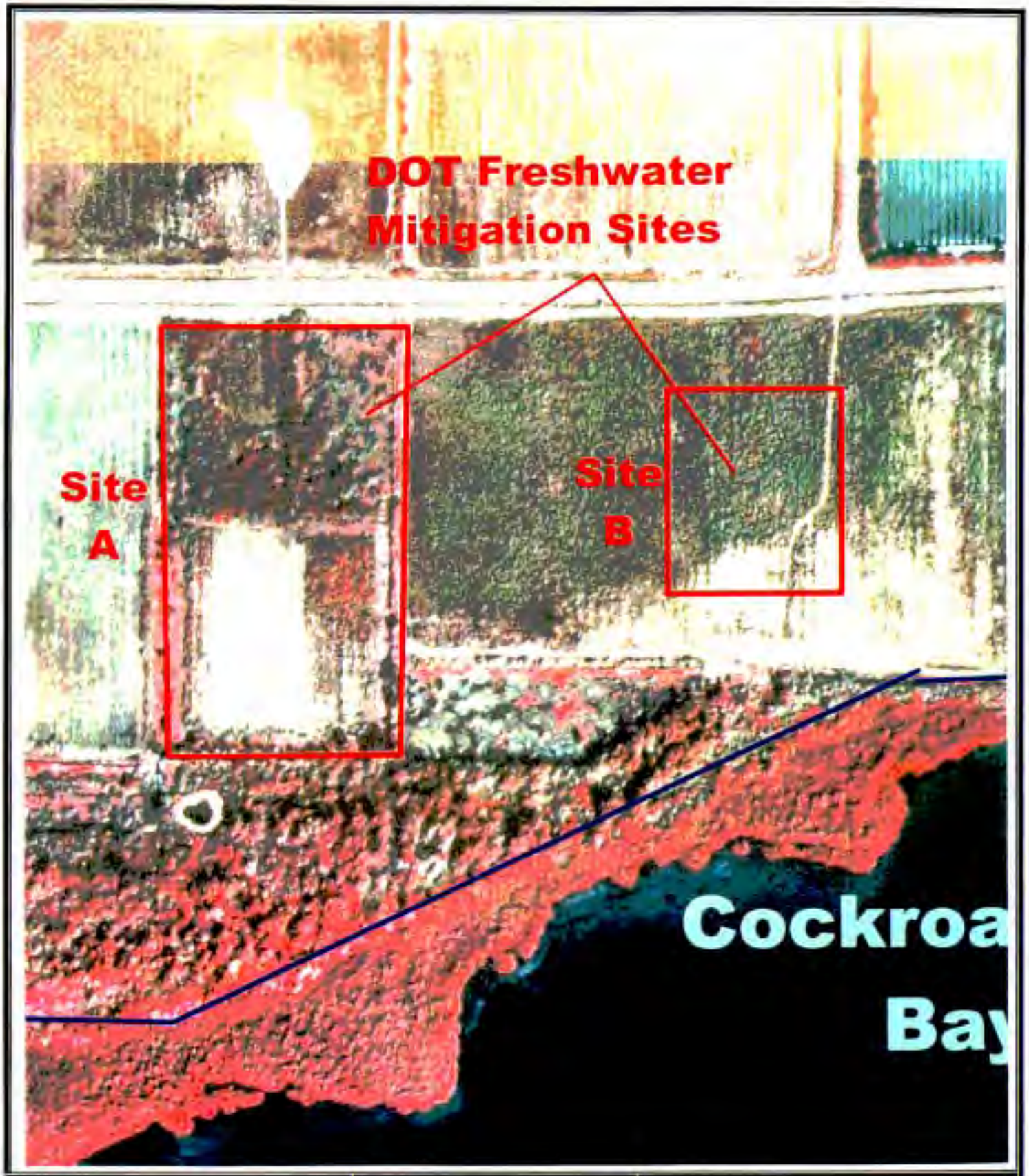
Attachment B – Maintenance & Monitoring, Success Criteria

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 a more intensive effort during the first couple years after planting to allow for establishment of desirable plants, and less frequent maintenance as the project matures. Maintenance will continue to be conducted as needed, expected to be quarterly for two to three years. 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 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-** **FRESHWATER** **(SW 56)**	**FIGURE A – Location Map** **^ North**

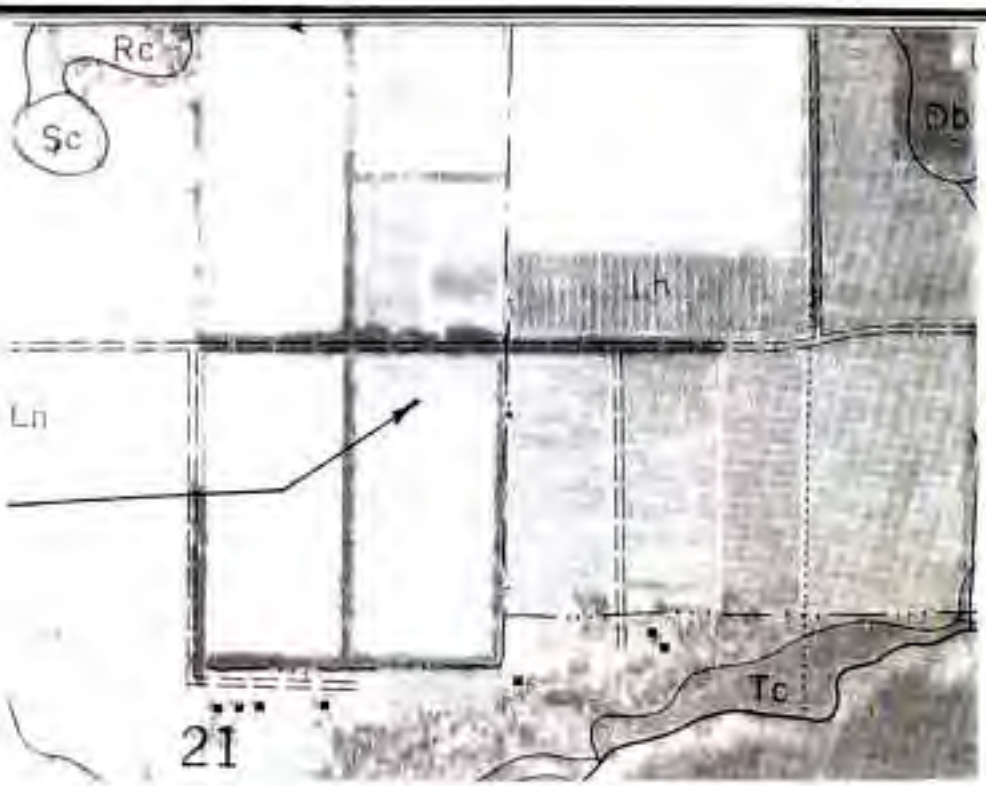
FDOT – District 7 MITIGATION SITE (Tampa Bay Drainage Basin)	COCKROACH BAY- FRESHWATER (SW 56)	FIGURE B – Infrared Aerial (1995) Scale 1 in = 1365 ft. , ^ North



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

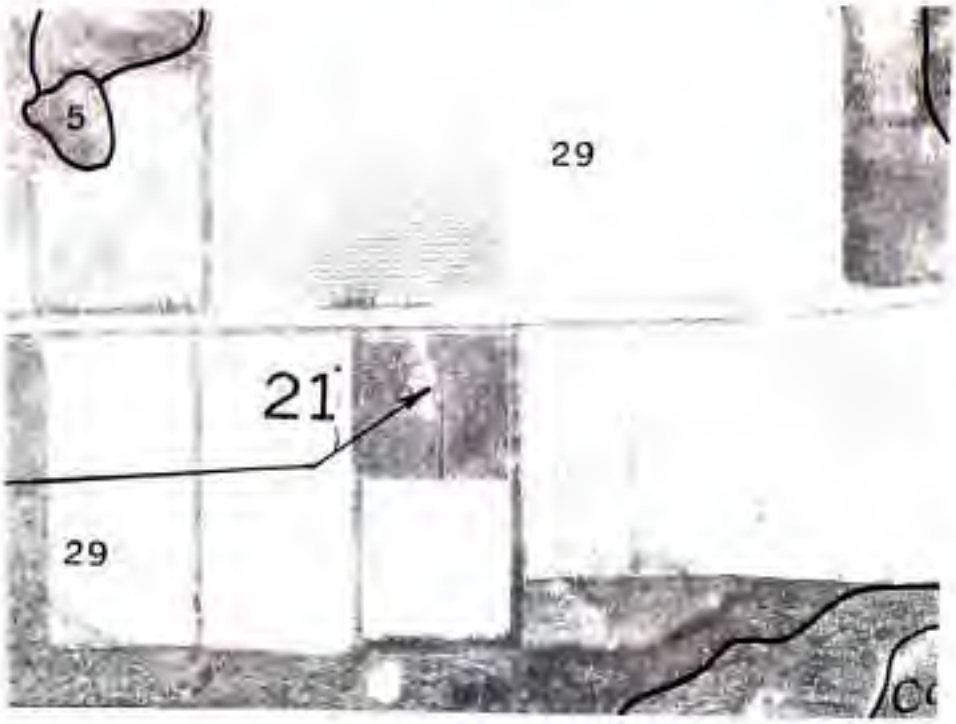
1958 Soil Survey
(1949 Aerial)

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

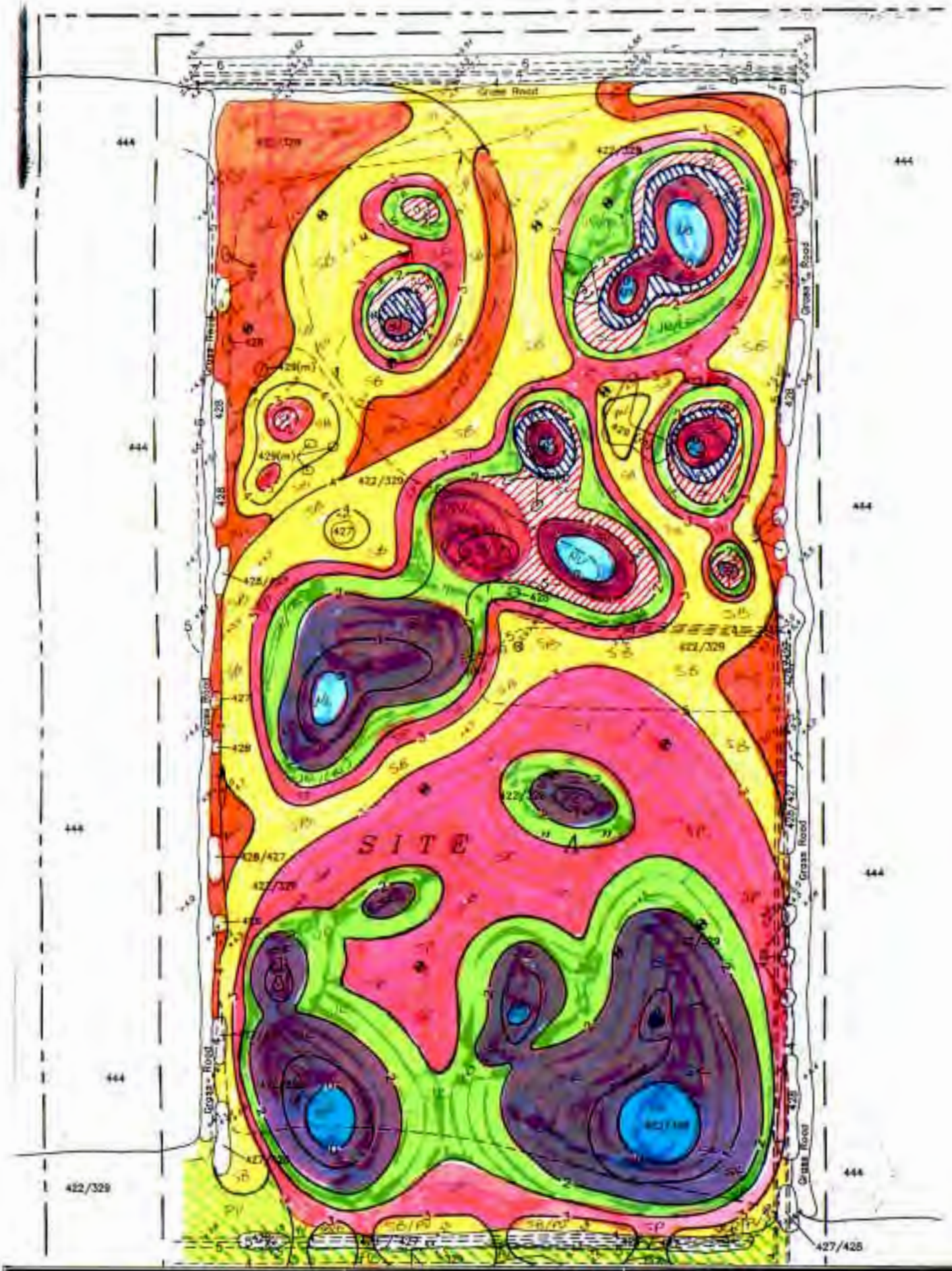


1989 Soil Survey
(1982 Aerial)

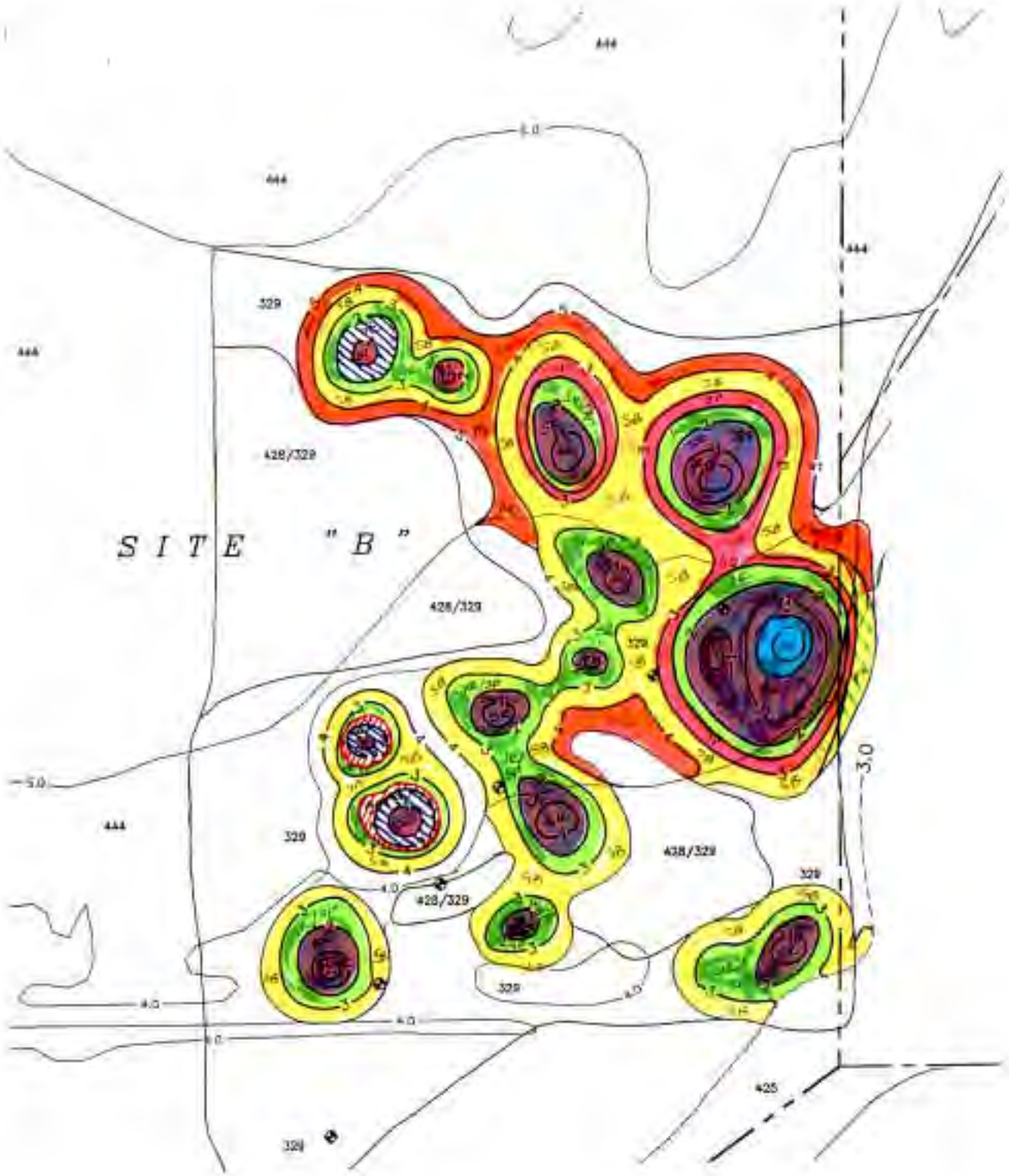
29 – Myakka fine sand
(Non-hydric soil)
Land use – North
Row crops,
South & East
Exotic & nuisance
Species



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**



FDOT – District 7 **MITIGATION SITE** **(Tampa Bay Drainage Basin)**	**COCKROACH BAY-** **FRESHWATER** **(SW 56)**	**FIGURE F** **Site B – 30% Design Plans** **Scale 1 in = 155 feet, ^ 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	*Ruppia maritima*	wigeongrass (natural recruitment)	
	Deep Emergent		
NO	*Nymphaea odorata*	white waterlily	0 to 1'
NL	*Nuphar luteum*	spatterdock	0 to 1'
	Shallow Emergent		
SV	*Scirpus validus*	soft-stem bulrush	0 to 2'
SR	*Scirpus robustus*	salt marsh bulrush	0 to 2'
PC	*Pontederia cordata*	pickerelweed	1 to 2'
SL	*Sagittaria lancifolia*	duck potato	1 to 3'
BM	*Bacopa monnieri*	water hyssops	1 to 3'
JR	*Juncus roemerianus*	black needlerush	2 to 3'
AD	*Acrostichum danaeifolium*	leather fern	2 to 3'
CA	*Crinum americanum*	string lily	2 to 3'
	High Marsh/Wet Prairie/Glade		
SP	*Spartina patens*	marshhay cordgrass	2 to 3'
SV	*Sporobolus virginicus*	seashore dropseed	2 to 3'
DS	*Distichlis spicata*	saltgrass	2 to 3'
BS	*Blechnum serrulatum*	swamp fern	2 to 4'
PV	*Paspalum vaginatum*	seashore paspalum	2 to 4'
BF	*Borrichia frutescens*	seaside oxeye	2 to 4'
LC	*Lycium carolinianum*	Christmasberry	2 to 4'
CO	*Cephalanthus occidentalis*	buttonbush	2 to 4'
SB	*Spartina bakeri*	sand cordgrass	3 to 4'
MC	*Muhlenbergia capillaris*	hairawn muhly	3 to 5'
MY	*Myrica cerifera*	wax myrtle	3 to 5'
	Coastal Hammock		
SA	*Sabal palmetto*	cabbage palm	> 3'
SR	*Serenoa repens*	saw palmetto	> 3'
QV	*Quercus virginiana*	live oak	> 3'
SC	*Sideroxylon celastrinum*	saffron plum	> 3'
ZF	*Zanthoxylum fagara*	wild lime	> 3'
CA	*Chiococca alba*	snowberry	> 3'
EH	*Erythina herbacea*	coralbean	> 3'
FS	*Forestiera segregata*	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-SWIM Engineer Phone No: 813-985-7481 ext. 2212
County(ies): Sumter Location: Sec.18,19,20,28,29,32,33,T19S, R22E
Sec. 4,3 T20S, R22E

IMPACT INFORMATION

DOT (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: 5.93 ac. 500 (Fluccs code) **TOTAL: 5.93 acres**

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 which historically served as fish beds, in many areas the nuisance emergent vegetation is extremely dense due to 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 prospects 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 the project will mitigate for the proposed open water wetland impacts. This phase commenced in early, 2004.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The DOT 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 proposed restoration habitats associated with the same Lake Panasoffkee.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: There isn'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- SWIM Engineer Phone Number: 813-985-7481 ext. 2212

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

__X__1. Detailed description of existing site and proposed work. Refer to Attachment A.

__X__2. Recent aerial photograph with date and scale. Figure B - 1995 infrared aerial.

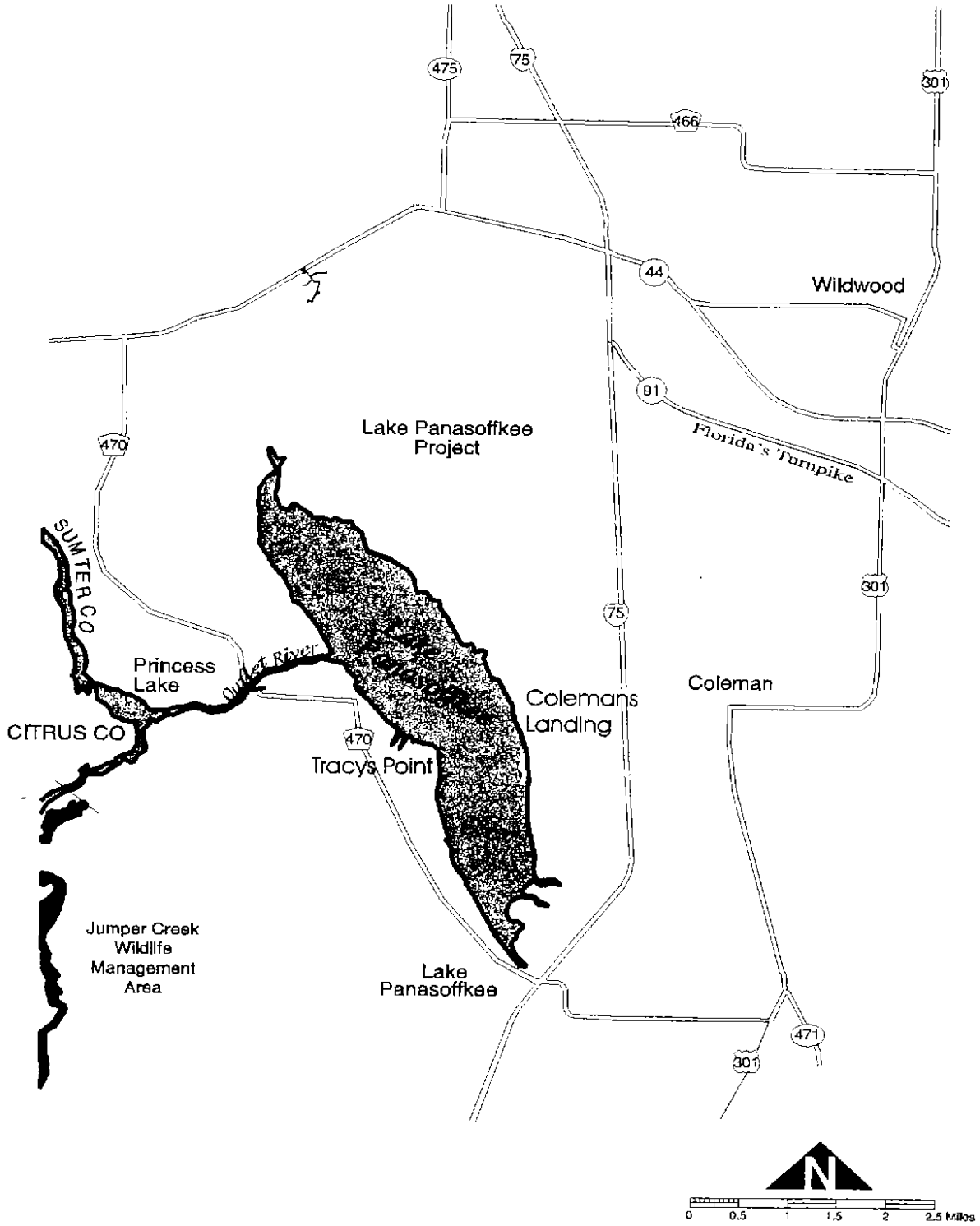
__X__3. Location map and design drawings of existing and proposed conditions. Figure A-Location Map, Attachment A has the proposed conditions.

__X__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 began in the spring, 2004 and will finish by the end of 2004.

__x___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. With these reasons in mind, no monitoring or success criteria is proposed.

__x___6. Long term maintenance plan. The mitigation is associated with the larger Lake Panasoffkee 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 effort will not be funded through the FDOT mitigation program.

___x__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.

Figure 1. Step Two - Dredge to Hard Bottom from 35' Contour - entails 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 material from this area being transported into hard bottom areas.

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

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 35' Contour.

Step Five - Removal of woody/shrubby vegetation and associated sediments.

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District
Mitigation Project Name: **Ledwith Lake** Project Number: **SW 58**
Project Manager: Ramesh Buch, Land Conservation Manager
Alachua Co. Environmental Protection Dept. Phone No: (352) 264-6800
County: Alachua Location: Sections 1, 2 T12S, R19E

IMPACT INFORMATION

(1) FM 238762 - SR 40, CR 225A to SW 52nd St. ERP #: _____ COE #: NPR (isolated wetland)

(2) FM 238641 - SR 500 (US 27), Levy Co. to SR 326 ERP #: 43014024.001 COE #: NPR (isolated wetland)

(3) FM 238678 - SR 500 (US 27), SR 326 to CR 225A ERP #: 438697.01__ COE #: 199702099 (NW)

(4) FM 238719 – SR 40, SR 328 to SW 80th ERP #: 44022268.00 COE #: NPR (isolated wetland)

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

Acres / Types of Impact: (1) FM 238762 - 0.20 ac. 617 (Fluccs code)

(2) FM 238641 - 2.37 ac. 640 (Fluccs code)

(3) FM 238678 - 1.09 ac. 641 (Fluccs code)

(4) FM 238719 – 0.08 ac. 641 (Fluccs code) **TOTAL: - 3.74 ac.**

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation ____ Restoration _X_ Enhancement _X_ Preservation Mitigation Area**: 160 ac**.

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

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

Project Description

A. Overall project goal: Acquire, preserve, and enhancement of a portion (160 acres) of Ledwith Lake, a high quality marsh covering 2200 acres in Alachua & Marion Counties. Along with the adjacent marsh enhancement associated with Levy Lake, this is the highest concentration of wetland habitat within the same basin of the proposed DOT wetland impacts. Preservation through acquisition is the best alternative toward protecting this important water and wetland resource, particularly considering the lack of other large wetland systems within the majority of this basin. This acquisition will be conducted by Alachua County, with assistance from the Conservation Trust for Florida.

B. Brief description of current condition: Ledwith Lake is a 2200-acre marsh prairie with a few pockets of open water around the perimeter (Figures C, D, photos 1,2). The marsh has dominance of pickerelweed, floating pennywort, smartweed, spatterdock, soft rush, and maidencane. Extensive vegetative diversity and wildlife is present in the marsh and surrounding hardwood hammocks. Resource evaluations were conducted and are available from Mark Brown (SWFWMD).

C. Brief description of proposed work: Ledwith Lake is part of a proposed east-west corridor of proposed land acquisition between Ocala National Forest and Waccasassa River. This portion of the proposed acquisition is referred to as the "Levy Project" (Figure B) which includes a 4000 - acre acquisition of Ledwith Lake and the surrounding area (Figures C & D) from Rayonier and the Zetrouer Tract. Once acquired by Alachua County, the property will be managed under a joint agreement with FDEP, who owns and manages the adjacent Paynes Prairie State Preserve. A current hydrology study of Levy Lake and Ledwith Lake will determine if the hydrologic connection should be elevated or

decreased via the existing structures (Photo 4) to enhance the site conditions of each wetland. Other enhancement opportunities include the elimination of cattle grazing within the marsh prairie, which has allowed some encroachment of nuisance vegetation along the perimeter.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): Essentially all the DOT wetland impacts (3.54 of the 3.74 acres) are proposed to occur to marsh habitat. Preservation and minimal enhancement of a portion (160 acres) of this high quality marsh prairie will result in a proposed wetland mitigation ratio of 43:1. Ledwith Lake is one of the few and largest marsh systems within the entire basin, exhibits high quality characteristics and conditions that deserve protection through an acquisition program.

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 mitigation banks within this basin. Due to the very limited public property within this basin (the least of any basin that covers the SWFWMD), and the minimal presence of wetlands within this predominantly high ridge basin (also referred to as the Florida Ridge Basin), there are limited wetland enhancement & restoration opportunities in this basin, and in particular within the portion of the basin located within the SWFWMD boundaries.

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 warranted, any revisions to Ledwith Lake hydrology will be conducted in coordination between Alachua County, FDEP, and the SJRWMD.

Contact Name: Ramesh Buch, Land Conservation Manager Phone Number: (352) 264-6800

Entity responsible for monitoring and maintenance: Joint agreement between Alachua County and FDEP staff (Paynes Prairie Preserve) to ensure both entities will coordinate the long-term maintenance & management.

Proposed timeframe for implementation: Commence: Summer, 2001 Complete: Land acquisition by Summer, 2005

Project cost: $100,000 (total); Acquisition (160 acres) – Long-term management conducted by Alachua Co. & FDEP

Attachments

_X_ 1. Detailed description of existing site and proposed work. The detailed evaluations of site conditions are included are available from Mark Brown (SWFWMD, 352-796-7211, ext. 4488). There are no proposed work activities at this time. If the hydraulic and hydrology study of Ledwith & Levy Lake determine the water levels need to be modified to enhance either marsh system, that will be conducted by Alachua County in coordination with FDEP and SJRWMD.

_X_ 2. Recent aerial photograph with date and scale. Fig. B & C - Infrared aerials – 1995.

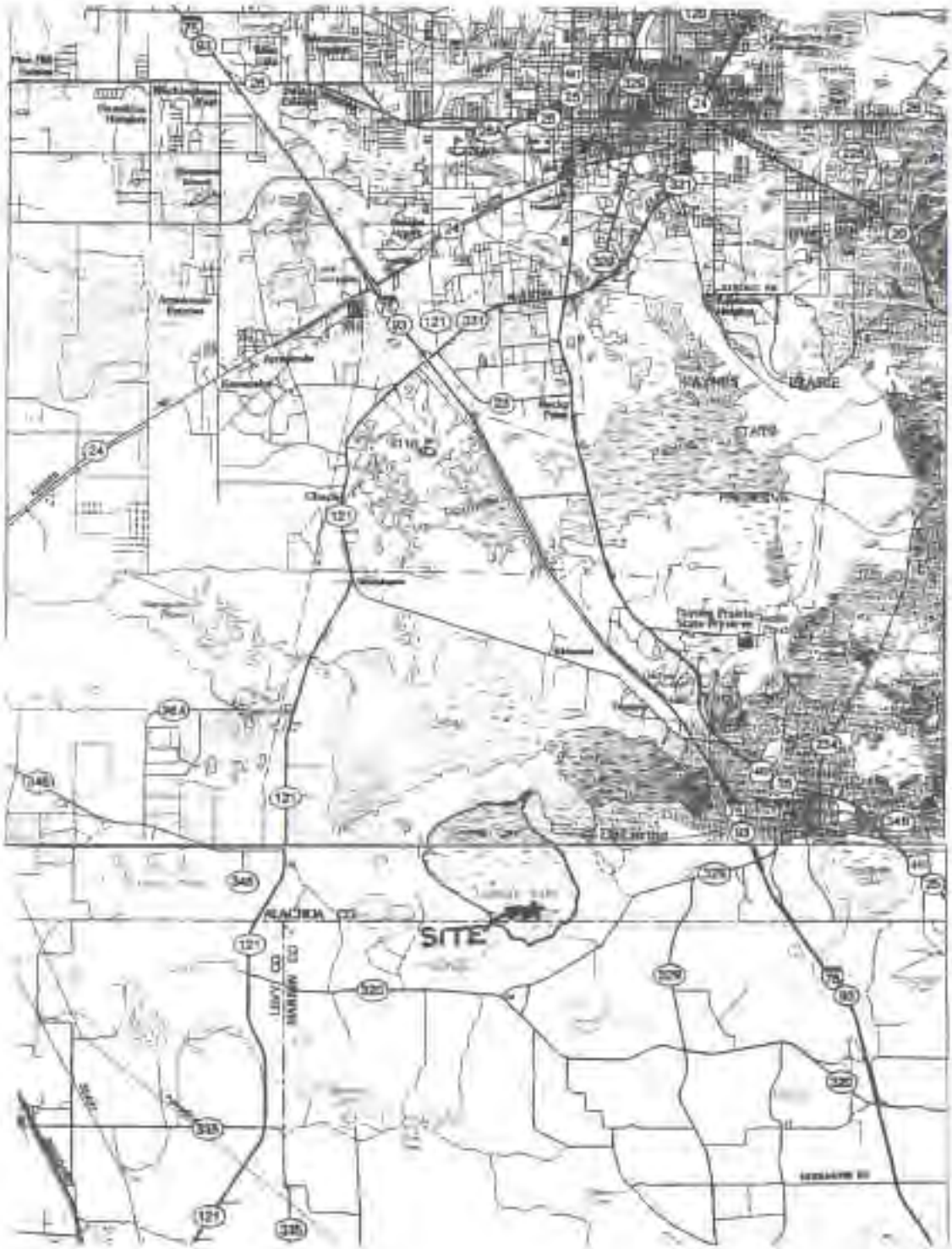
_X_ 3. Location map and design drawings of existing and proposed conditions. Fig. A, location map, drawings of existing and proposed conditions are exhibited under Figures B &C.

_X_ 4. Detailed schedule for work implementation, including any and all phases. Refer to schedule provided above.

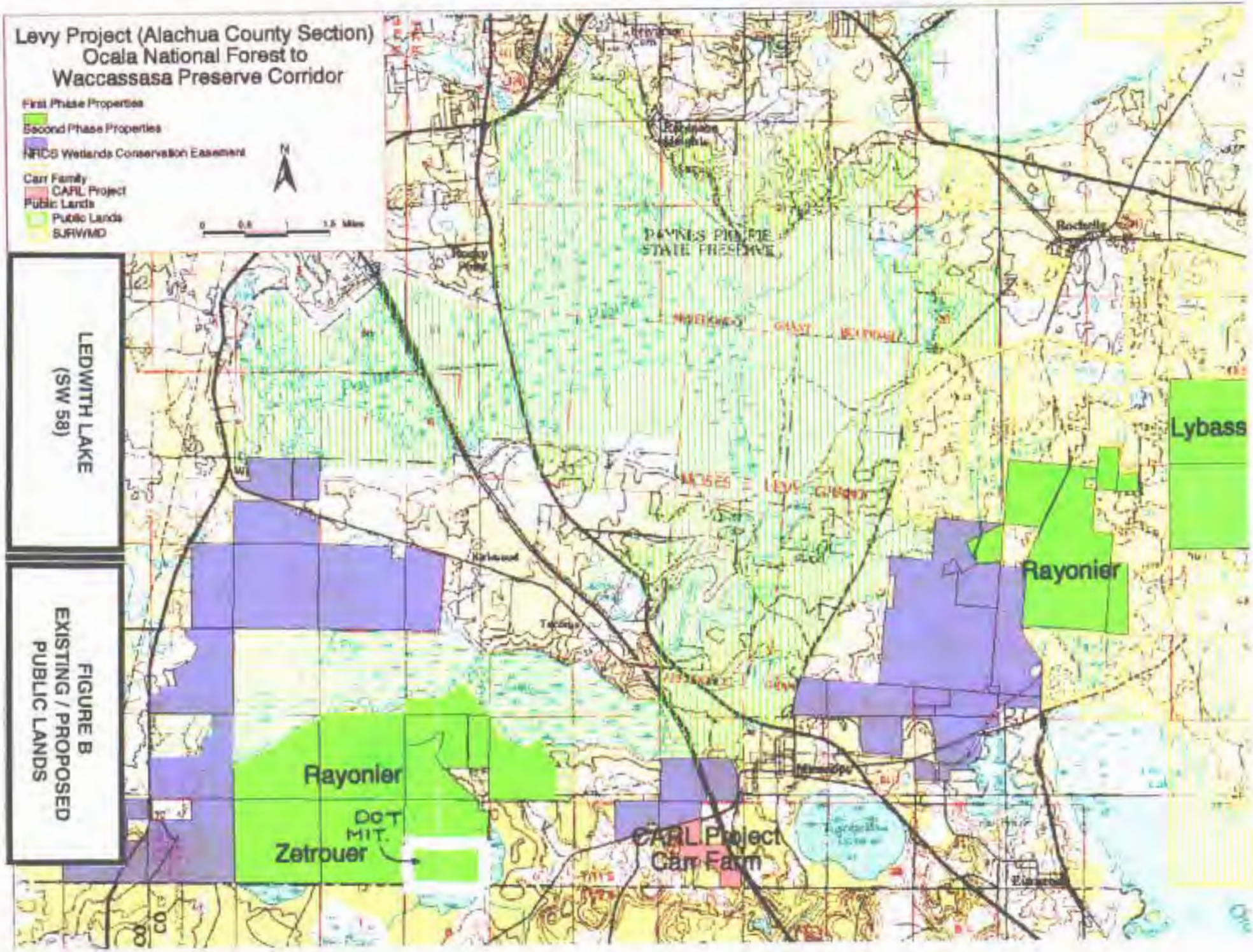
_X_ 5. Proposed success criteria and associated monitoring plan. No proposed success criteria or monitoring plan.

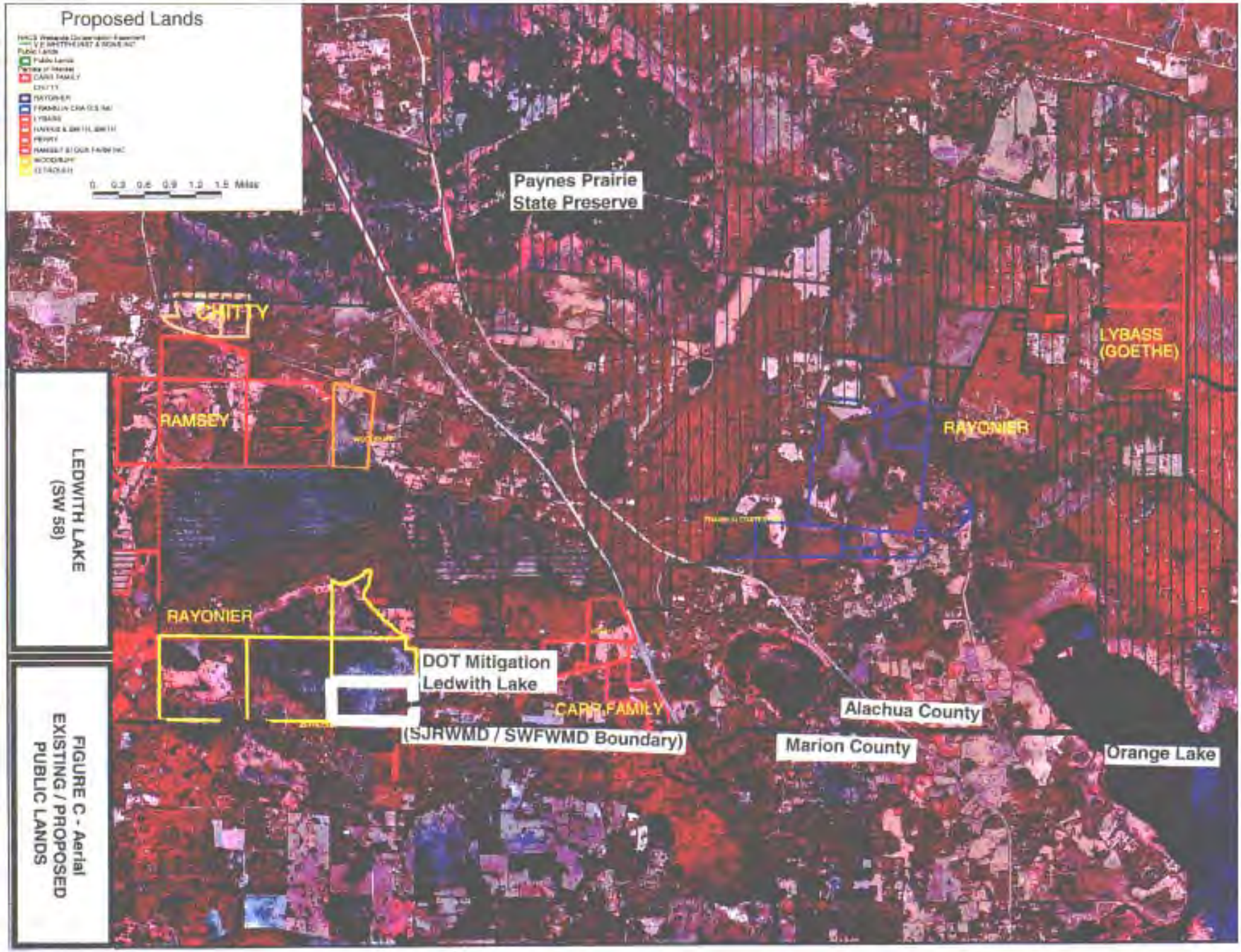
_X_ 6. Long- term maintenance plan. A long-term maintenance plan is not warranted due to the habitat conditions.

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



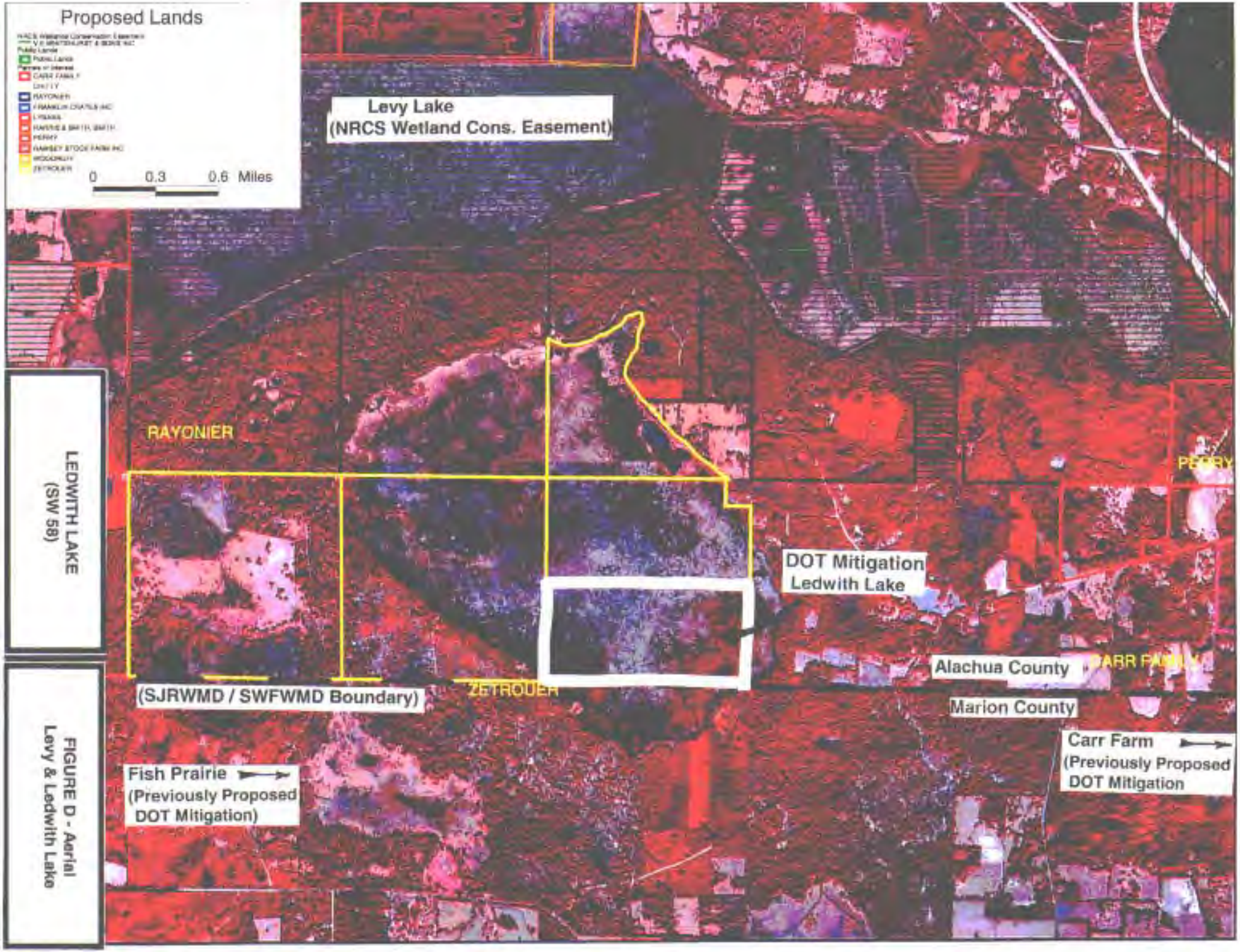
FDOT - District 5 MITIGATION SITE (Ocklawaha River Basin)	LEDWITH LAKE (SW 58)	FIGURE A LOCATION MAP Scale 1 in. = 2.3 miles


Levy Project (Alachua County Section)
Ocala National Forest to
Waccassasa Preserve Corridor
First Phase Properties
Second Phase Properties
NRCS Wetlands Conservation Easement
Carr Family
CARL Project
Public Lands
Public Lands
SJRWMD
N
0 0.5 1 1.5 Miles
LEDWITH LAKE
(SW 58)
FIGURE B
EXISTING / PROPOSED
PUBLIC LANDS
PAYNES PRAIRIE
STATE PRESERVE
Lybass
Rayonier
Rayonier
DOT
MIT.
Zetrouer
CARL Project
Carr Farm



LEDWITH LAKE
(SW 58)

FIGURE C - Aerial
EXISTING / PROPOSED
PUBLIC LANDS



LEDWITH LAKE
(SW 58)

FIGURE D - Aerial
Levy & Ledwith Lake

Photo 1 - View of Ledwith Lake from the western marsh boundary. The marsh prairie has diverse vegetative cover including a dominance of pickerelweed, 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 Number: **SW 59**
Project Manager: Philip Rhinesmith, WMD Environmental Scientist 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 _X_ 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.

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	Project Cost: $1,400,000 (total):	
Watershed Study – Complete, 2003	Watershed Study	$50,000
Design & Permitting – 2004 - 2005	Design	$80,000
Construction – 2006 -2007	Construction	$1,230,000
Minimum 3 Years Maintenance & Monitoring	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

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 allow 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

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

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

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

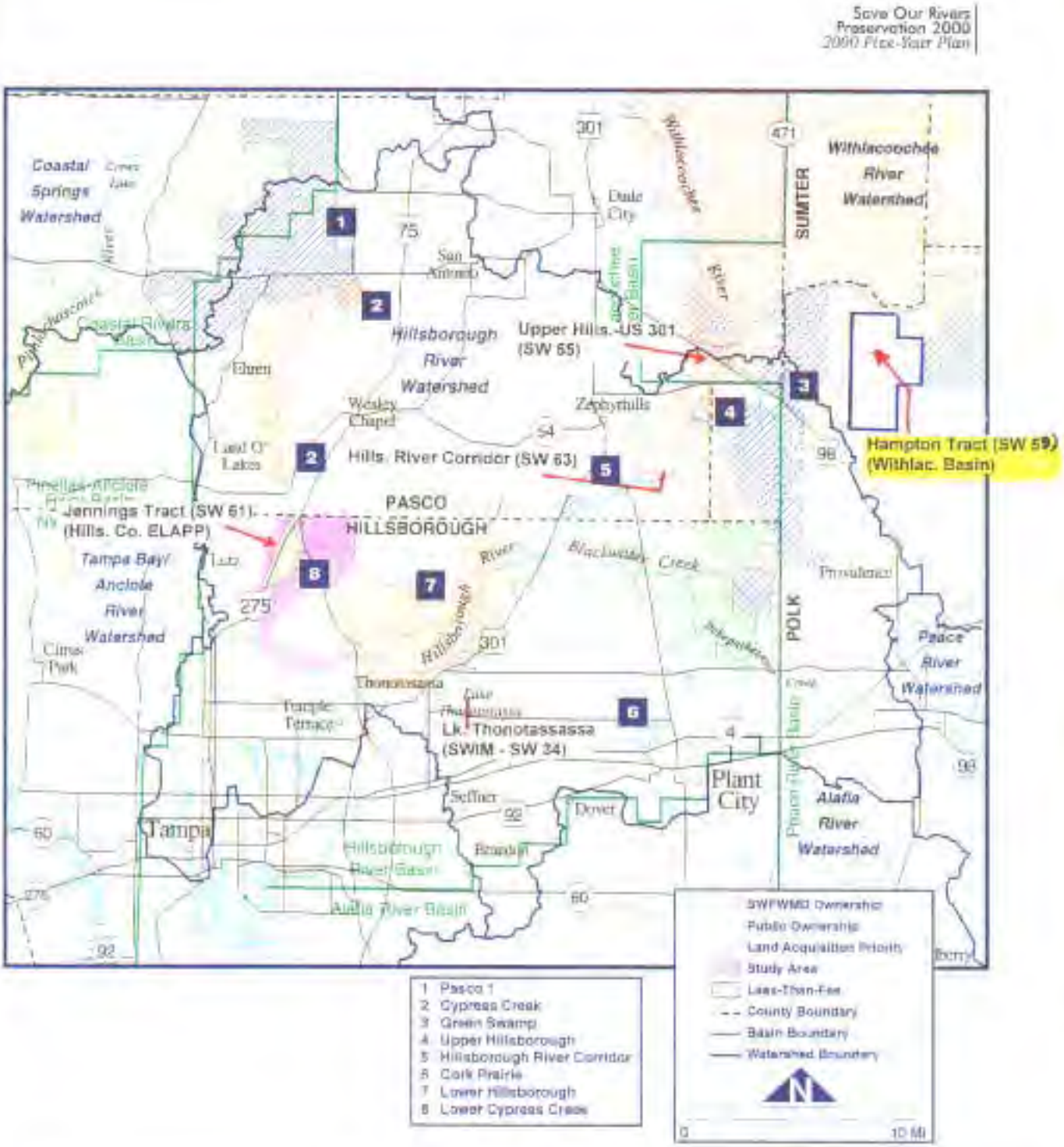
Sect. & Total Mitig. Acres	#630 –Enhanced Mix Wet. Forest	#621–Enhanced Cypress	#641 – Enhanced Marsh	#643 – Enhanced Marsh Slough	#625– Enhanced Hydric Flatwoods
35 - 154.7	153.1	1.6			
2 - 61.1	24.0	4.6	1.5	11.8	19.2
3 - 152.1	139.0	13.1			
11 - 14.6		14.6			
1076 Acres	**683.5 Ac.**	**309.4 Ac.**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

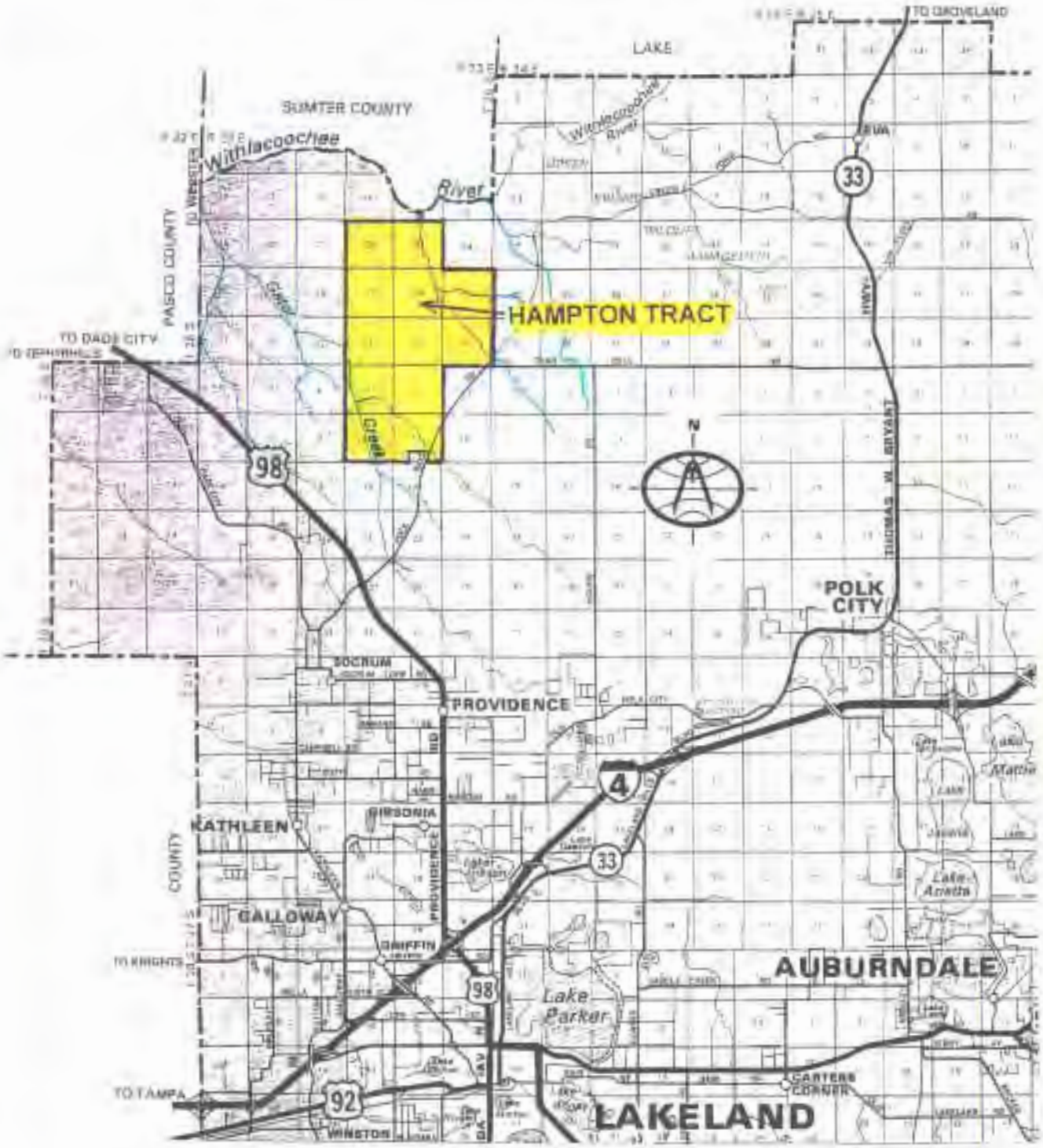
FM 2012092 – Interstate 4, US 98 to CR 557 **Wetland Impacts, (Western Project – Segments 3-5)** 1.19 acres – Streams & Waterway (510) 0.02 acre – Bay Swamp (611) 0.12 acre – Mixed Hardwood Forest (617) 2.75 acres – Willow & Elderberry (618) 3.90 acres – Cypress (621) 8.63 acres – Mixed Wetland Forest (630) 0.98 acres – Freshwater Marsh (640 & 641) 1.63 acres – Wet Prairie (643) **18.95 Acres – TOTAL**	**Mitigation – Sect. 22, 23, 26, 25, 36, 27, 35, 2, 3, 11 (all but Section 34)** 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)**
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**	**Mitigation – Section 34** 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)**

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).



FDOT - District 1 MITIGATION SITE (WITHLACOOCHEE BASIN)	HAMPTON TRACT (SW 59)	FIGURE A WATERSHED BASIN MAP



NORTH ^ SCALE 0.3 in. = 1 mile

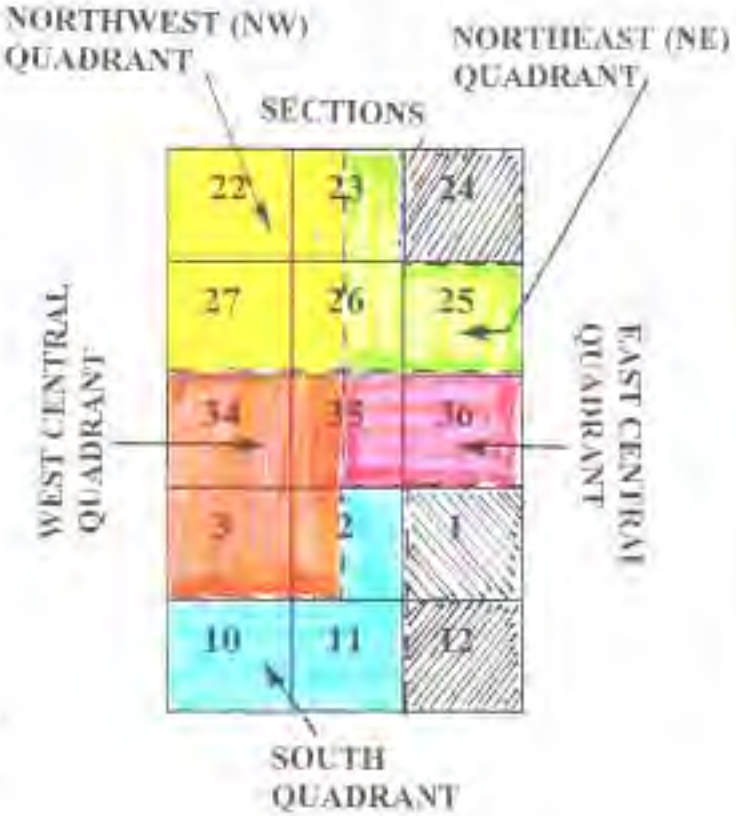
FDOT - District 1 MITIGATION SITE (WITHLACOOCHEE BASIN)	HAMPTON TRACT (SW 59)	FIGURE B LOCATION MAP

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
19* - 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 - Paisley fine sand, stony subsurface
82* - Felda fine sand, frequently flooded
86* - Felda fine sand, depressional
87* - Basinger fine sand

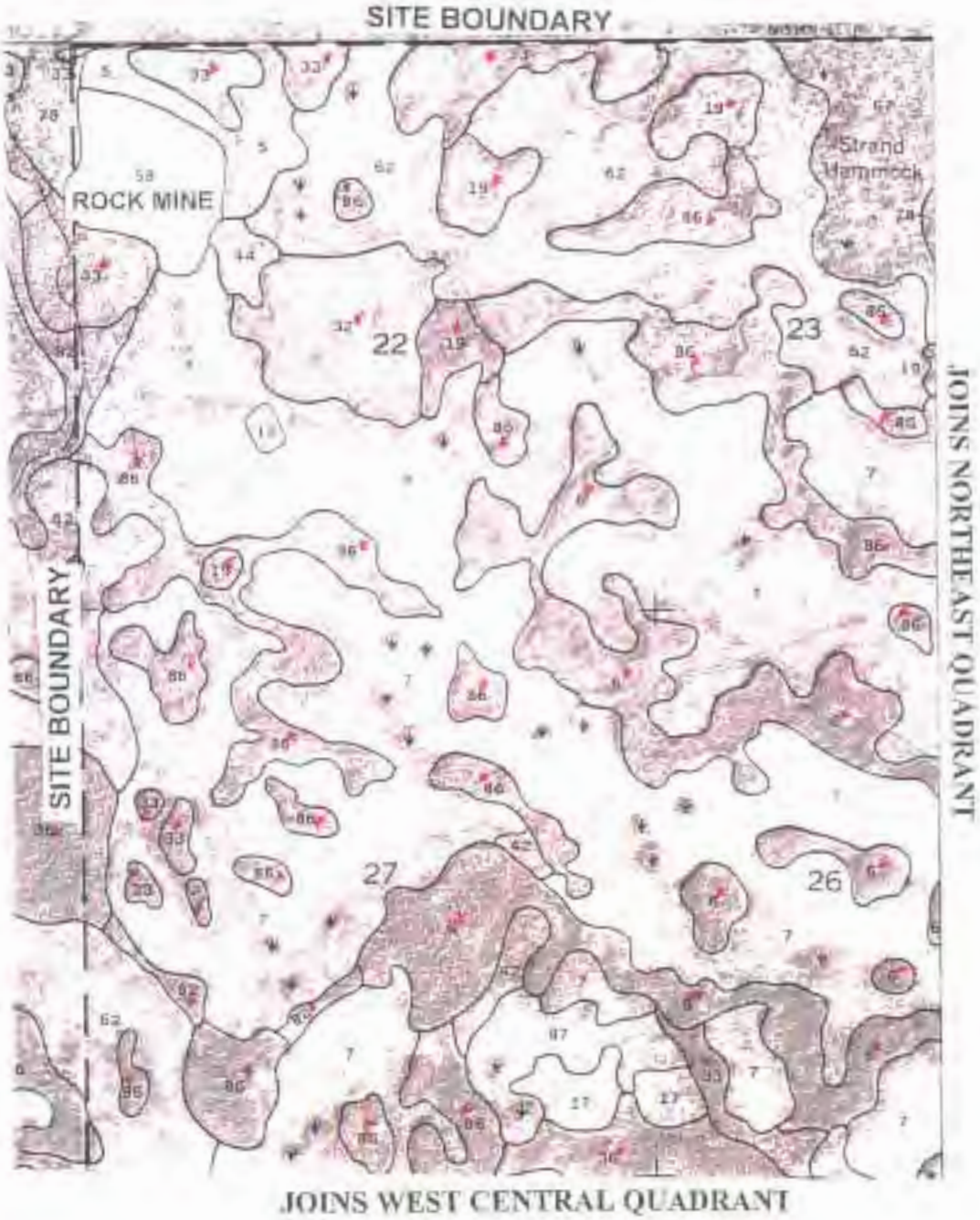
* Hydric Soils

NORTH ^
Scale - 3.75 inches = 1 mile



POLK SOIL SURVEY AERIAL DATE - 1974

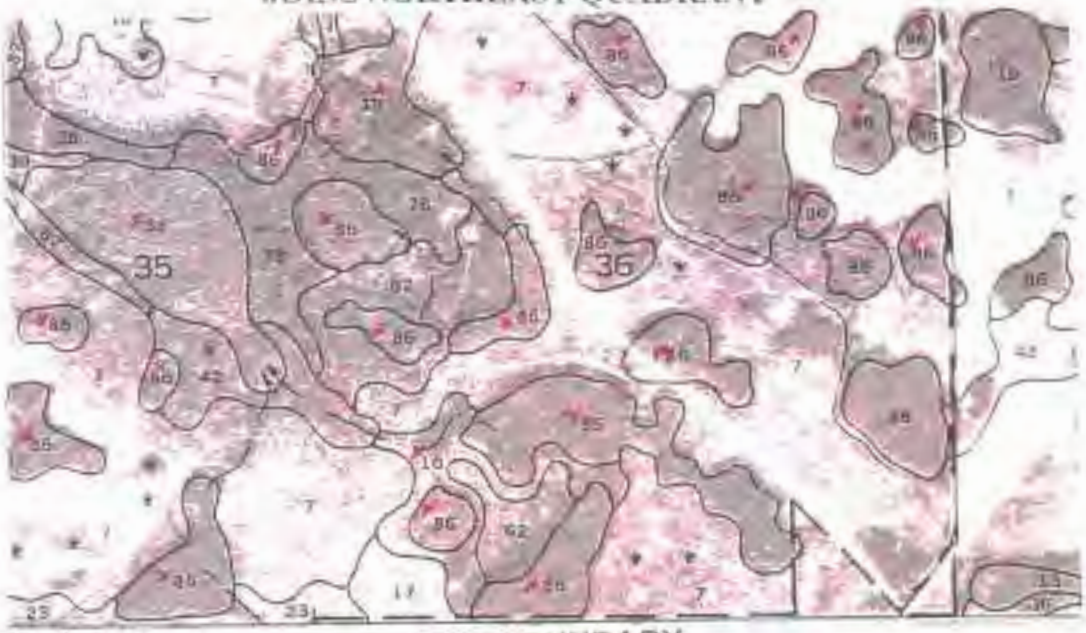
FDOT - District 1 MITIGATION SITE (WITHLACOOCHEE BASIN)	HAMPTON TRACT (SW 59)	FIGURE C POLK CO. SOIL SURVEY (LEGEND & QUADRANT MAP)



NORTH ^ SCALE 3.25 in. = 1 mile

FDOT - District 1 MITIGATION SITE (WITHLACOOCHEE BASIN)	HAMPTON TRACT (SW 59)	FIGURE C POLK CO. SOIL SURVEY (NW QUADRANT)

JOINS NORTHEAST QUADRANT

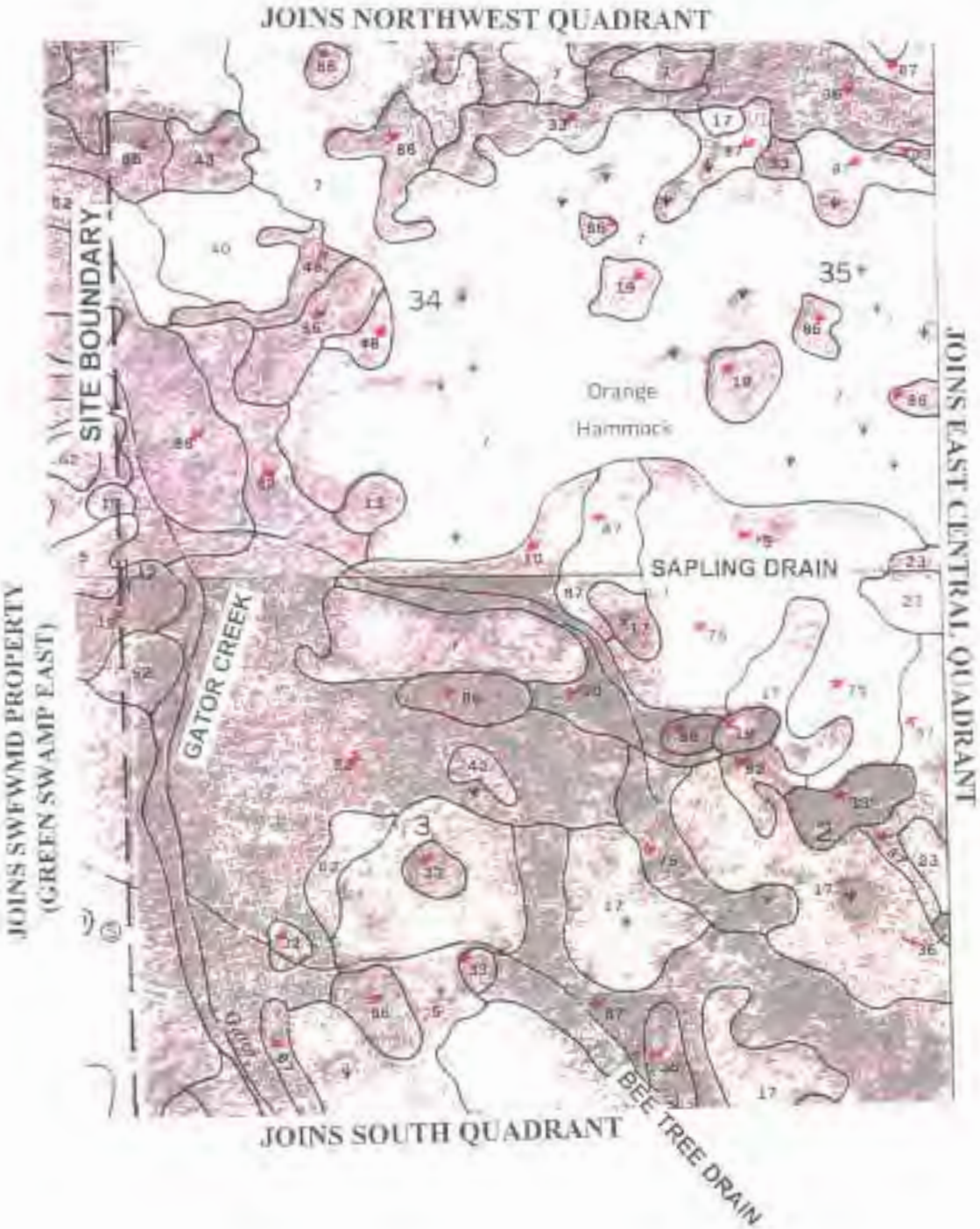


JOINS SOUTH QUADRANT

SITE BOUNDARY

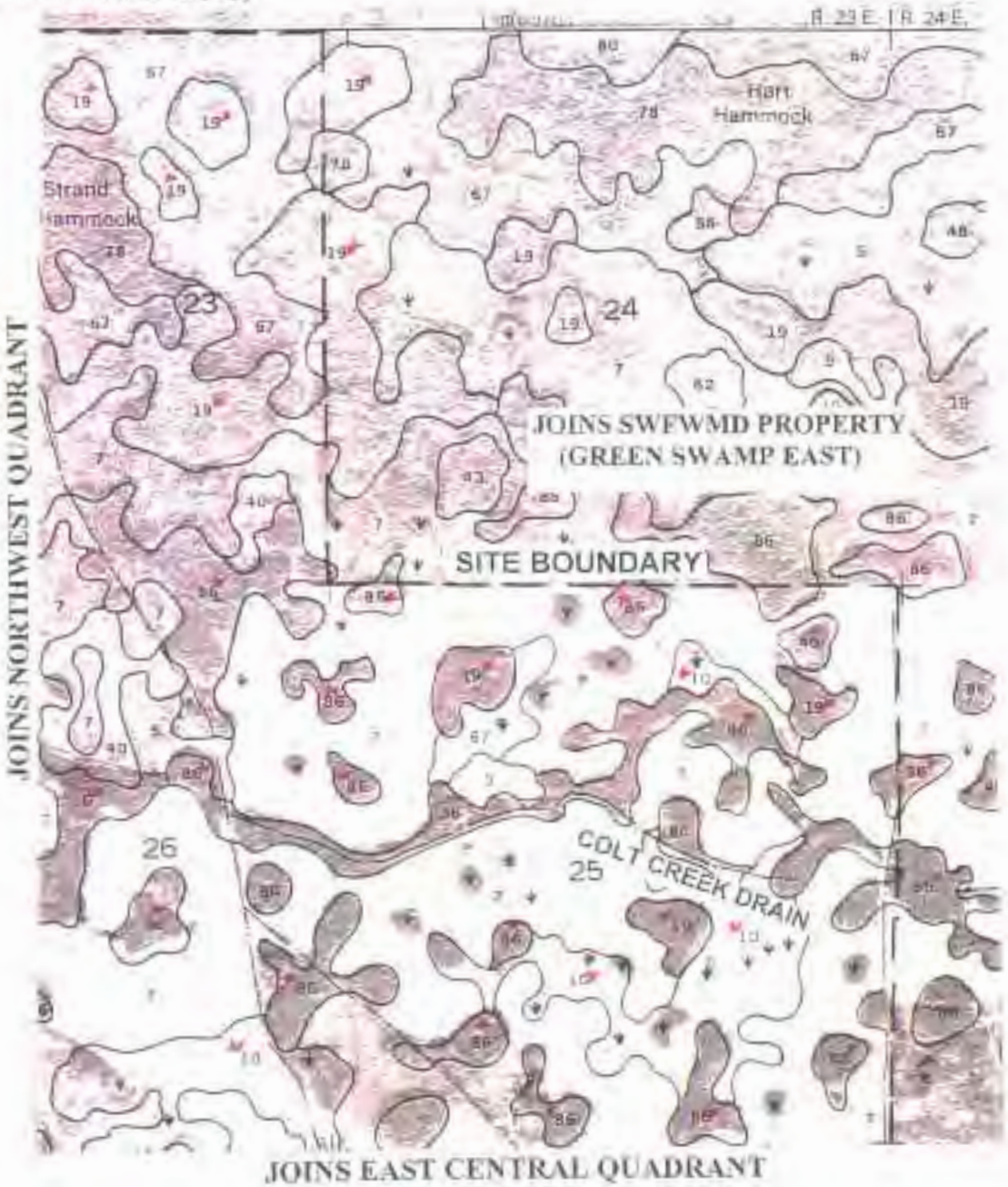
NORTH ^ SCALE 3.25 in. = 1 mile

FDOT - District 1 MITIGATION SITE (WITHLACOOCHEE BASIN)	HAMPTON TRACT (SW 59)	FIGURE C POLK CO. SOIL SURVEY (EAST CENTRAL QUADRANT)



NORTH ^ SCALE 3.25 in. = 1 mile

FDOT - District 1 MITIGATION SITE (WITHLACOOCHEE BASIN)	HAMPTON TRACT (SW 59)	FIGURE C POLK CO. SOIL SURVEY (WEST CENTRAL QUADRANT)

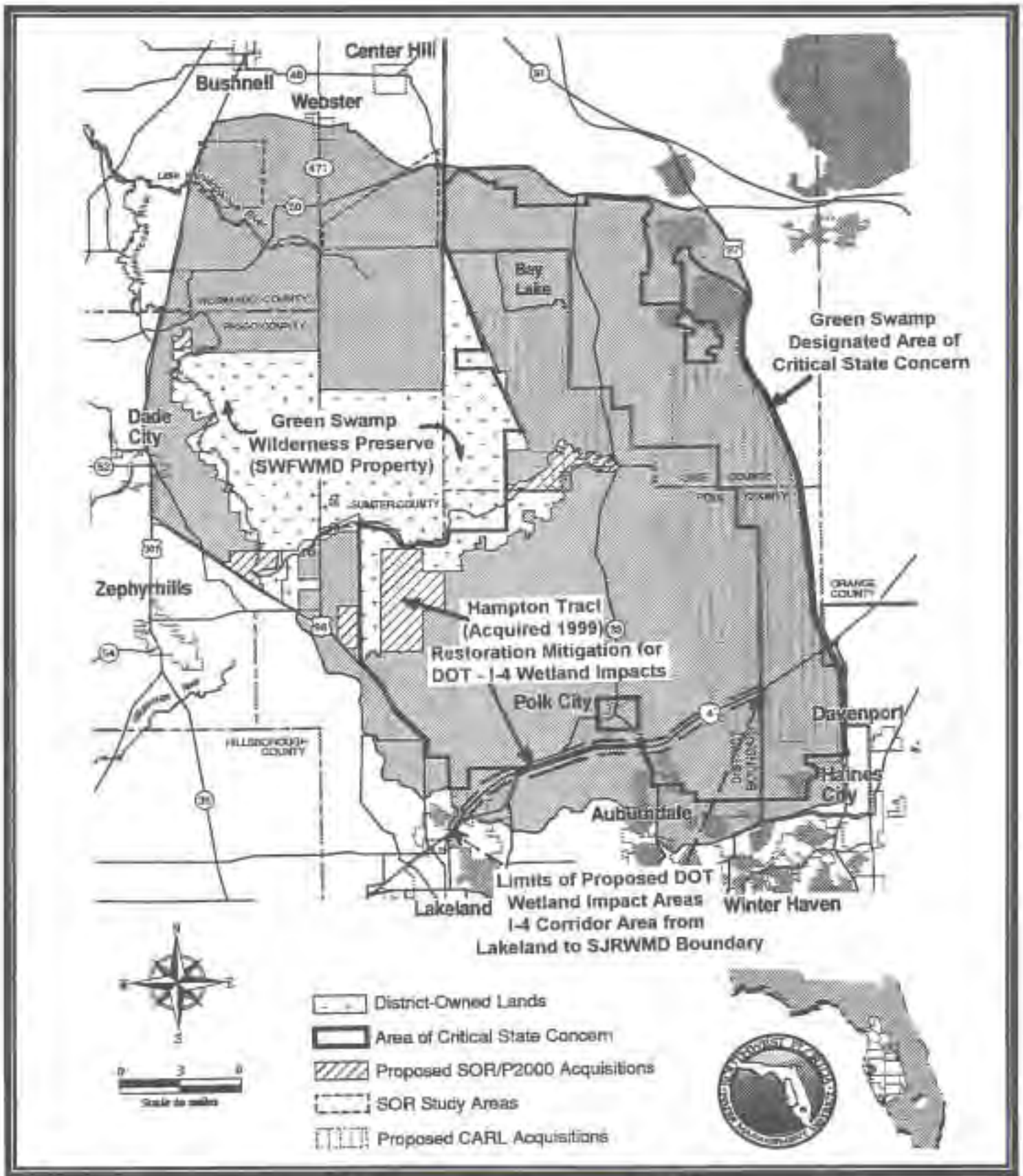


NORTH SCALE 3.25 in. = 1 mile

FDOT - District 1 MITIGATION SITE (WITHLACOOCHEE BASIN)	HAMPTON TRACT (SW 59)	FIGURE C POLK CO. SOIL SURVEY (NE QUADRANT)

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

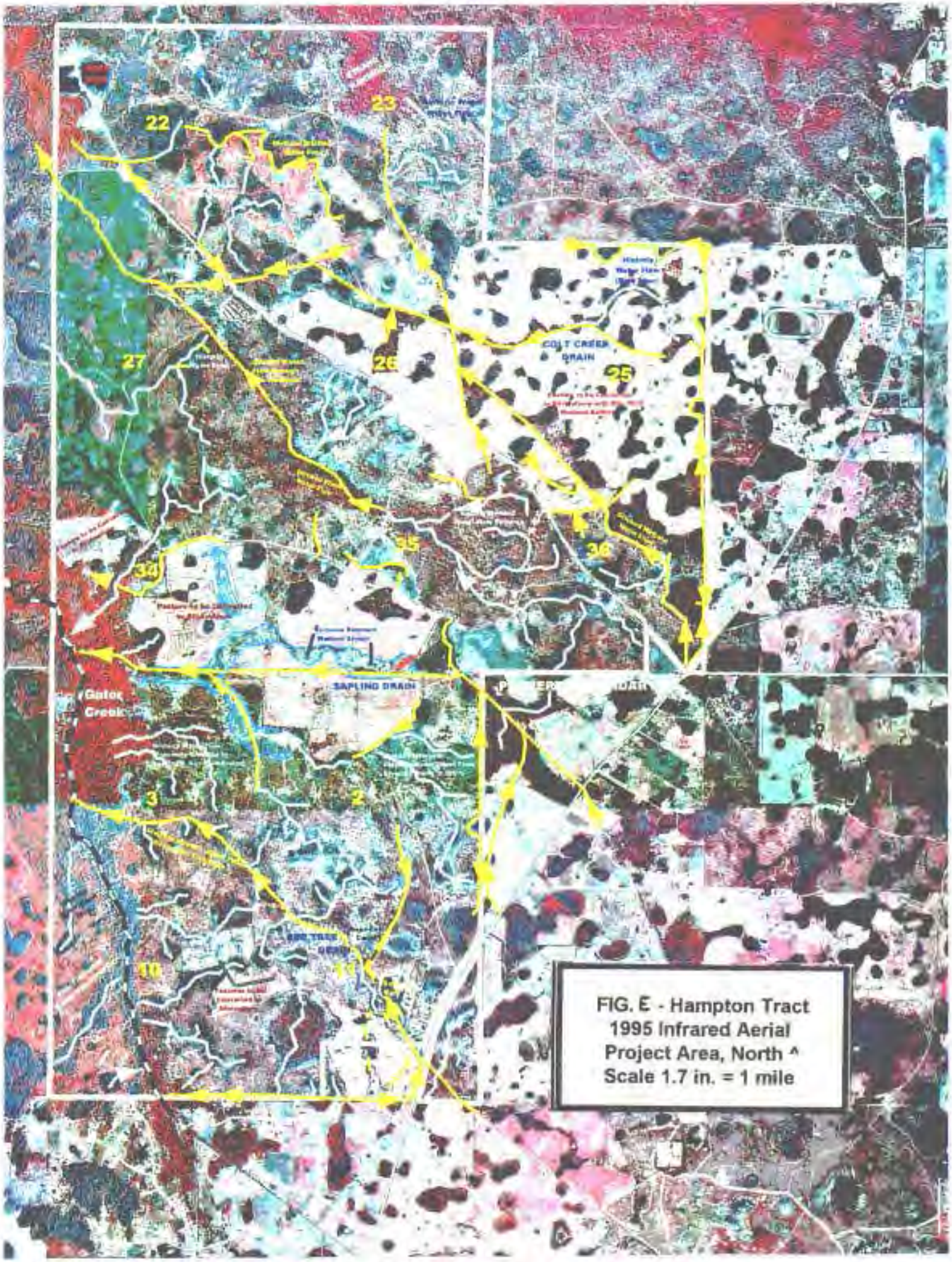


FIG. E - Hampton Tract
1995 Infrared Aerial
Project Area, North ^
Scale 1.7 in. = 1 mile

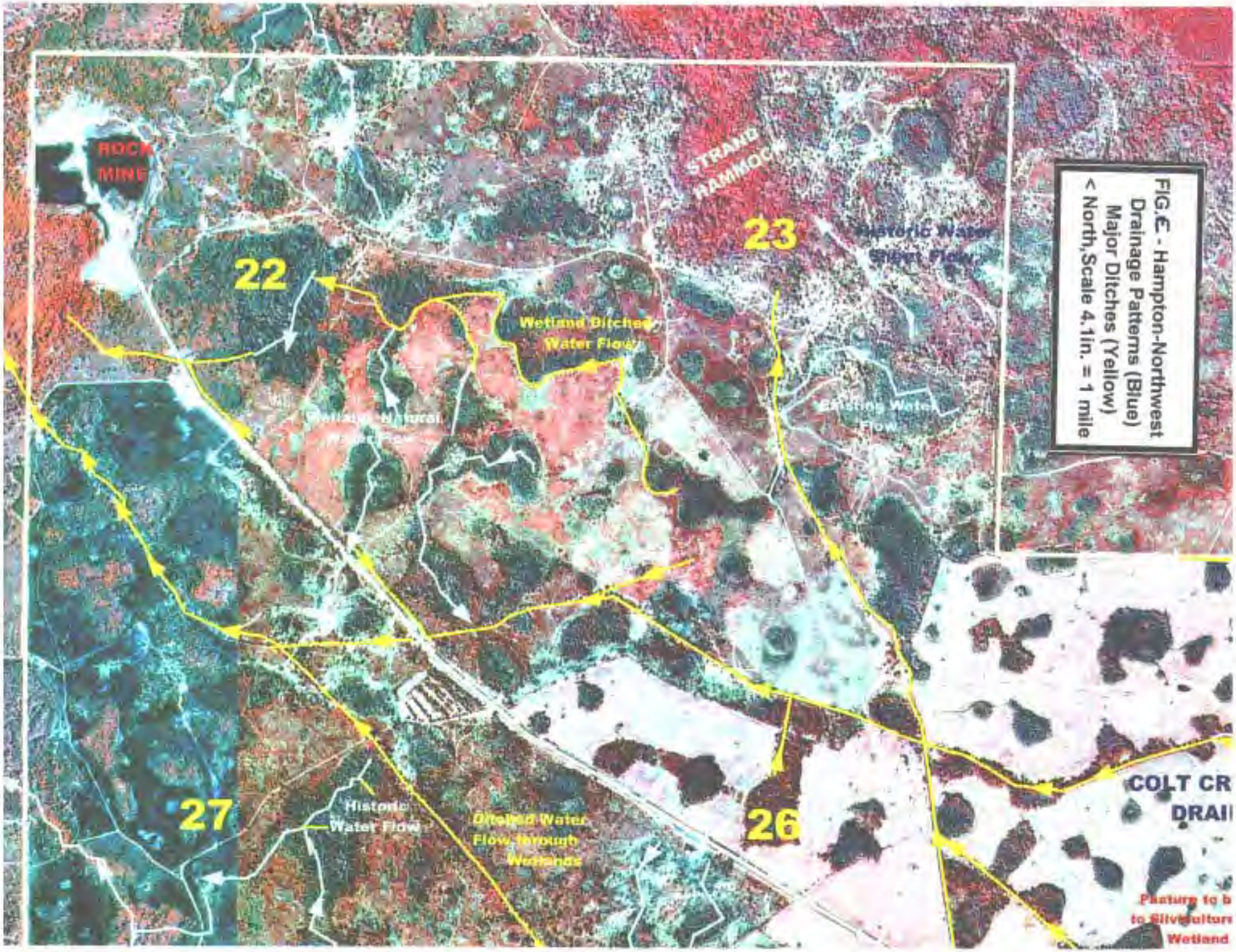


FIG.E - Hampton-Northwest Drainage Patterns (Blue) Major Ditches (Yellow) < North,Scale 4.1in. = 1 mile

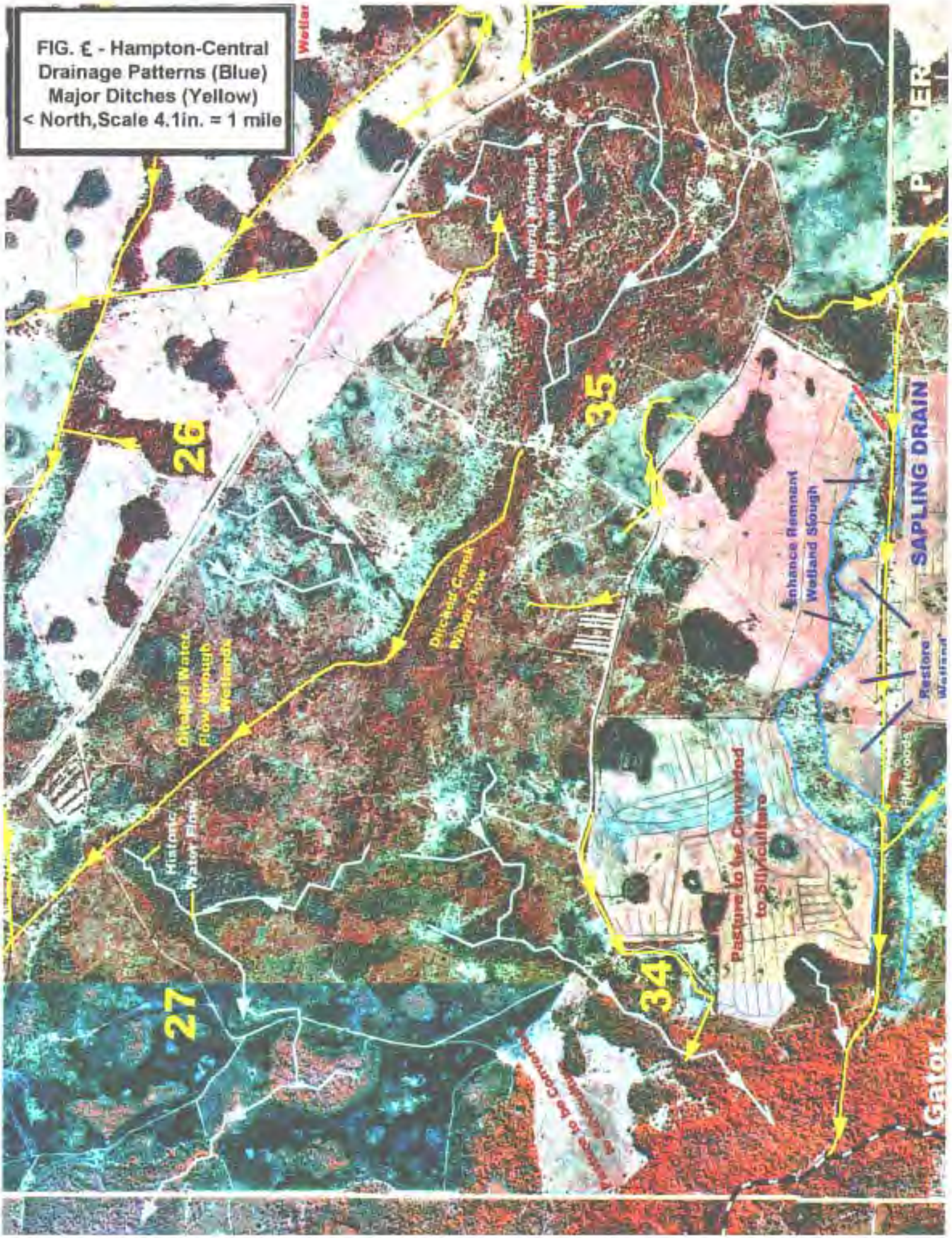


FIG. 6 - Hampton-Central
Drainage Patterns (Blue)
Major Ditches (Yellow)
< North,Scale 4.1in. = 1 mile
Weiler
26
35
27
34
Natural Wetland
Water Flow Pattern
Ditched Creek
Water Flow
Ditched Water
Flow through
Wetlands
Historic
Water Flow
Enhance Remnant
Wetland Slough
SAPLING DRAIN
Restore
Wetland
Pasture to be Converted
to Silviculture
Pasture to be Converted
to Silviculture
Gator

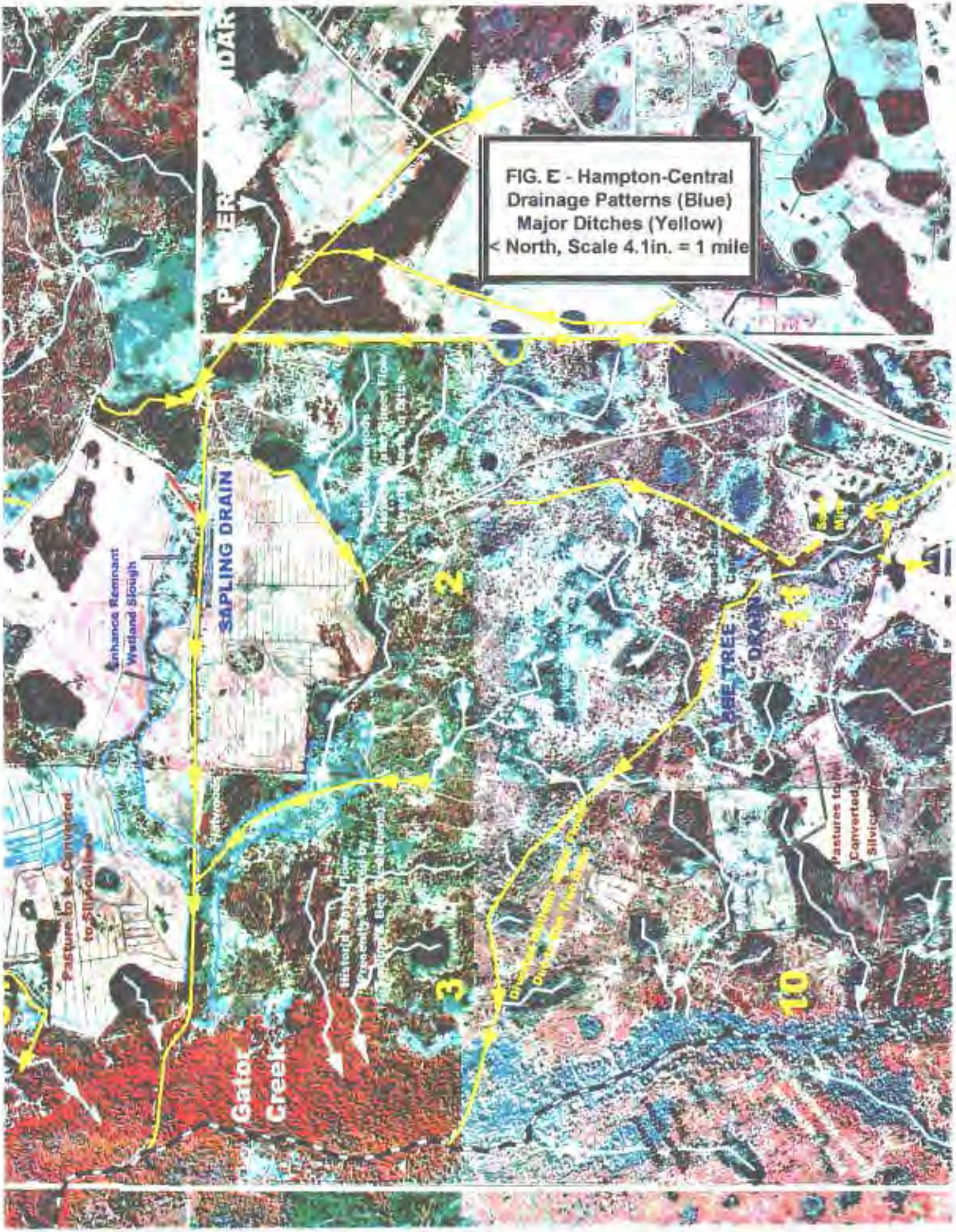


FIG. E - Hampton-Central Drainage Patterns (Blue) Major Ditches (Yellow) < North, Scale 4.1in. = 1 mile

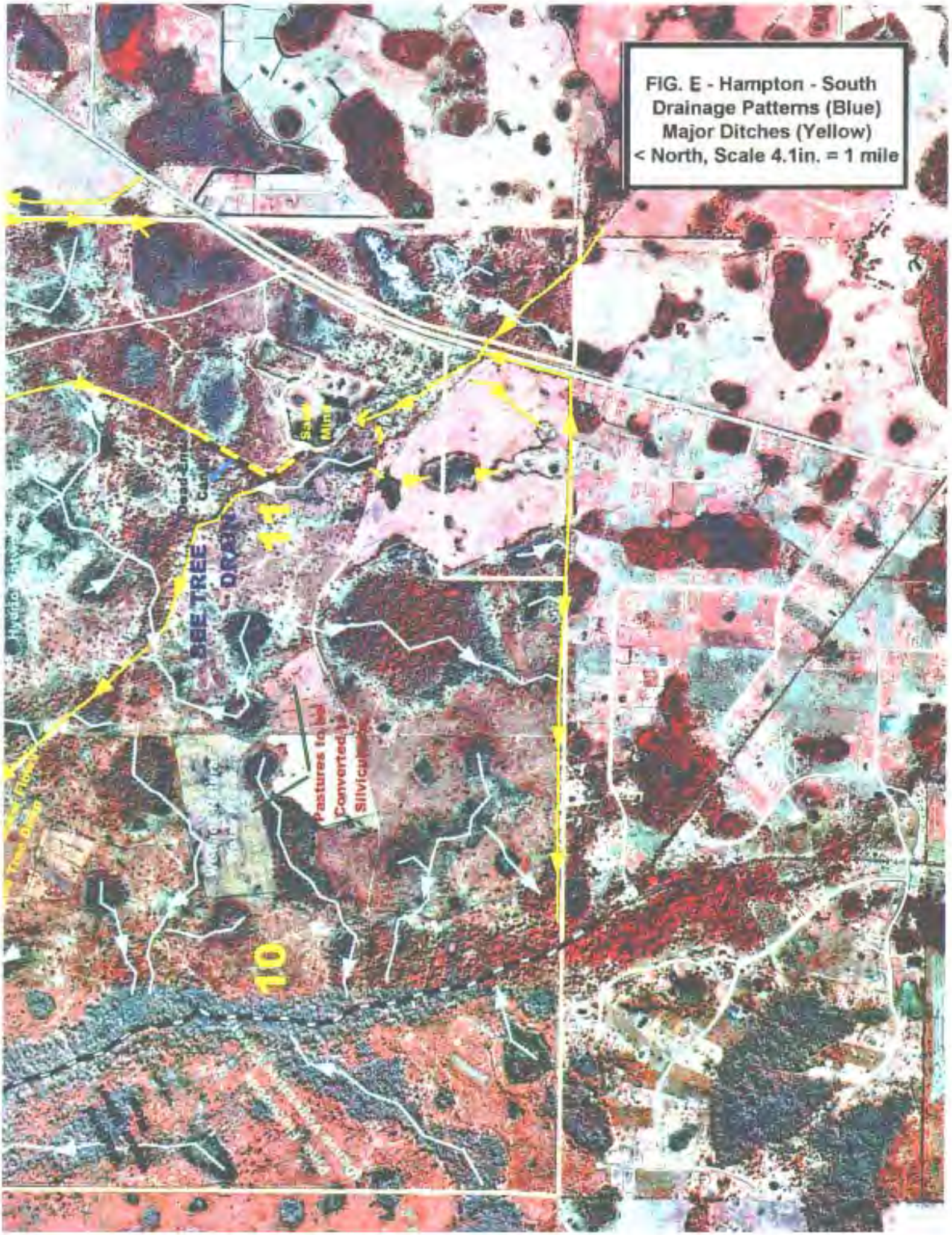


FIG. E - Hampton - South
Drainage Patterns (Blue)
Major Ditches (Yellow)
< North, Scale 4.1in. = 1 mile

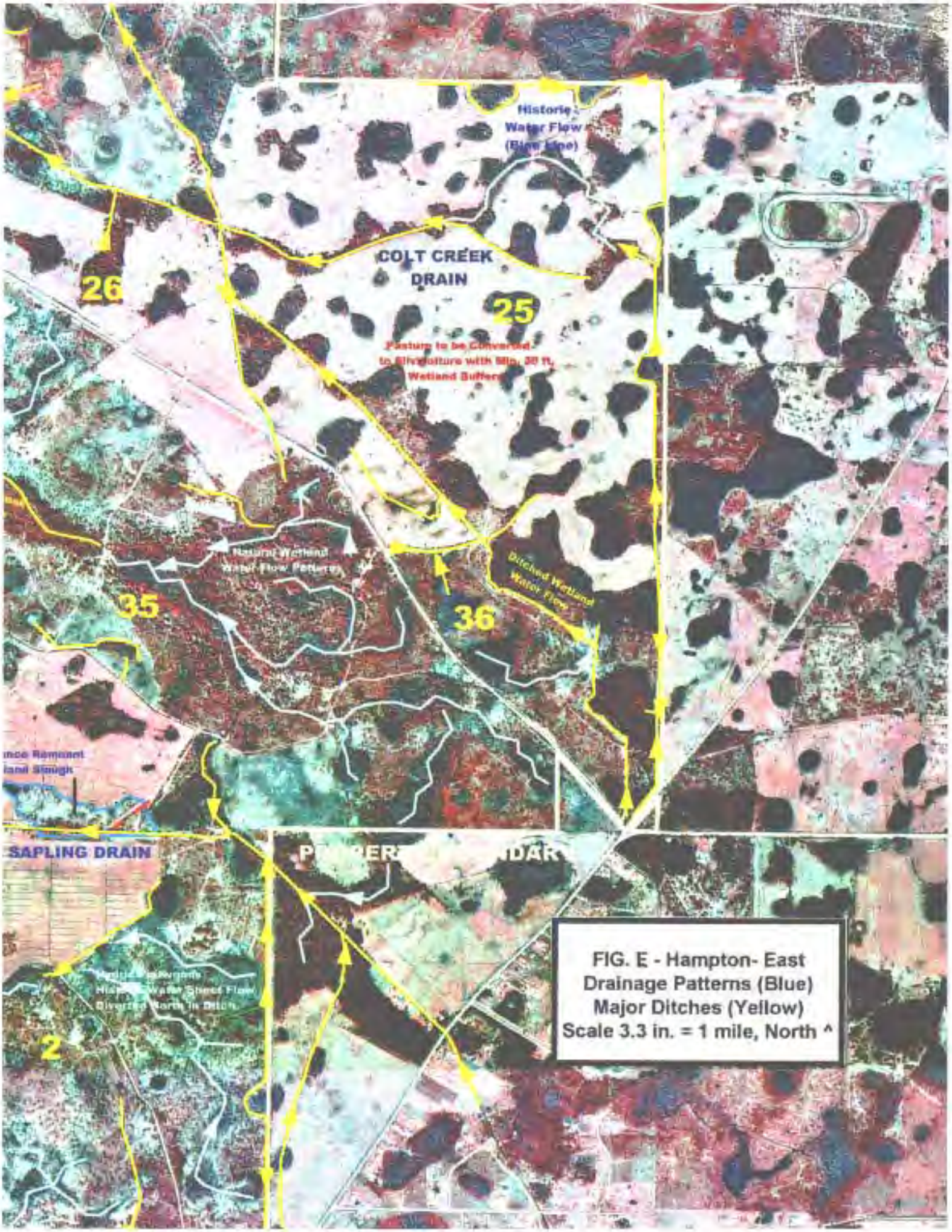


FIG. E - Hampton- East
Drainage Patterns (Blue)
Major Ditches (Yellow)
Scale 3.3 in. = 1 mile, North ^

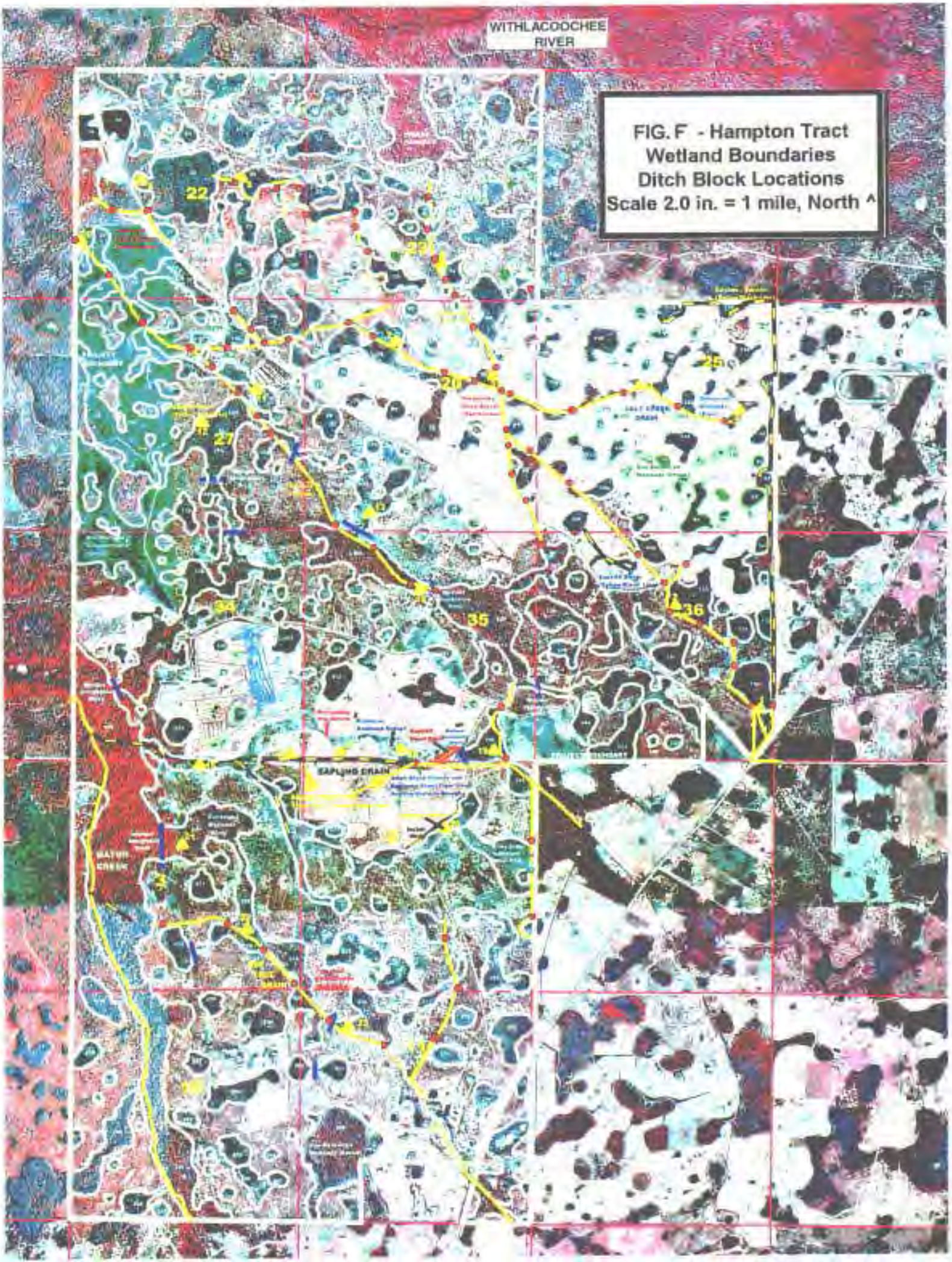


FIG. F - Hampton Tract
Wetland Boundaries
Ditch Block Locations
Scale 2.0 in. = 1 mile, North ^

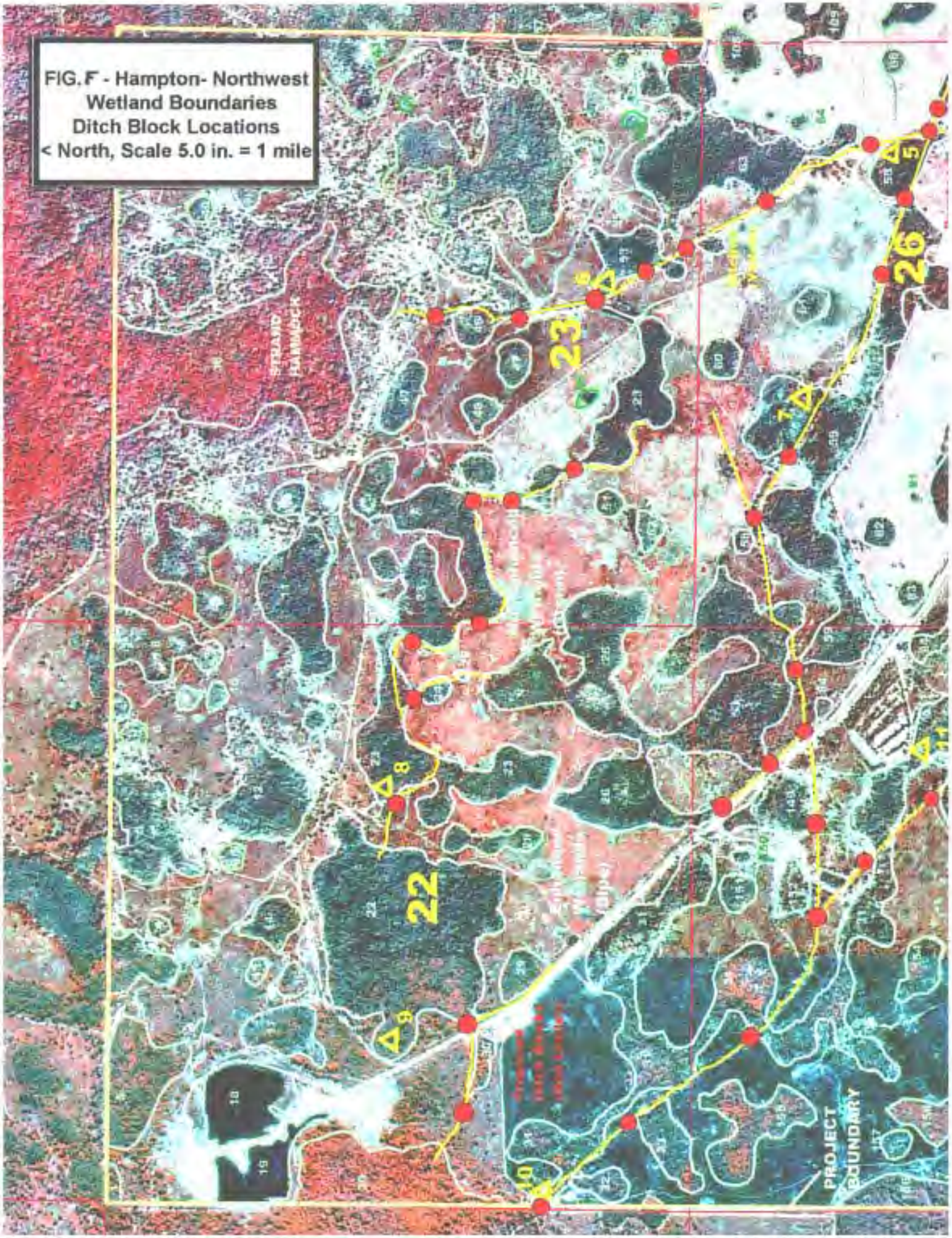


FIG. F - Hampton- Northwest
Wetland Boundaries
Ditch Block Locations
< North, Scale 5.0 in. = 1 mile

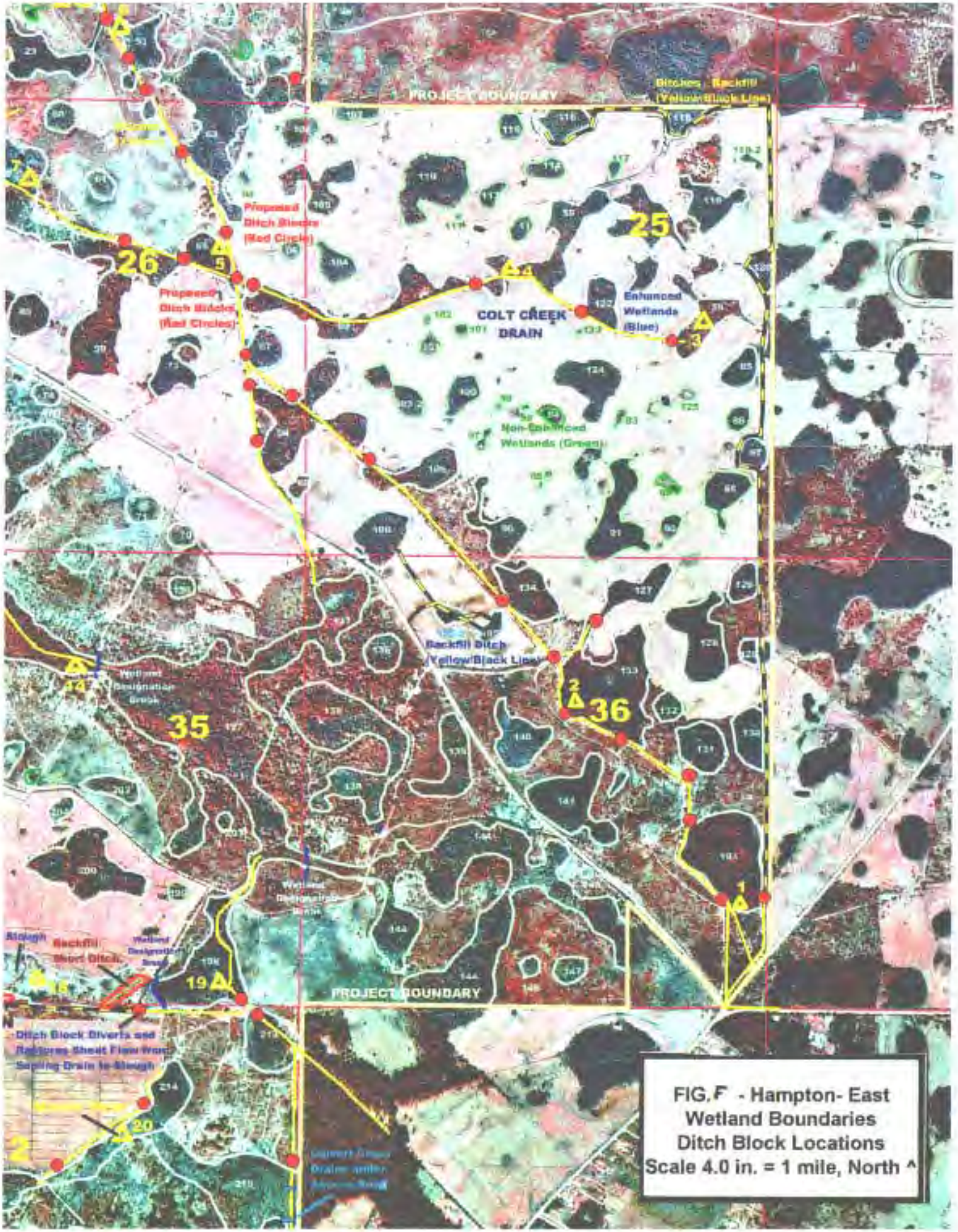


FIG. F - Hampton- East
Wetland Boundaries
Ditch Block Locations
Scale 4.0 in. = 1 mile, North ^

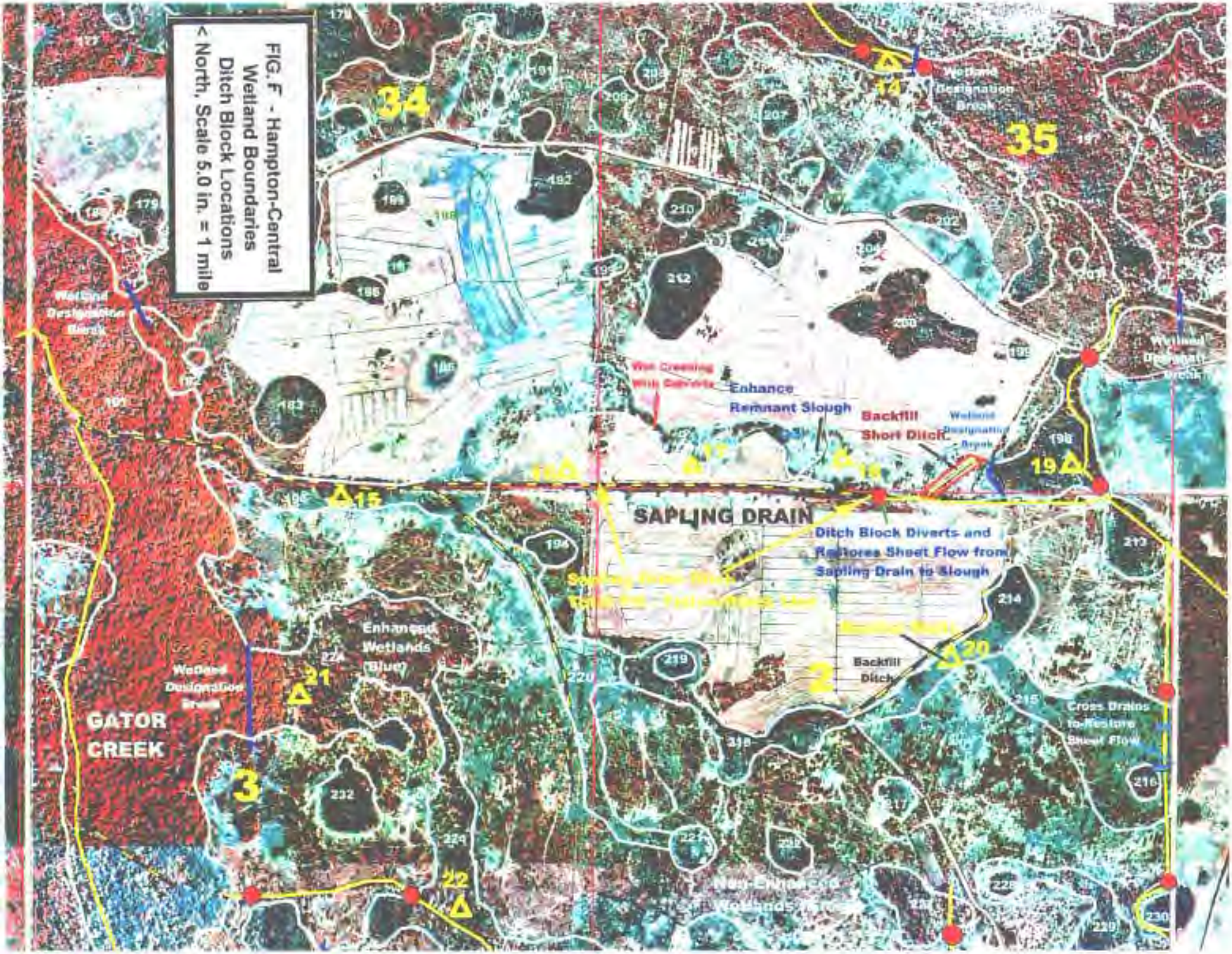


FIG. F - Hampton-Central
Wetland Boundaries
Ditch Block Locations
< North, Scale 5.0 in. = 1 mile
34
35
3
2
14
15
16
17
18
19
20
21
22
Wetland Designation Break
Enhance Remnant Slough
Backfill Short Ditch
SAPLING DRAIN
Ditch Block Diverts and Restores Sheet Flow from Sapling Drain to Slough
Backfill Ditch
Enhanced Wetlands (Blue)
GATOR CREEK
Cross Drains to Restore Sheet Flow
Non-Enhanced Wetlands

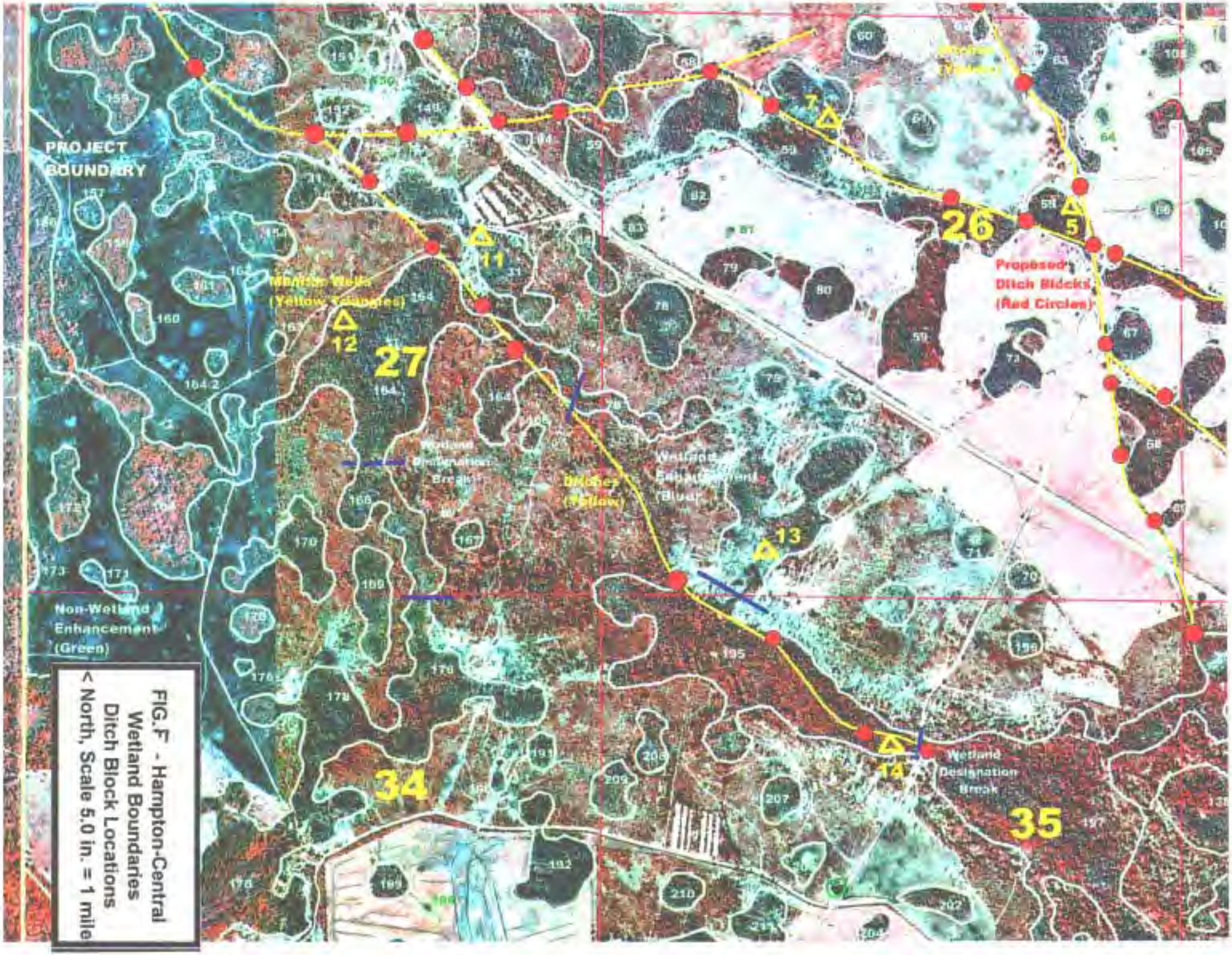


FIG.F - Hampton-Central Wetland Boundaries Ditch Block Locations

< North, Scale 5.0 in. = 1 mile

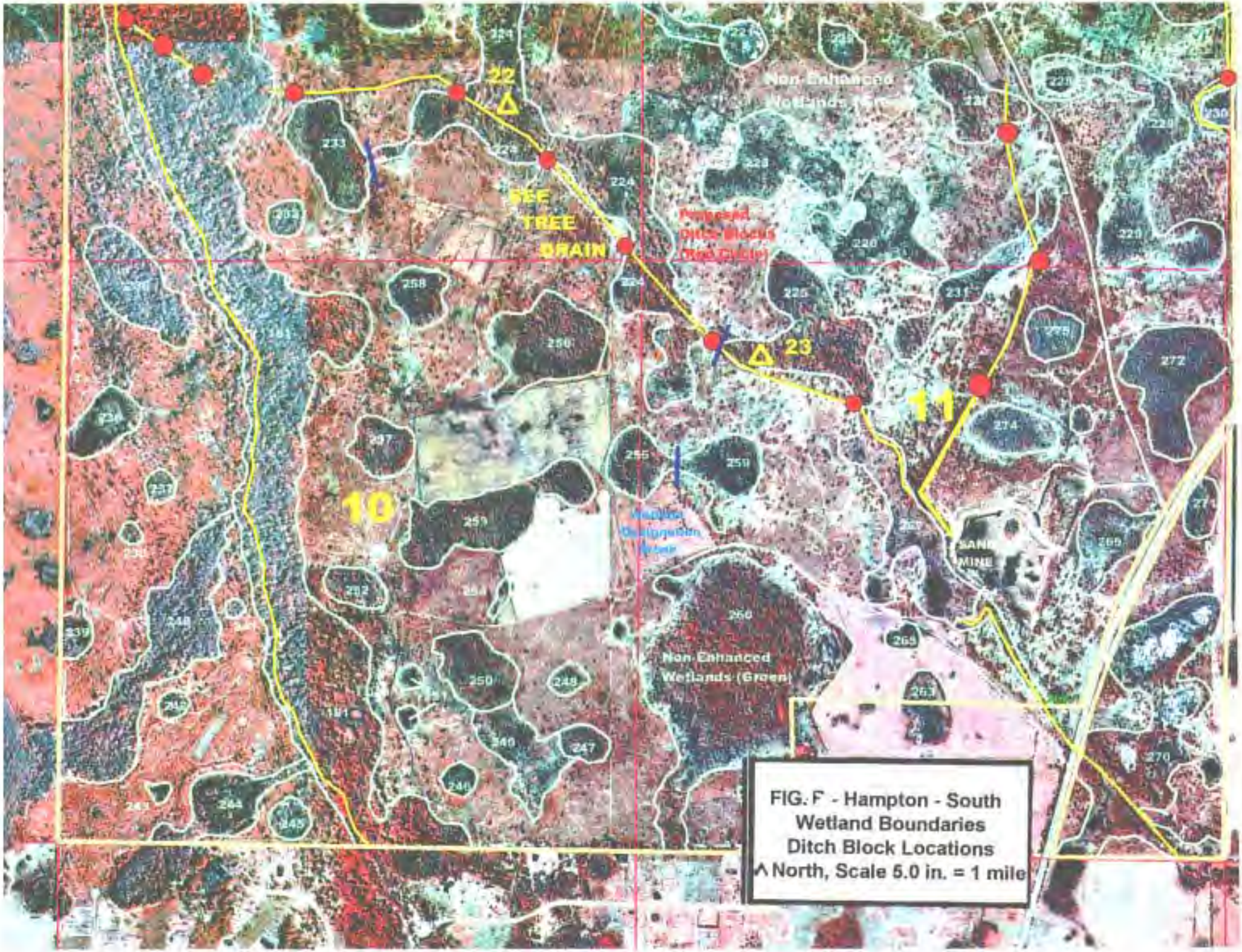


FIG. F - Hampton - South
Wetland Boundaries
Ditch Block Locations
^ North, Scale 5.0 in. = 1 mile

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.

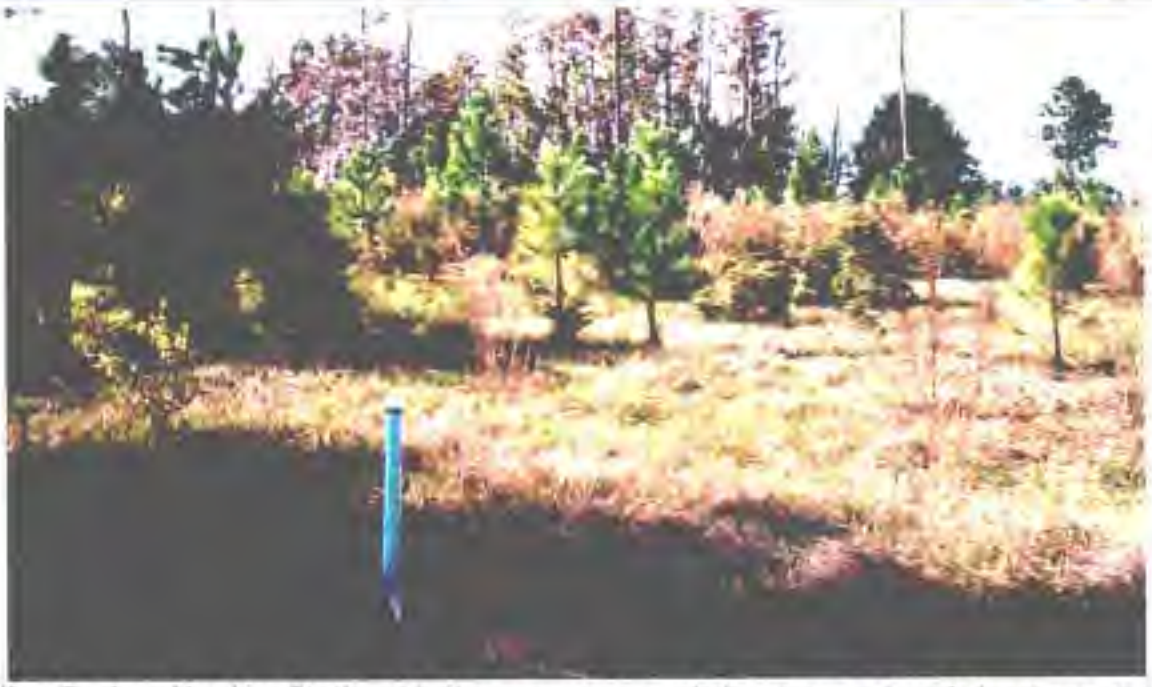
Bee Tree Drain – Adjacent to Monitor Site 22, the ditch drain (foreground) dewaters the adjacent forested wetland, allowing pines and laurel oaks to invade the system. The cypress lichen elevations indicate historic seasonal high water elevations but there are no indications that the water has overflowed 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(ies): 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: FM 2589581- 0.15 ac. - 530 (Fluccs)
8.19 ac. - 621 (Fluccs)
3.48 ac. - 641 (Fluccs) **TOTAL 11.82 ac.**

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation ___ Restoration X Enhancement X Preservation Mitigation Area: **215 ac.**
SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N
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 and mitigate the proposed wetland impacts associated with the above-referenced Turnpike project.

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) 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 management practices for maintenance and enhancement of the adjacent Serenova Tract. These same management activities (particularly prescribed burning in the uplands) will be implemented at this proposed extension of Serenova. The 136 acres of upland habitat referenced above does not include an additional 11 acres of predominantly flatwoods that will be graded to construct necessary floodplain compensation areas in association with the widening of the adjacent segment of SR 52. These floodplain compensation areas will be graded and planted to create marsh habitat conditions that will be utilized as compensation for the proposed wetland impacts. 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 the proposed wetland impacts (8.19 of the total 11.82 acres) will be to cypress wetlands, of which there are 59 acres of high quality forested wetlands that will be preserved at the proposed mitigation site. The remaining wetland impacts include borrow pits and marsh (3.63 acres), which can be compensated with the creation of marsh habitat within the floodplain compensation areas (11 acres) and preservation of existing borrow pits (7 acres). In addition to these mitigation components, the plan includes the preservation and enhancement of oak hammocks (38 acres) and pine flatwoods (98 acres) that buffer the existing and constructed wetlands. Upland enhancement will be through implementing a prescribed firm management plan. The project will result in 78 acres of high quality wetland preservation, 87 acres of upland habitat preservation and

enhancement, creation of 11 acres of marsh habitat, and 7 acres of borrow pit preservation. The overall plan will result in 215 acres of mitigation to compensate for 11.82 acres of proposed wetland impacts (18:1 ratio). 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: A mitigation bank is not existing or currently 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 : There are no current or proposed SWIM projects within the Upper Coastal Basin.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Marsh grading to be conducted by FDOT selected contractor for SR 52 widening, planting to be conducted by certified Nursery Contractor designated by 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 the same activities within the adjacent Serenova Tract.
Proposed timeframe for implementation: Commence: Acquisition when Turnpike proposes interchange project - 2004.
Complete: Perpetual maintenance & management by the SWFWMD Land Management Division as an extension of the existing Serenova Tract.

Project cost: $1,017,000 (Total will be determined by the appraised value & final acreage. Construction, planting, short-term maintenance & monitoring to be reimbursed by FDOT funds. Perpetual management operations will be funded by the SWFWMD.

Attachments

X 1. Detailed description of existing site and proposed work. Refer to Attachment A - Existing Site & Proposed Work, Figure C- Infra-red aerial, Site Photographs.

X 2. Recent aerial photograph with date and scale. Figure C - Infra-red aerial (1995).

X 3. Location map and design drawings of existing and proposed conditions. Figure A- Location map. A grading and marsh planting plan of the five floodplain compensation ponds can be obtained from Mark Brown (WMD).

X 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. Final decision of the Ridge Road permitting is expected in 2004. The proposed construction of the floodplain compensation areas will commence late, 2006, in association with the widening of the adjacent SR 52. Once acquired, perpetual maintenance and management of the Serenova Extension parcel will be conducted by the WMD.

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.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Attachment C - DOT Mitigation.

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 - Infra-red aerial, site photos). 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 elliottii*) 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 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.

Since the borrow pits removed the majority of the historic marsh habitat on the site, the floodplain compensation areas (5 sites, total 11 acres) will be graded to create marsh habitat. The ponds are referred to and depicted as "FPC" on Figure C. For all the ponds except for FPC 3, the ponds will be shallow-cut ponds with lowest grade elevations less than 1.5 feet below the seasonal high water table (SHWT) of the adjacent wetland to provide hydraulic connections. These ponds will be planted with species such as soft rush (*Juncus effusus*), pickerelweed (*Pontederia cordata*), and arrowhead (*Sagittaria lancifolia*). The largest pond (FPC 3- 5 acres) will have these same species and a small inner core of permanent pool conditions for wildlife use, allowing for the use of more obligate species such as bulrush (*Scirpus validus*), fireflag (*Thalia geniculata*), and spatterdock (*Nuphar luteum*).

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.

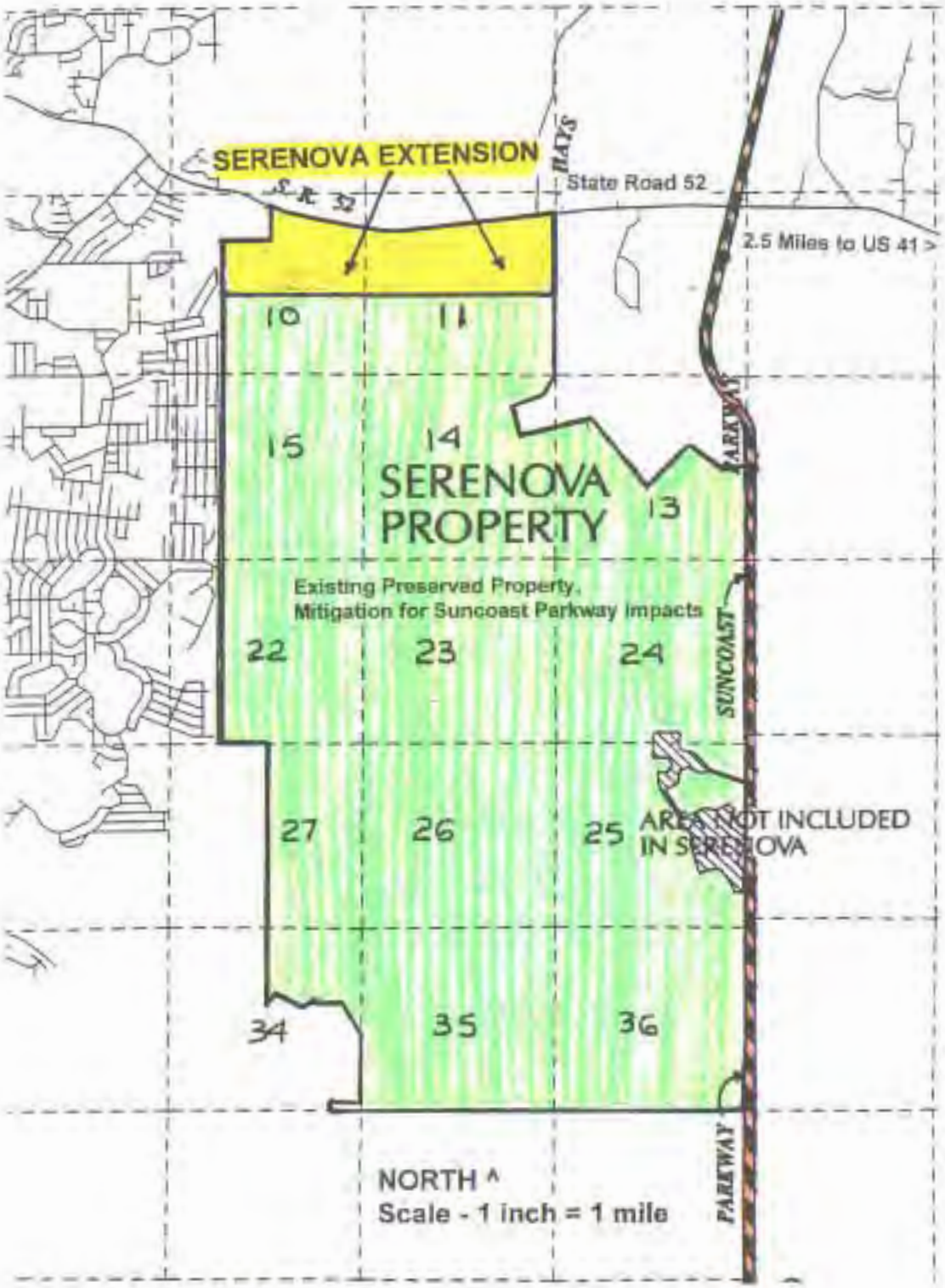
The floodplain compensation areas will be graded by the roadway contractor who constructs SR 52, commencing in late, 2006. Upon completion of the earthwork, the compensation area planting will be conducted by a nursery contractor on contract to the SWFWMD. Monitoring will be semi-annually conducted for a minimum three years post-planting. 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 five wetland creation areas will be conducted at the same station points during each monitoring event. Information from the two semi-annual monitoring events will be compiled and documented in an annual monitoring report that will be presented to the WMD-Regulation Dept. and ACOE Enforcement Branch, 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 five sites (e.g. design details, herb species, quantities, sizes, etc.), construction activities and site preparation, and the plant installation.

Maintenance of the planted 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. To minimize the chance of exotic and nuisance species from establishing within the project area, the littoral zones (1 acre each) of the two future DOT stormwater ponds will be planted with arrowhead, fireflag, bulrush, and pickerelweed. Maintenance will be conducted to control exotics within these littoral areas for the first year post-planting.

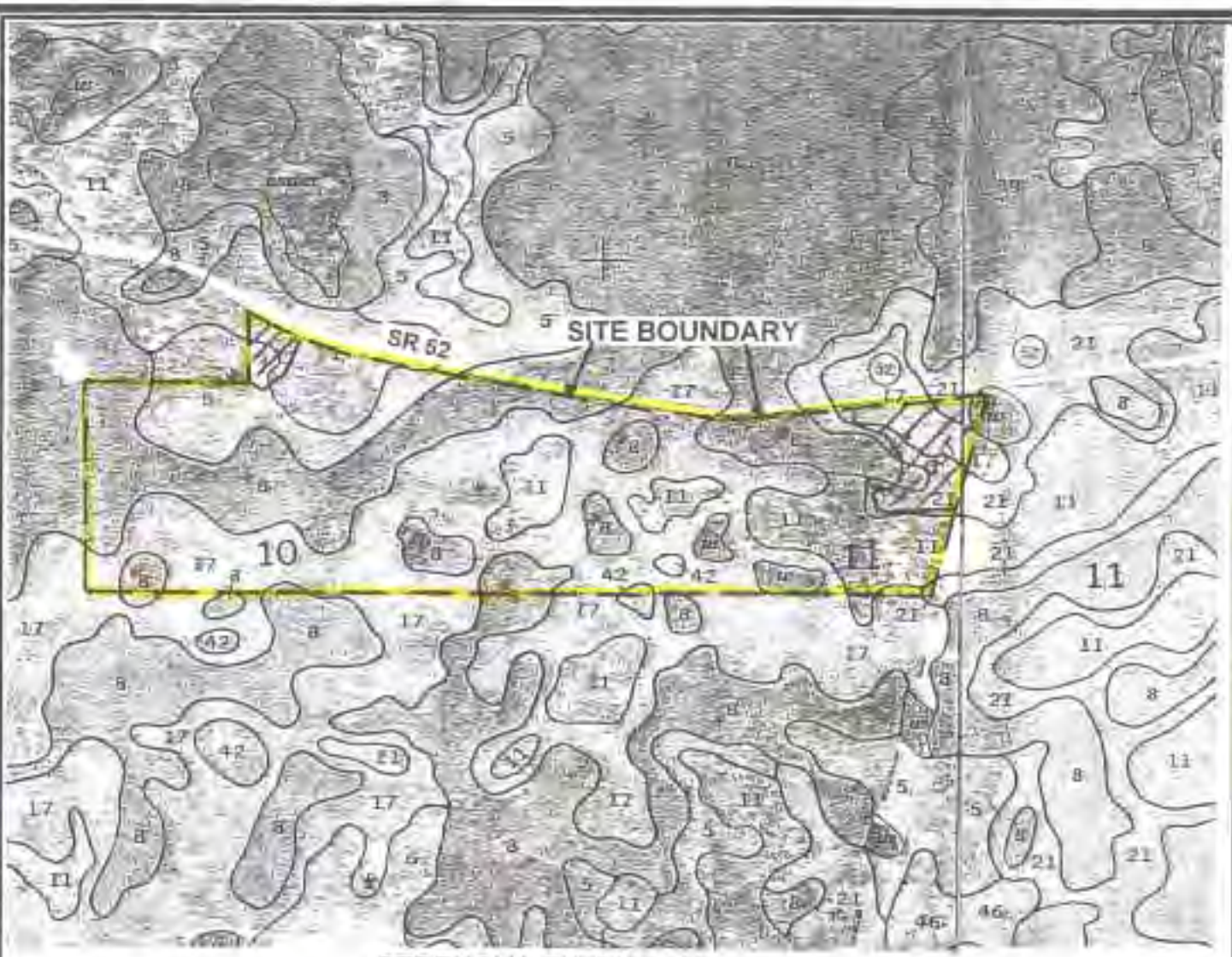
The mitigation success will be based on implementation and maintaining a prescribed burn management plan for the upland habitat, and establishment and management of appropriate marsh habitat within the constructed wetlands. Success criteria for the constructed wetlands include a minimum 85% coverage 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 DOT-District 7 projects. The final decision of Ridge Road construction is anticipated by mid-2004. 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



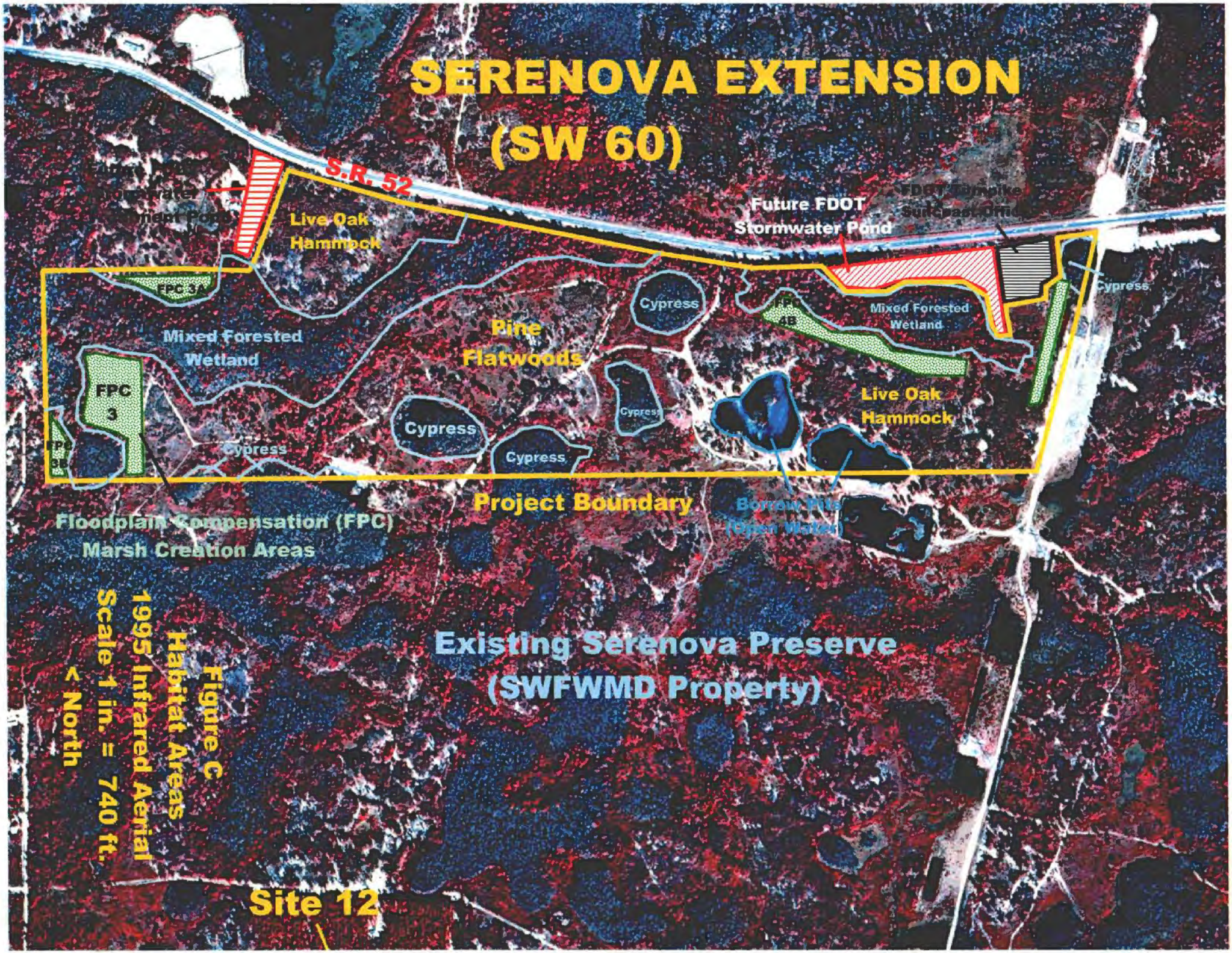
SERENOVA EXTENSION
SOIL LEGEND

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)
S.R. 52
Live Oak
Hammock
Future FDOT
Stormwater Pond
FDOT Turnpike
Suncoast Office
FPC 3
Mixed Forested
Wetland
Pine
Flatwoods
Cypress
Cypress
Cypress
Cypress
Cypress
Cypress
FPC
4B
Mixed Forested
Wetland
Live Oak
Hammock
FPC
3
FPC
3B
Project Boundary
Borrow Pits
(Open Water)
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, gallberry, 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 bays 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 Phone: 813-672-7876
Hillsborough County Parks & Recreation
10940 McMullen Road
Riverview, FL 33569-6226
County(ies): Hillsborough Location: Sections 4, 5, T27S, R19E

IMPACT INFORMATION

1- FM:	2578071 B.B. Downs Bikepath (Hunter's)	ERP #: 4418710.000	COE #: 199803683
2- FM:	2555361 SR 39, Blackwater Ck. Bridge	ERP #: 4320526.000	COE #: 200000574 (IP-MS)
3- FM:	2587341 SR 56, SR 54 to BB Downs	ERP #: 4312944.004	COE #: 199500079 (IP-MN)
4- FM:	2012171 I-4, Memorial to US 98 (Seg.2)	ERP #: 43011896.028	COE #: 199502569 (MOD-MGH)
	Kathleen Rd. West Portion	ERP #: 430009069.006	COE #: SAJ-2003-8981 (IP-MGH)
5- FM:	2578072 B.B. Downs Bikepath (Amberly)	ERP #: 4421434.000	COE #: 200101187 (NW-MS)
6- FM:	2558591 SR 678 (Bearss Ave.) Florida Ave.	ERP #: 4419802.002	COE #: 200101181 (NW-MS)
7- FM:	2578391 Alexander St., US 92 to Inter.-4	ERP #: 43011896.025	COE #: 200003012 (IP-RGW)
8- FM:	2584491 Alexander St., On-Ramp to Westbound I-4	ERP #: 43011896.025	COE #: 200003012 (IP-RGW)
9- FM:	2584131 SR 93 (Inter. 275), US 41 to Pasco Co.	ERP #: 43024745.000	COE #: 200302685 (IP-MLS)
10-FM:	4084602 I-75 at CR 581 (Off-Ramp to B.B. Downs)	ERP #: 4421639.000	COE #: 199803683 (NW-KI)

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 X Restoration X 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.

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.

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.

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.

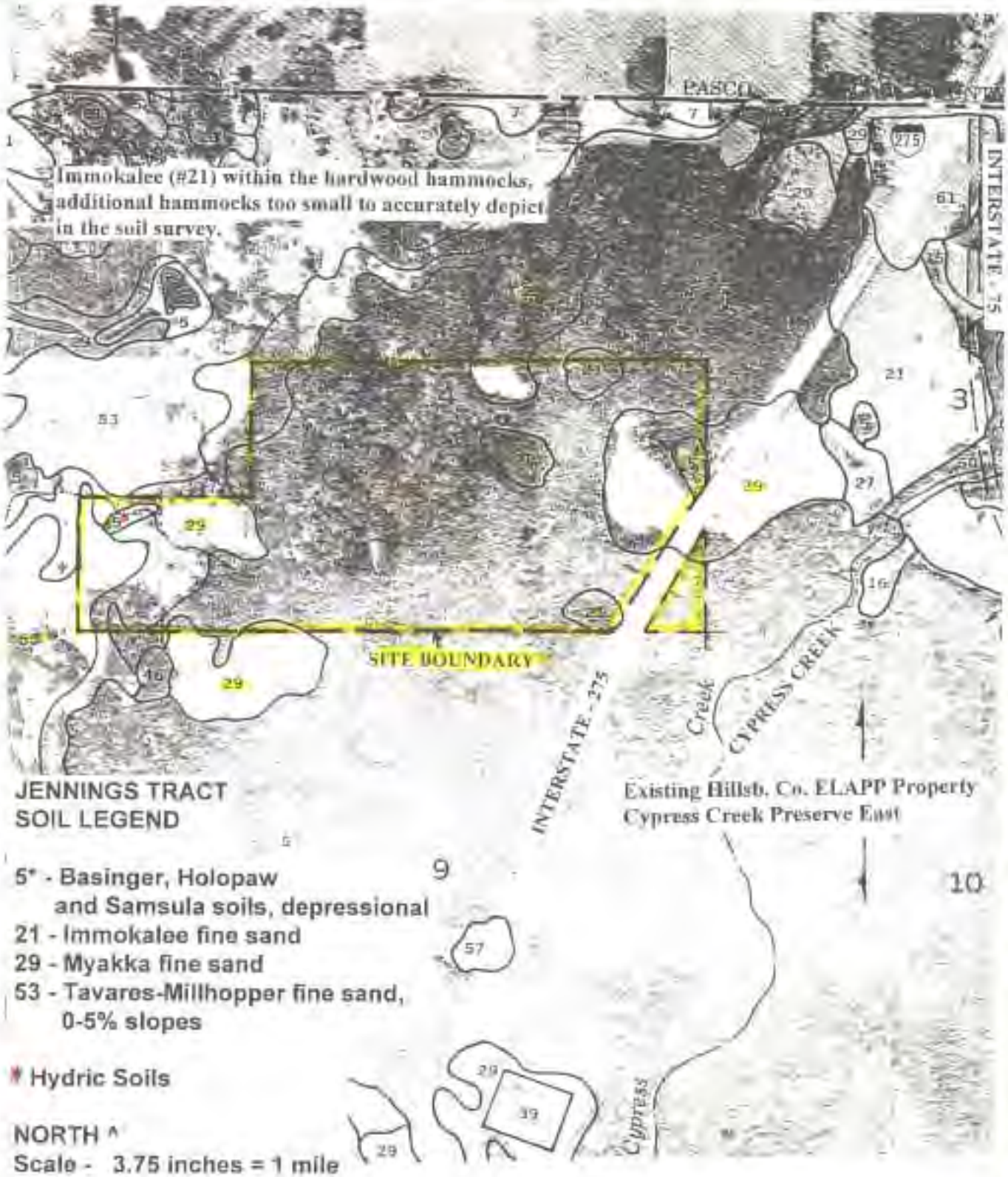
Attachment C - DOT Project / Mitigation Table **Cypress Creek Preserve, West (Jennings Tract) Hills. Co. ELAPP Updated 9/03**

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 **TOTALS**	0.40 0.10 **0.50**	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
2	SR 39-Blackwater Ck. Bridge	7113773	2555361	200000574 (IP-MS)	4320526.000 **TOTALS**	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
3	SR 56-SR 54 to BB Downs	7147617	2587341	199500079 (IP-MN)	4312944.004 **TOTALS**	5.20 0.10 **5.30**	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
4	I-4, Memorial- US 98 (Seg. 2)	1147944	2012171	**199502569** **(MOD-MGH)**	43011896.02 8 **TOTALS**	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
5	BB Downs Bikepath (Amberly)	NA	2578072	200101187 (NW-MS)	4421434.000 **TOTALS**	0.20 **0.20**	610- Hardwood Forest	**18 to 1**	0.5 3.0 **3.5**	Mix Forest Wet. Preservation Flatwoods Restoration
6	SR 678 (Bearss Ave.)	NA	2558591	200101181 (NW-MS)	4419802.002 **TOTALS**	0.10 **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
7	Alexander St., US 92 to Interstate 4	NA	2578391	200003012 (NW-RGW)	43011896.02 5 **TOTALS**	2.60 **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
8	Alexander St., On-Ramp to Interstate 4	NA	2584491	200003012 (IP-RGW)	43011896.02 5 **TOTALS**	1.70 **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
9	I-275, US 41 to Pasco County	NA	2584131	Applic. Review (9/03)	Applic., Review (9/03) **TOTALS**	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
10	I-75 at BB Downs Off – Ramp	NA	4084602	199803683 (NW-KI)	4421639.000 **TOTALS**	0.50 **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

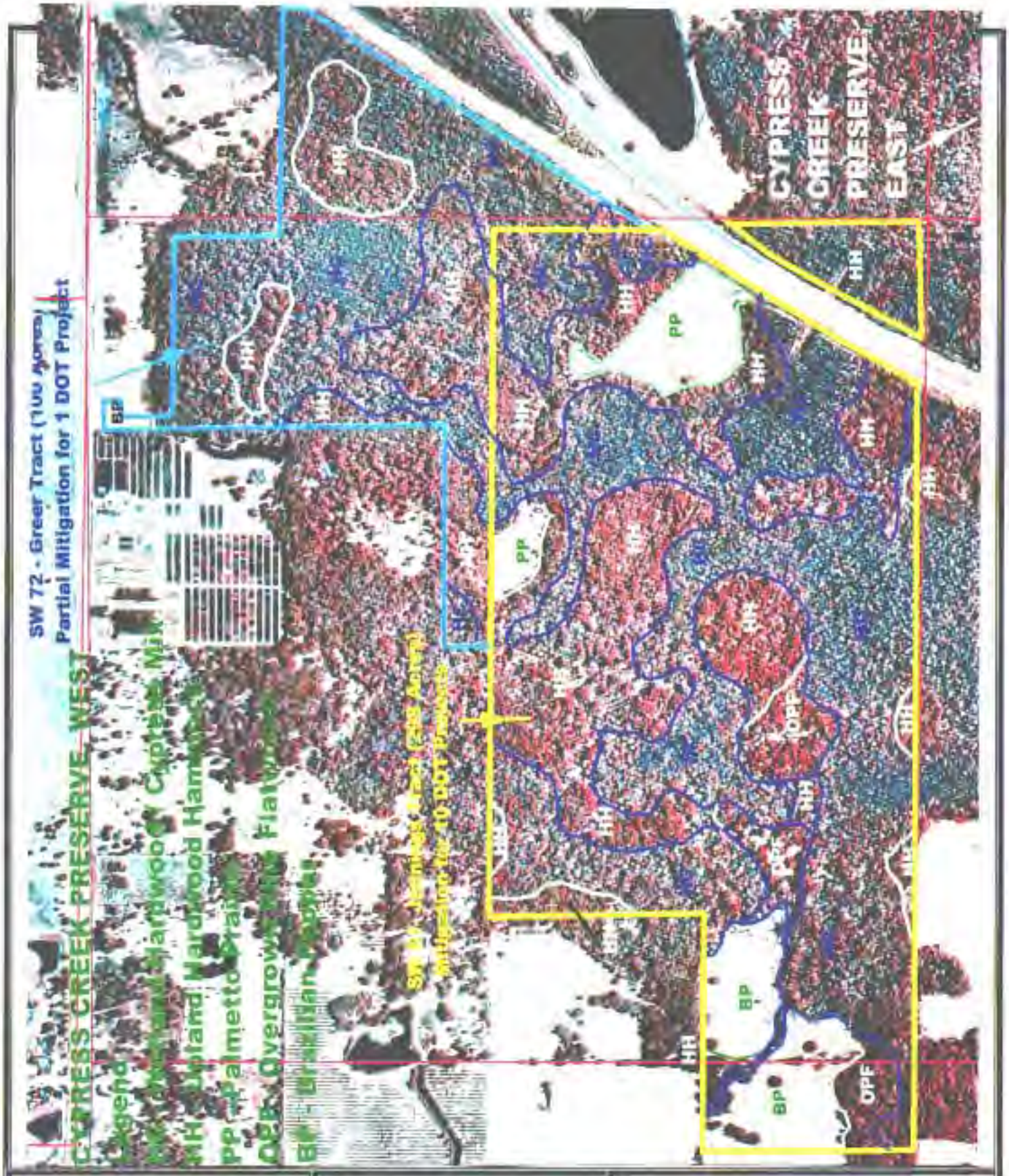
FDOT - District 7 MITIGATION SITE (HILLSBOROUGH BASIN)	JENNINGS TRACT CYPRESS CREEK PRESERVE WEST Hills. Co. ELAPP (SW 61)	FIGURE A - WATERSHED BASIN MAP

Scale 1 in. = 2.3 miles

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

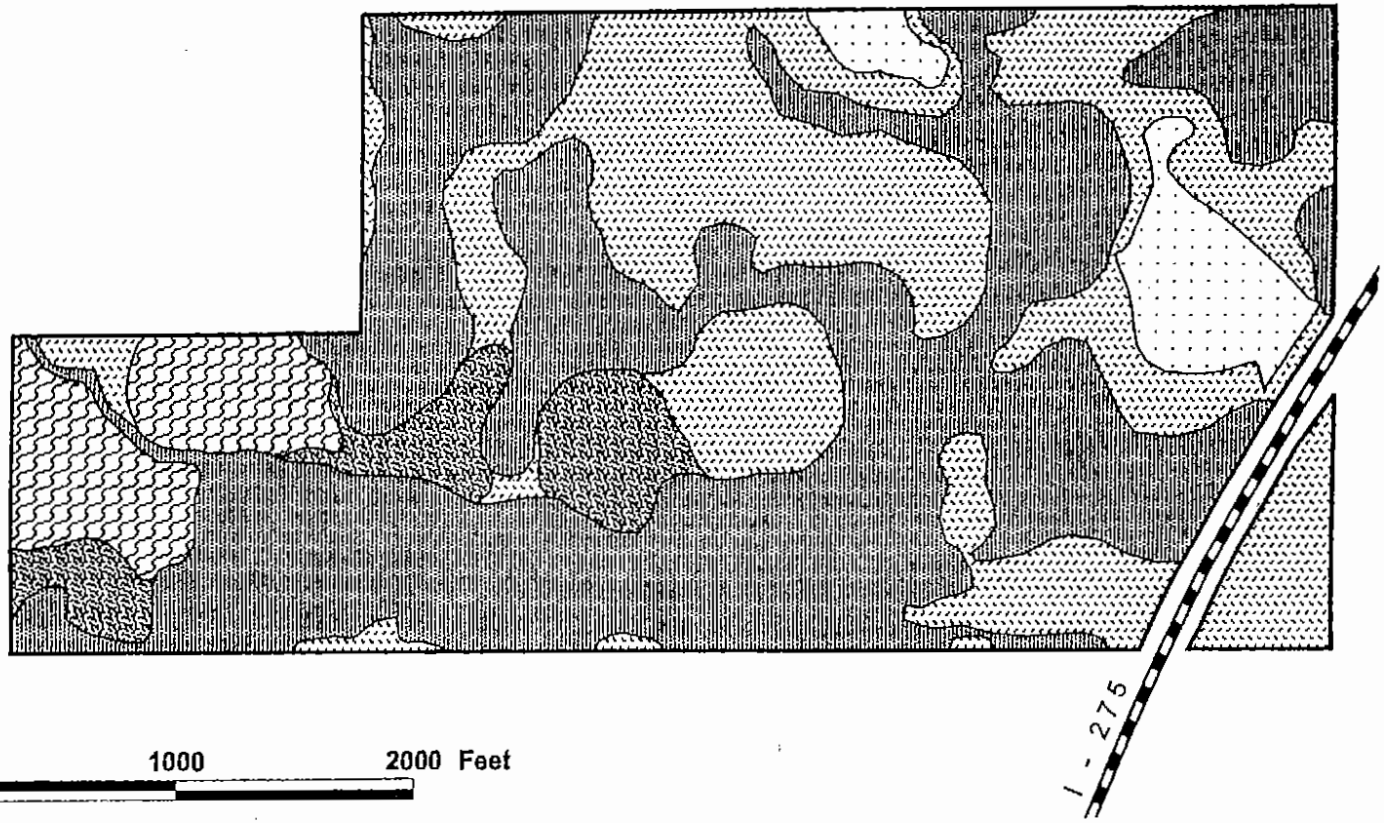


FDOT – District 7 MITIGATION SITE (Hillsborough Basin)	JENNINGS TRACT CYPRESS CREEK PRESERVE WEST (SW 61)	FIGURE D – 1995 Infrared Aerial HABITAT MAP Scale 1 in = 910 feet, <North

Cypress Creek - Jennings Parcel

- Plant Communities

Hardwood/Cypress Swamp (145ac)
Hardwood Hammock (98 ac)
Palmetto Prairie (15 ac)
Overgrown Pine Flatwoods (19 ac)
Bahia Pasture (20 ac)



0 1000 2000 Feet

FDOT - District 7
MITIGATION SITE
(HILLSBOROUGH BASIN)

JENNINGS TRACT
CYPRESS CREEK
PRESERVE WEST
Hills. Co. ELAPP (SW 61)

FIGURE E
VEGETATIVE COMMUNITIES

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)

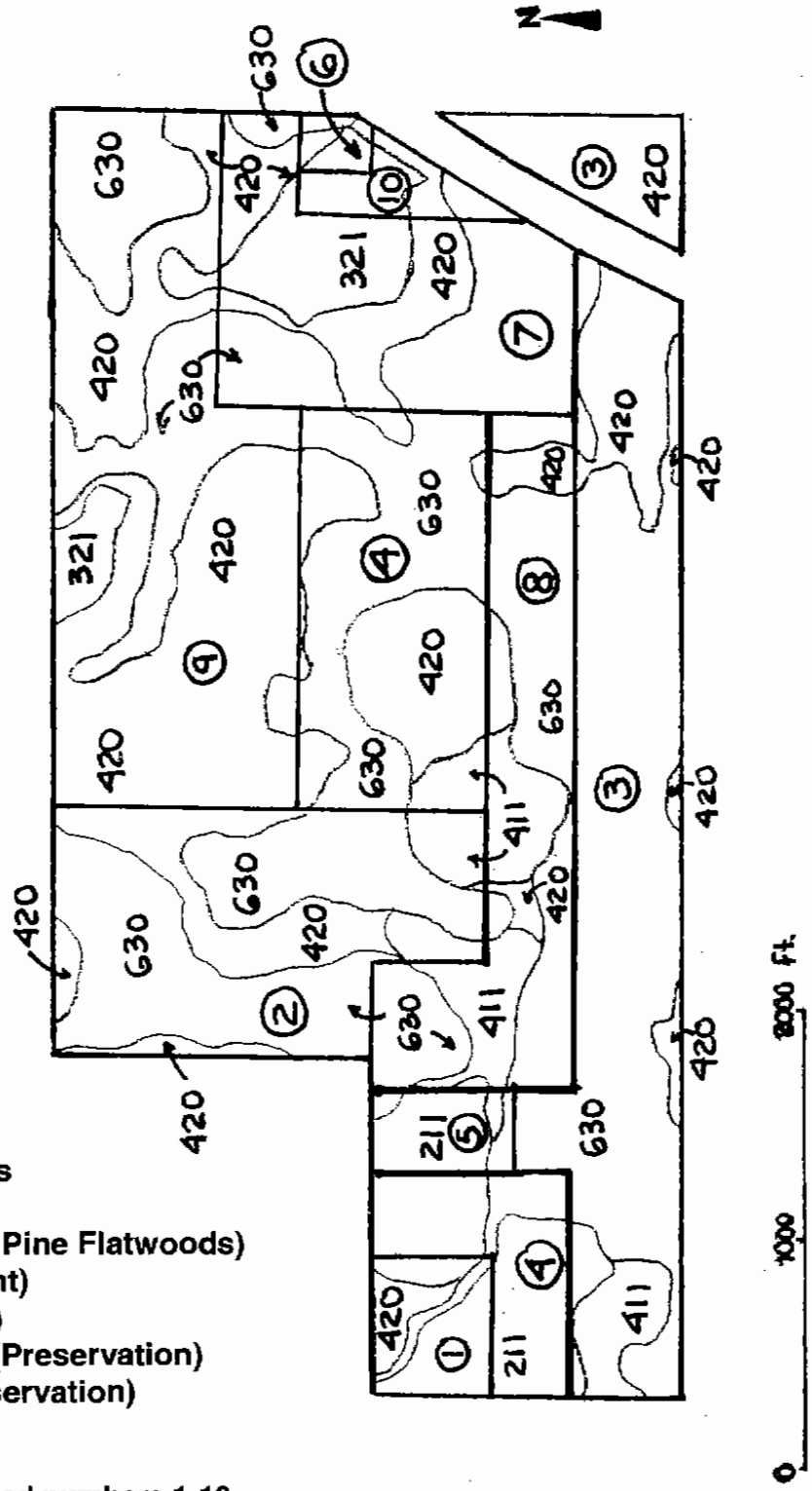
6 SR 678 (Bearss Ave.)

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.

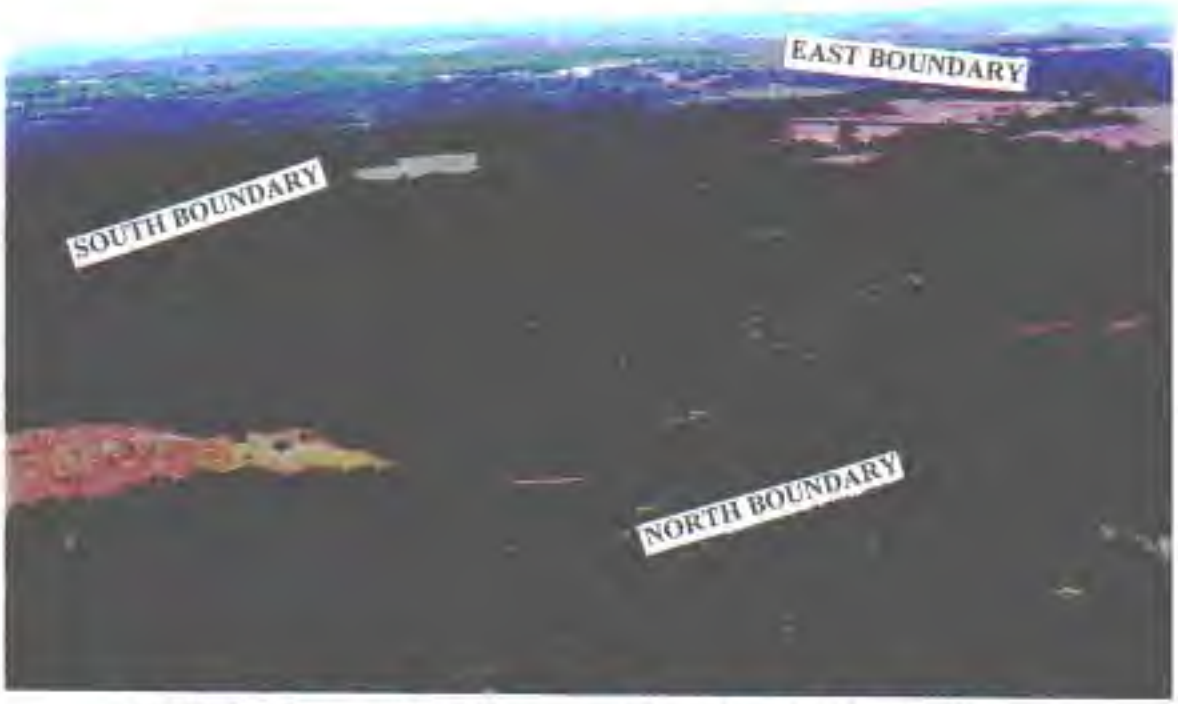
Upland Hardwood Hammock - Transitional area depicting the upland hammock (right) with sweet gum over saw palmetto, dropping in grade elevation to the mixed forested wetland (left) with cabbage palm, laurel oak, maples. Intricate mosiac of upland hammocks and wetland hardwoods results in high quality habitat for wildlife .

FDOT - District 7 Mitigation Site (Hillsborough River Basin)	**CYPRESS CREEK PRESERVE WEST (SW 61) (Jennings Tract, Hills. Co. ELAPP)**

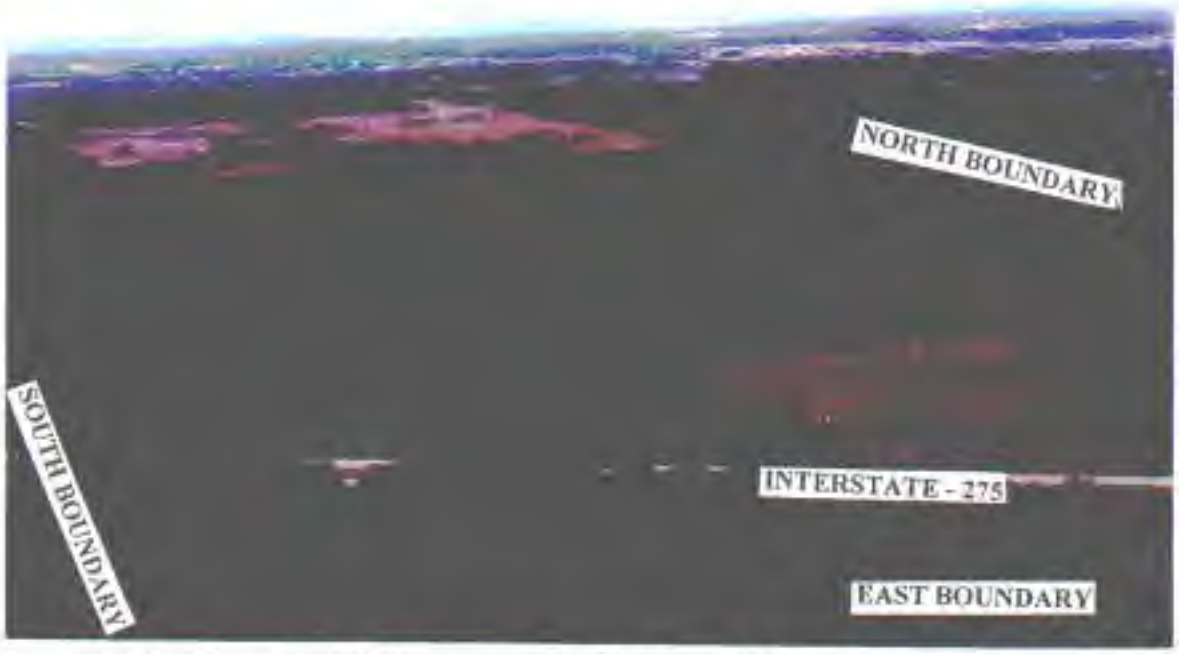
Mixed Forested Wetland - View of one of the lower grade elevations that becomes inundated with surface waters during the rainy season, tupelos and cypress are more common than the higher elevations.

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 praire 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 Number: SW 62
Project Manager: Amy Remley, WMD- SWIM Environmental Scientist Phone No: 813-985-7481 ext. 2083
County(ies): Hillsborough 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: FM 2557031 - 0.6 ac. 510- Saltwater canal (Fluccs)
0.1 ac. 530
0.3 ac. 612
0.6 ac. 641x
3.5 ac. 642x **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 DOT project (10.7 acres) will be 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) will be 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 will be 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 included 9 upland acres and 24 wetland acres (Figures D&E). Only the eastern portion of the property received habitat construction activities in early 2003, and that is the area that was designated to provide the mitigation for the DOT wetland impacts. 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 proposed 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: The exotic species were removed from the proposed wetland creation and enhancement areas, followed by grading activities 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 decreased in grade elevation, 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): Only a portion of the proposed wetland impacts associated with the DOT project will be mitigated at the Tappan Tract, the remainder mitigated at the Cockroach Bay (Freshwater and Saltwater sites), and the Apollo Beach site; all are SWIM projects conducted on Hills. Co. Parks property. For the 0.3 acres of proposed mangrove impact, there will be 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 proposed mitigation includes salt marsh creation (1.19 ac.), salt marsh enhancement (3.06 ac.), tidal pool creation (0.41ac.), 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 will include 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 proposed restoration area, the mitigation is considered appropriate and adequate to mitigate these 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 proposed mitigation bank in the Tampa Bay Drainage Basin is the Tampa Bay Mitigation Bank (TBMB), which was not permitted at the time mitigation had to be designated for this DOT 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 Dept. or selected contractor
Contact Name: Amy Remley, WMD-SWIM Environmental Scientist Phone Number: 813-985-7481 ext. 2083
Entity responsible for monitoring and maintenance: City Of Tampa, Parks Department
Proposed timeframe for implementation: Commence: Design, 2000, Construction, Dec. 2002 Complete: June, 2003 (construction complete), followed by 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 (Conceptual Habitat 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. Attachment C - Success Criteria & Monitoring

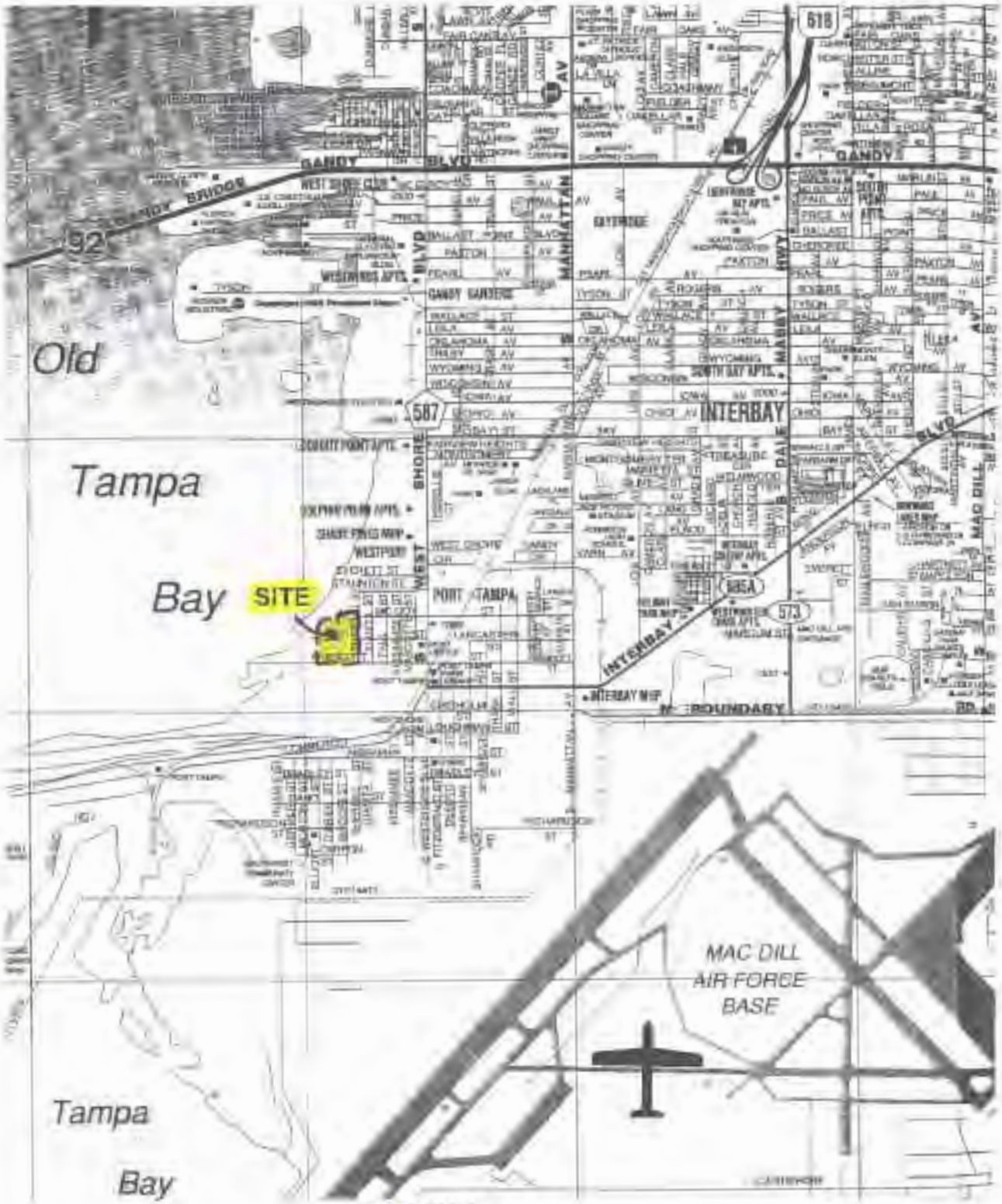
__X__6. Long term maintenance plan. Refer to Attachment C

__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 - 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 is 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. Property directly south of the Tappan Site is also being evaluated for possible City of Tampa acquisition and future SWIM Restoration activities. 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 is required for estuarine 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 will provide 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 will be graded to slope and provide surface water runoff into the ephemeral marsh, will be 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 - As of the summer, 2002, the design was completed and permitted by the ACOE. Construction commenced December, 2002 and completed in June, 2003; followed by plant installation. Construction was conducted by the SWFWMD-Operations Dept. who has extensive experience in restoration construction projects. A minimum of 3 years maintenance & monitoring will be conducted after construction. The proposed roadway construction with the wetland impacts associated with this mitigation plan are not planned to commence until at least August, 2004.

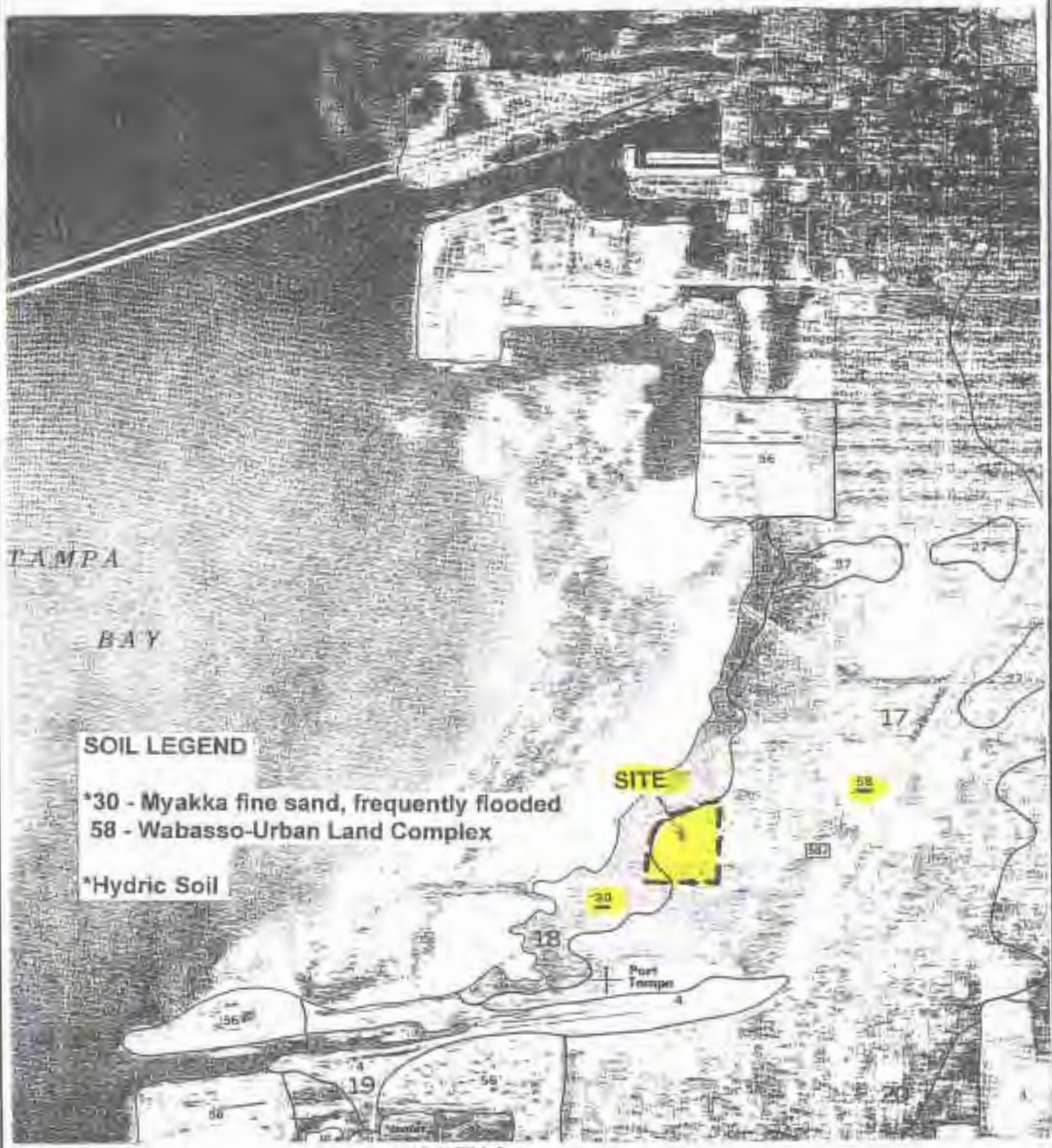
ATTACHMENT C - Maintenance & Monitoring Plan, Success Criteria - The maintenance of the project is expected to be minimal. The plants typically planted in association with estuarine restoration projects will survive, vigorously recruit, and have minimal regeneration of exotic species. Maintenance will primarily be 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. Long-term maintenance will be the responsibility of the City of Tampa Parks Dept. who owns the property. The qualitative monitoring is expected 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 for at least 90-days post planting, a total 85% cover of desirable species, and less than 10% cover of exotic and nuisance species. The DEP and WMD experiences with the estuarine mitigation projects indicate when the grade elevations are correctly constructed to allow for sufficient tidal action, the vegetation survives and recruits throughout other areas of the mitigation site.



FDOT - District 7 MITIGATION SITE (Tampa Bay Drainage Basin)	TAPPAN SITE (SW 62)	FIGURE A LOCATION MAP

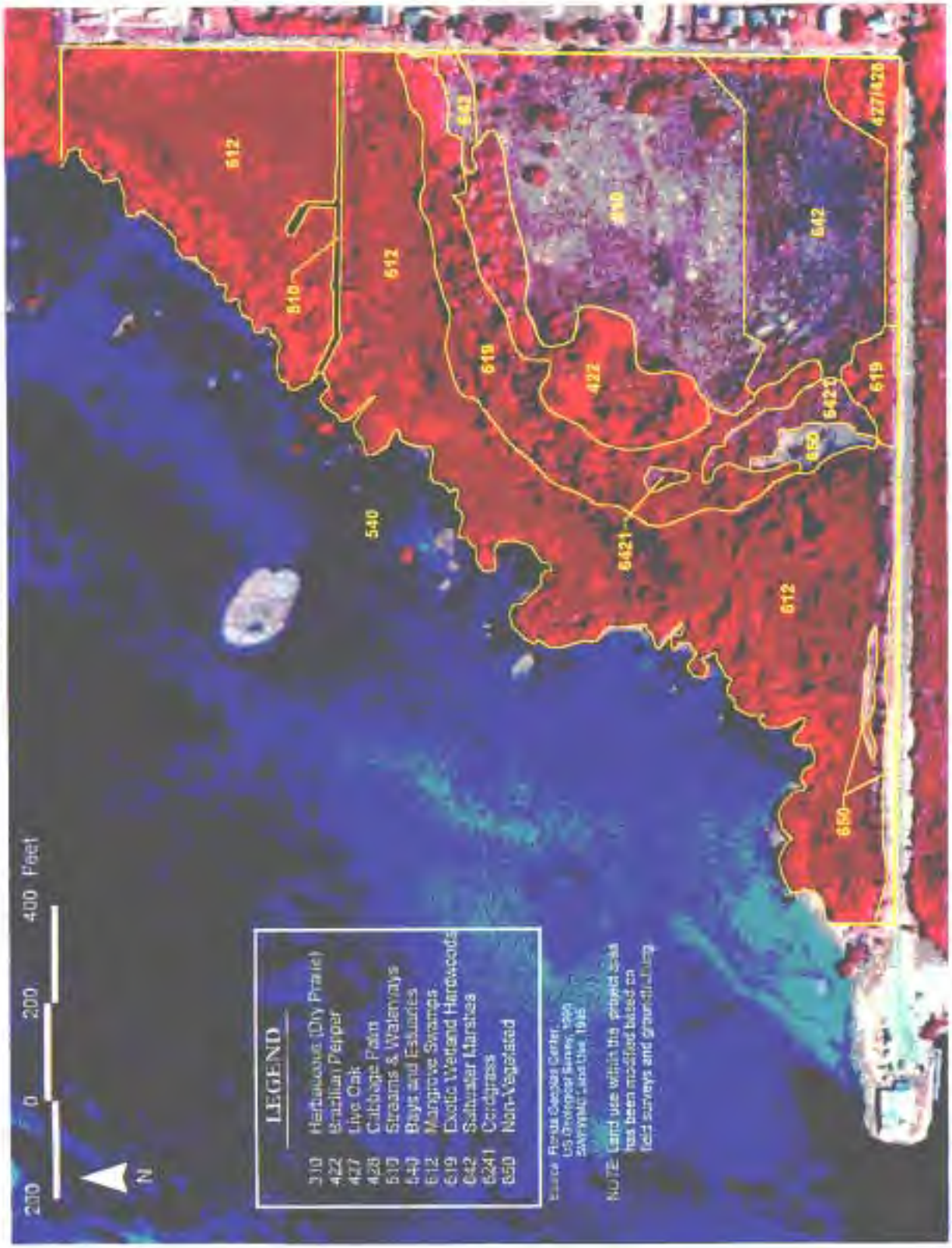
NORTH ^
SCALE: 3.12 in. = 1 mile

FDOT - District 7 MITIGATION SITE (Tampa Bay Drainage Basin)	TAPPAN SITE (SW 62)	FIGURE B HILLS. CO. SOIL SURVEY (AERIAL DATE - 1948)

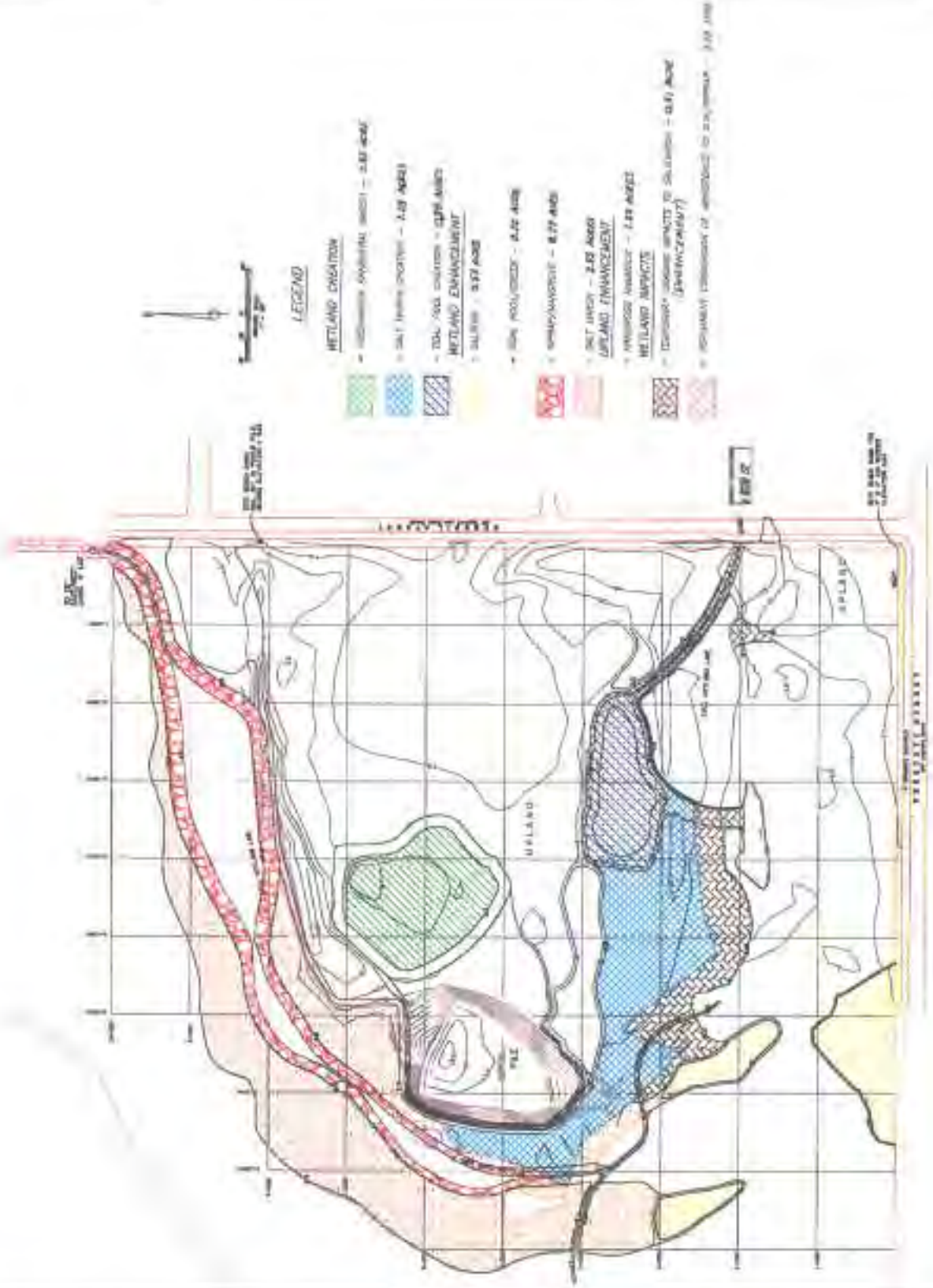


FDOT - District 7 MITIGATION SITE (Tampa Bay Drainage Basin)	TAPPAN SITE (SW 62)	FIGURE C HILLS. CO. SOIL SURVEY (AERIAL DATE - 1982)

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, Borrichia, 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: FM: 2563151 - 1.1 ac. 621 (Fluccs code)

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation___ Restoration ___ Enhancement X 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 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 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 of 10 acres, the mitigation ratio will be 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:** A mitigation bank is not present or currently 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 :** The only SWIM project within this basin is the Lake Thonotasassa Restoration Project. All available wetland components for that restoration project have been delegated to mitigate for wetland impacts associated with another DOT 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 maintenance 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, maintenance & management will be provided by the WMD)

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 spring, 2001.

_X___5. Proposed success criteria and associated monitoring plan. No monitoring or success criteria required or proposed.

_X___6. Long term maintenance plan. Maintenance activities are not required.

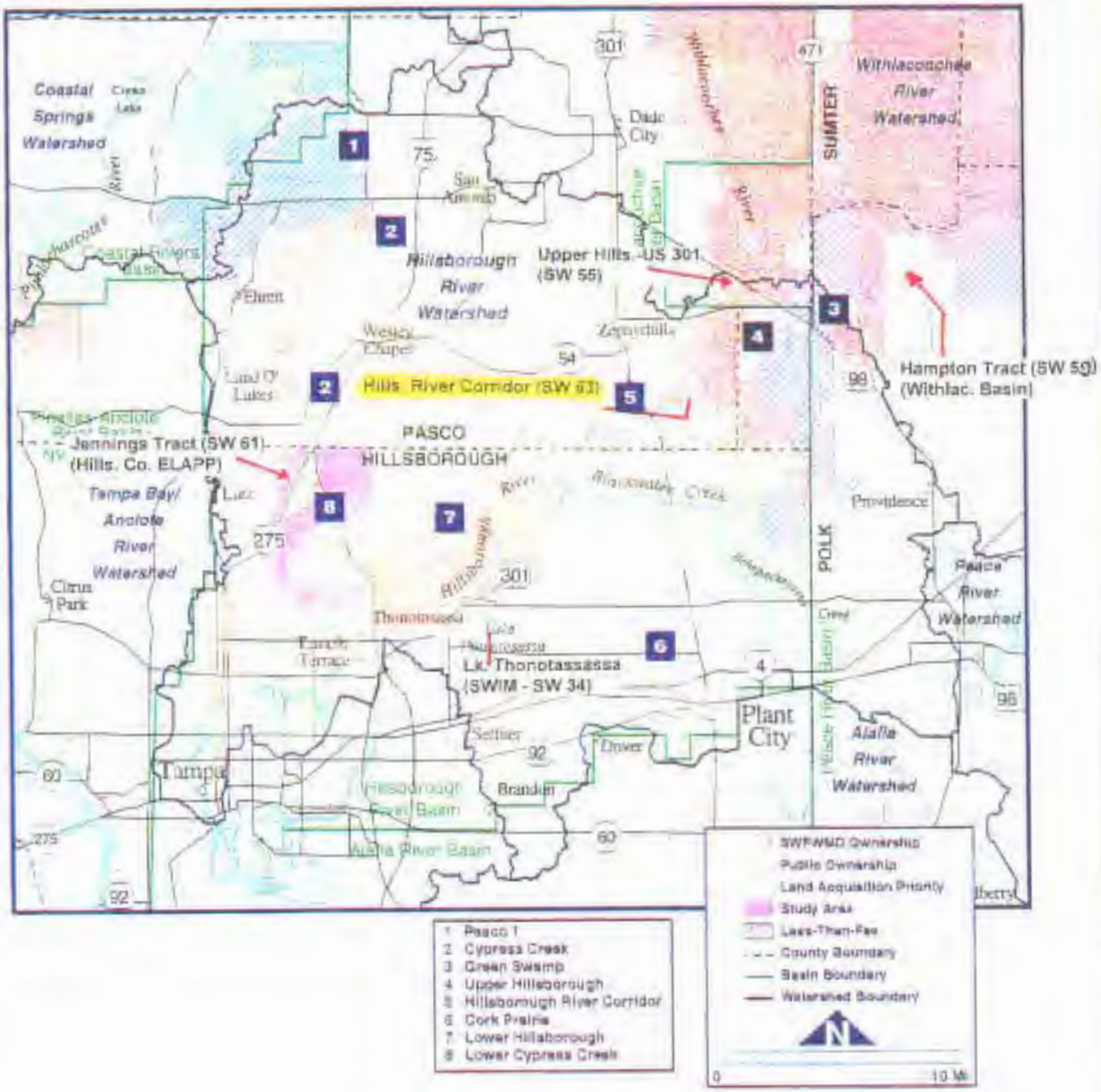
_X___7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

ATTACHMENT A - Existing Site & Proposed Work

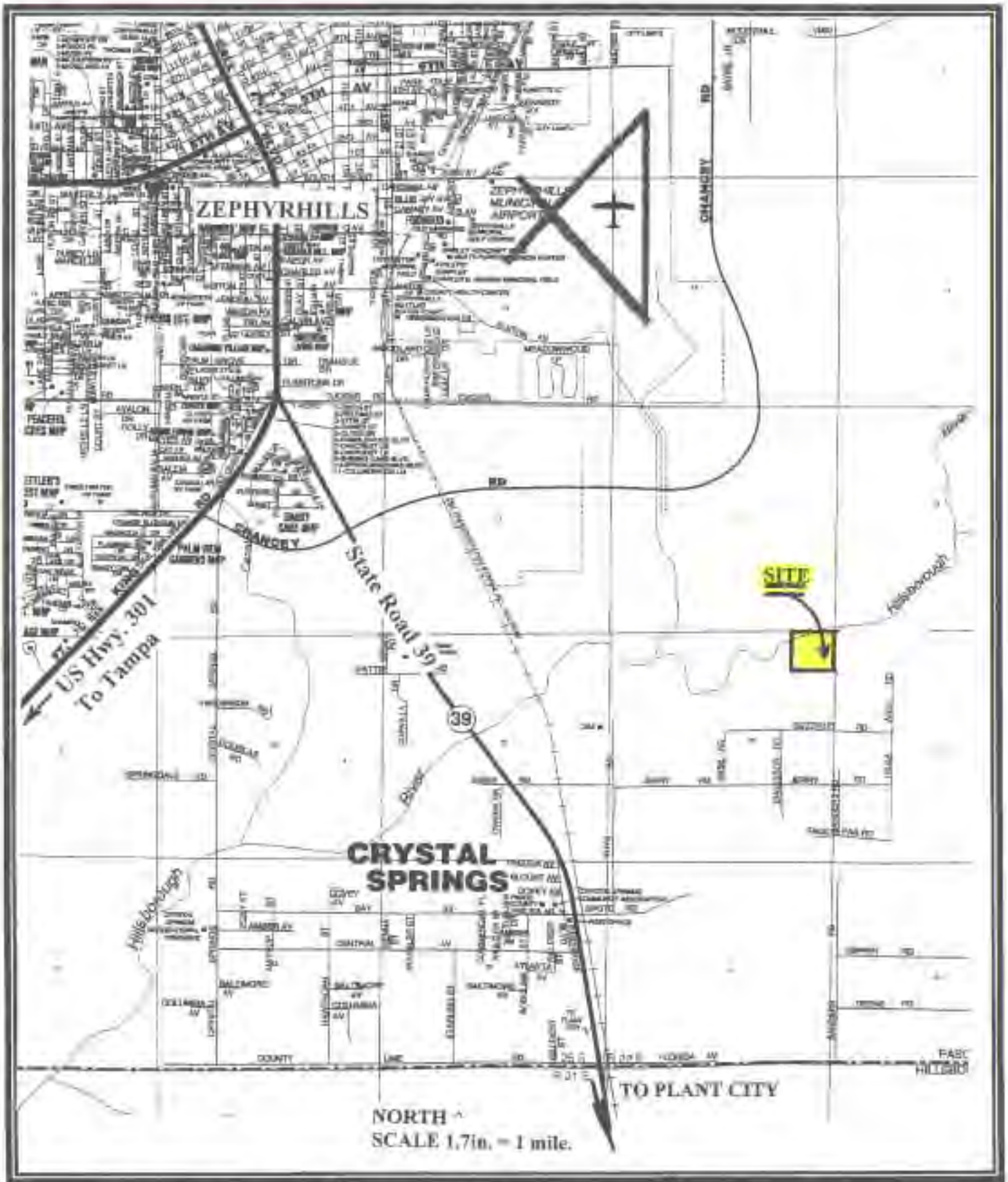
The entire 10 acres is mixed forested wetland floodplain with the Hillsborough River meandering through the southern portion of the site (refer to photos). The overstory (canopy >70%) is dominated by red maple, American elm, and laurel oak. Sub-dominants include sweet gum, hackberry, ironwood, bald cypress, 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 will be conducted to ensure these high quality habitat conditions are maintained and that no adjacent land use activity encroaches or impacts the habitat.

It's noted that this project previously proposed the acquisition of the adjacent 20-acres (Wahl Tract), removal of the existing fill road to restore wetland habitat, and provide a contiguous connection of riverine floodplain habitat under SWFWMD ownership. Unfortunately, negotiations with Mr. Wahl were not successful and the additional impacts proposed for mitigation at this project site were transferred for mitigation at Cypress Creek Preserve, West (SW 61). Hopefully the opportunity for public acquisition of the additional 20 acres will occur in the future.

Save Our Rivers
Preservation 2000
2000 Five-Year Plan



FDOT - District 7 MITIGATION SITE (HILLSBOROUGH BASIN)	HILLSBOROUGH RIVER CORRIDOR (SW 63) (WAHL & KREW TRACTS)	FIGURE A - WATERSHED BASIN MAP

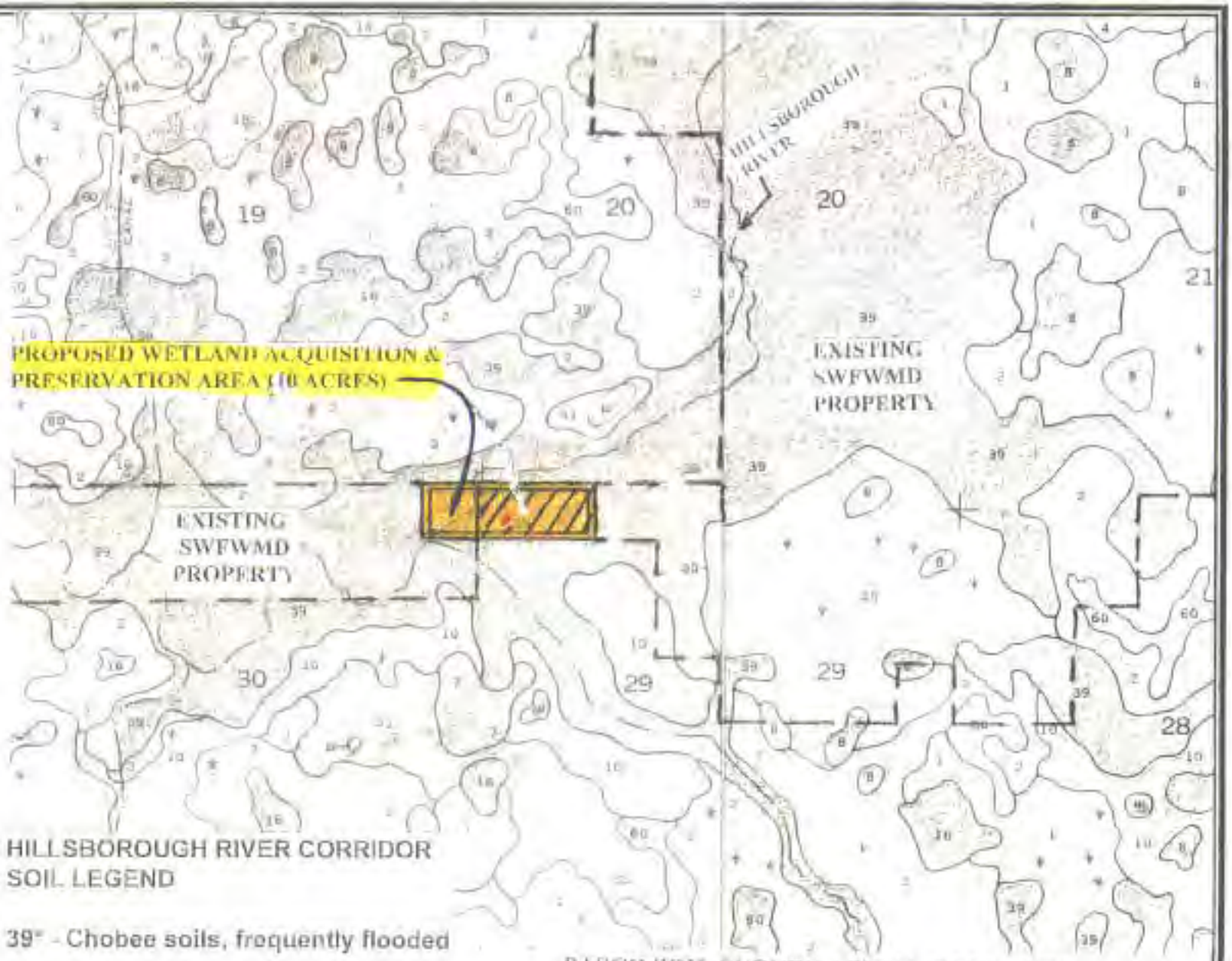


FDOT - District 7 MITIGATION SITE (HILLSBOROUGH BASIN)	HILLSBOROUGH RIVER CORRIDOR (SW 63)	FIGURE B LOCATION MAP

FDOT - District 7
MITIGATION SITE
(HILLSBOROUGH BASIN)

HILLSBOROUGH RIVER
CORRIDOR (SW 63)

FIGURE C
PASCO CO. SOIL SURVEY



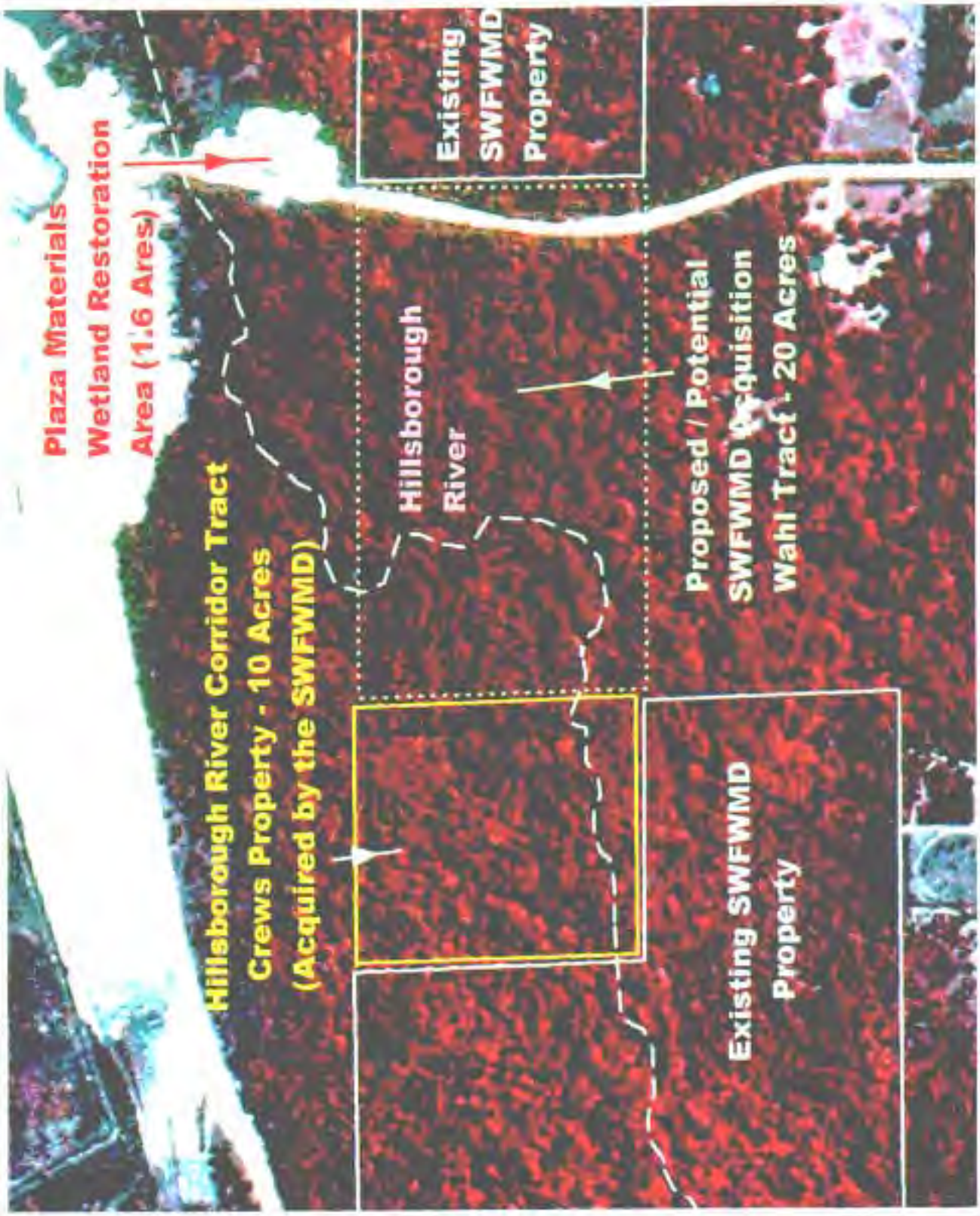
HILLSBOROUGH RIVER CORRIDOR
SOIL LEGEND

39* - Chobee soils, frequently flooded

* Hydric Soils

PASCO SOIL SURVEY AERIAL DATE - 1975

NORTH ^
Scale - 3.75 inches = 1 mile



FDOT - District 7 MITIGATION SITE (Hillsborough River Basin)	HILLSBOROUGH RIVER CORRIDOR (SW 63) (Crews Tract)	FIGURE D LOCATION MAP Scale 1in. = 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: Rose Poyner , Judy Ashton (FDEP-Tampa) Phone No: (813) 744-6100, Suncom 542-1042

County(ies): Sumter Location (central lat/long): 28 33' 0", 82 00', 00"

IMPACT INFORMATION

1 - FM: 2571641, SR 44-CR 470 to County Line	ERP #: 4310152.004	COE #: 199606491 (IP-KF)
2 - FM: 2571631, SR 44-US 41 to CR 470	ERP #: 4310152.003	COE #: 199606491 (IP-LM)
3 - FM: 2571841, SR 45 (US 41) – Watson St. to SR 44 East	ERP #: 44024198.000	COE #: 200206293 (NW-KCF)
4 - FM: 4092071, CR 470 (Gospel Isle)	ERP #:_____	COE #:_____
5 - FM: 2571651, US 41 (SR 45), SR 44 to SR 200	ERP #:_____	COE #:_____
6 – FM 4037811, SR 52 – Curley Rd. to Smith Rd.	ERP #:_____	COE#:_____

Drainage Basin(s): Withlacoochee River Water Body(s): Lake Henderson, Lake Tsala Apopka SWIM water body? N

Impact Acres / Types:

1- FM 2571641	3 - FM 2571841	5 – FM 2571651
4.9 ac. 617 (Fluccs)	0.1 ac. 641x (Fluccs)	0.5 ac. 617 (Fluccs)
4.1 ac. 630 (Fluccs)	**0.1 acres**	0.2 ac. 618 (Fluccs)
4.9 ac. 641 (Fluccs)		**0.7 acres**
13.9 acres		

2- FM 2571631	4- FM 4092071	6- FM 4037811
3.1 ac. 615 (Fluccs)	0.1 ac. 617 (Fluccs)	0.3 ac. 510 (Fluccs)
3.2 ac. 618 (Fluccs)	0.2 ac. 641 (Fluccs)	0.1 ac. 641 (Fluccs)
1.6 ac. 641 (Fluccs)	**0.3 acres**	**0.4 acres**
7.9 acres		

TOTAL – 23.3 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.

Mitigation Project – Baird Tract, Page 2

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. Particular 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 proposed SR 44 roadway impacts along Lake Henderson and Lake Tsala Apopka. Almost all the proposed wetland shrub habitat impacts are wax myrtle and Carolina willow generated along the existing SR 44 toe-of-sideslope areas. Beyond the proposed roadway construction limits, the willows transition into marsh habitat typical of wetland conditions prior to the construction of the existing SR 44. As for the proposed forested wetland impacts associated with SR 44 widening, hydrologic enhancement of Fender Swamp and other hydrologically impacted forested wetlands adjacent to the existing ditches will compensate for those impacts. Due to the large-scale of the proposed Baird Tract improvements, the loss of the SR 44 wetland habitats will be compensated by the significant ecosystem benefits from the proposed activities. The minor alterations (i.e. ditch plugs, culvert invert modifications and additions, etc.) required to enhance and restore hydrologic regimes provide more opportunity to increase the various wetland habitat functions and overall value than the combination of other restoration methods such as vegetative planting, herbicide maintenance, and extensive construction activities. 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 to mitigate for 23.2 wetland impact acres (65:1 ratio).**

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 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 : The only SWIM project within this watershed is the Lake Panasoffkee Restoration project, which has been designated to provide the mitigation for proposed DOT impacts to the lake, FM 548964, I-75 Lake Panasoffkee Bridge.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Division of Forestry in cooperation with the Dept. of Environmental Protection

Contact Name: Rose Poyner, Judy Ashton (DEP-Tampa) Phone Number: 813-744-6100

Entity responsible for monitoring and maintenance: DEP and DOF

Proposed timeframe for implementation: Commence: January, 2001-2003 – Site Evaluations & Hydrologic monitoring, initial enhancement with culvert replacements – 2003, Surface water modeling & permitting – 2004-2005

Complete: Spring, 2006 -Construction, followed by minimum 3 years of monitoring.

Project cost: $1,300,000 (total)

Design & Permitting - $120,000
Construction - $1,100,000
Maintenance & Monitoring - $80,000

Mitigation Project – Baird Tract, Page 3

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 attached 1995 infrared aerials.

__x__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 2005.

__x__4. Detailed schedule for work implementation, including any and all phases. Refer to previous scheduled description.

__x__5. Proposed success criteria and associated monitoring plan. Monitoring will be conducted semi-annually (dry & wet season monitoring events) for a minimum of three years to monitor the wetland hydroperiod and vegetative trends as a result of the enhancement efforts. The results of the semi-annual monitoring will be documented in annual monitoring reports submitted for a minimum 3 years post-construction. The initial monitoring report will document pre-existing conditions and the construction activities. A monitoring plan will be conducted in coordination with the Div. of Forestry to evaluate strategically placed staff gauges and vegetative monitoring. 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.

__x__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. Control of nuisance and exotic species will include herbicide management when and where necessary for the wetlands proposed for enhancement.

__x__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 discbarged 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 feeter/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 enhancemnt 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

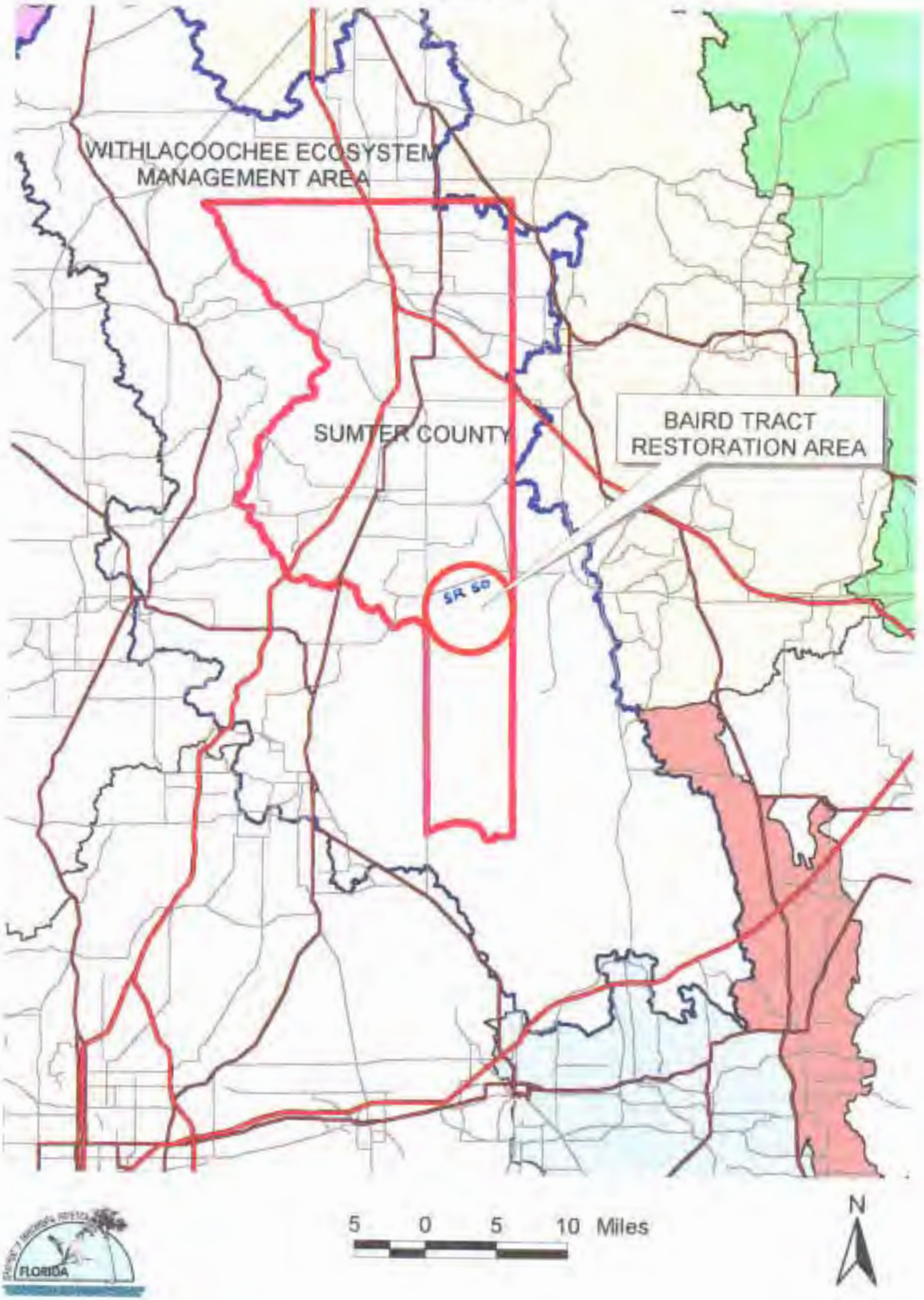
Merrit Pond
Approximately 185 acres of marsh will be enhanced, including openwater areas. Enhancement will include the blocking of the ditch draining from Merrit Pond into Gidden lake. Land use codes included in ehnancement areas: 6430, 6440, 6410, 6150

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

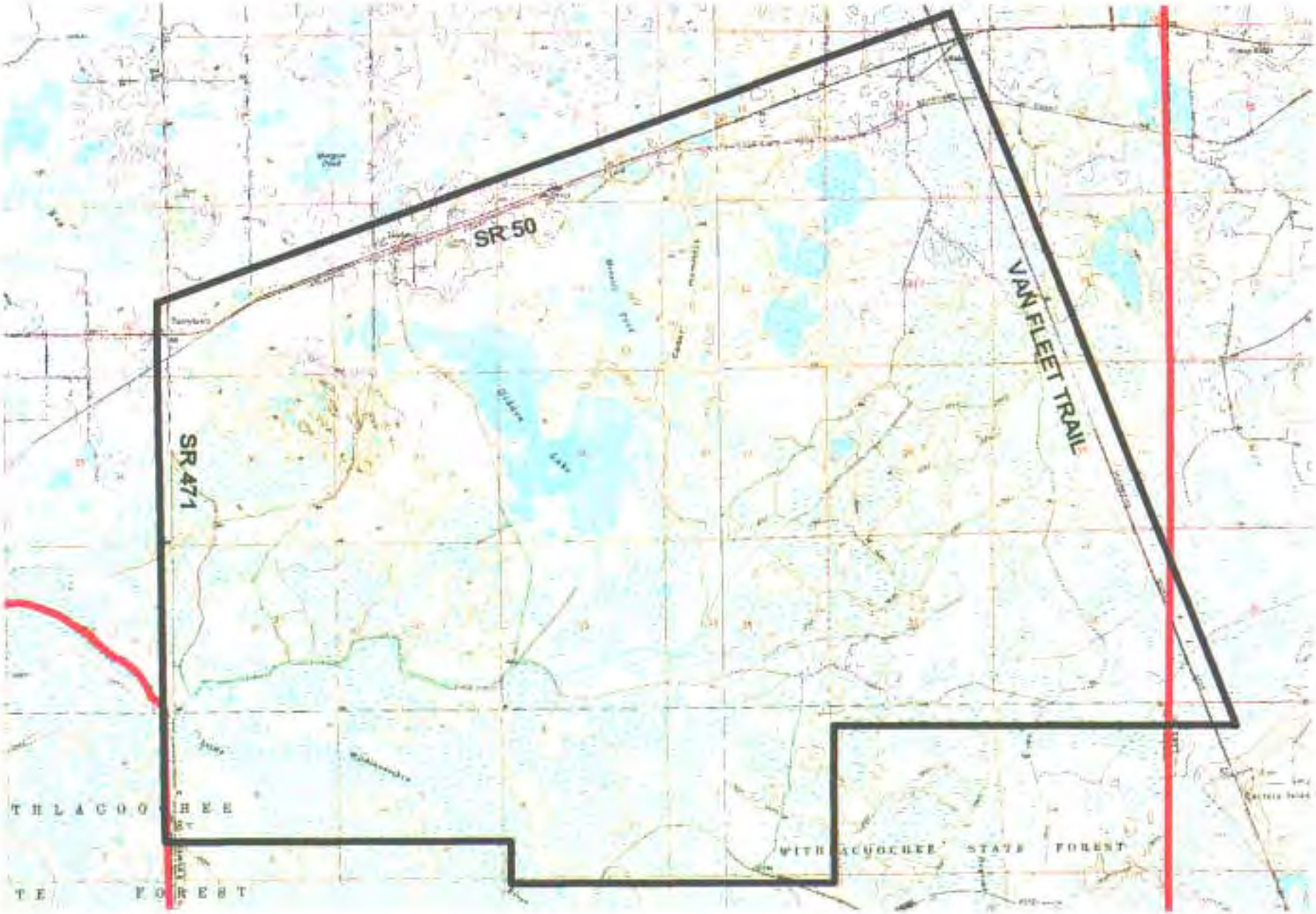
***Canal Grade**
Approximately 422 acres of wetlands will be directly enhanced via the installation of ditch blocks, geoweb and culverts. Land use codes included in enhancement areas: 6210, 6430, 6300, 6410
*(A Federal Grant has been applied for and received by the Department for this area. This area 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



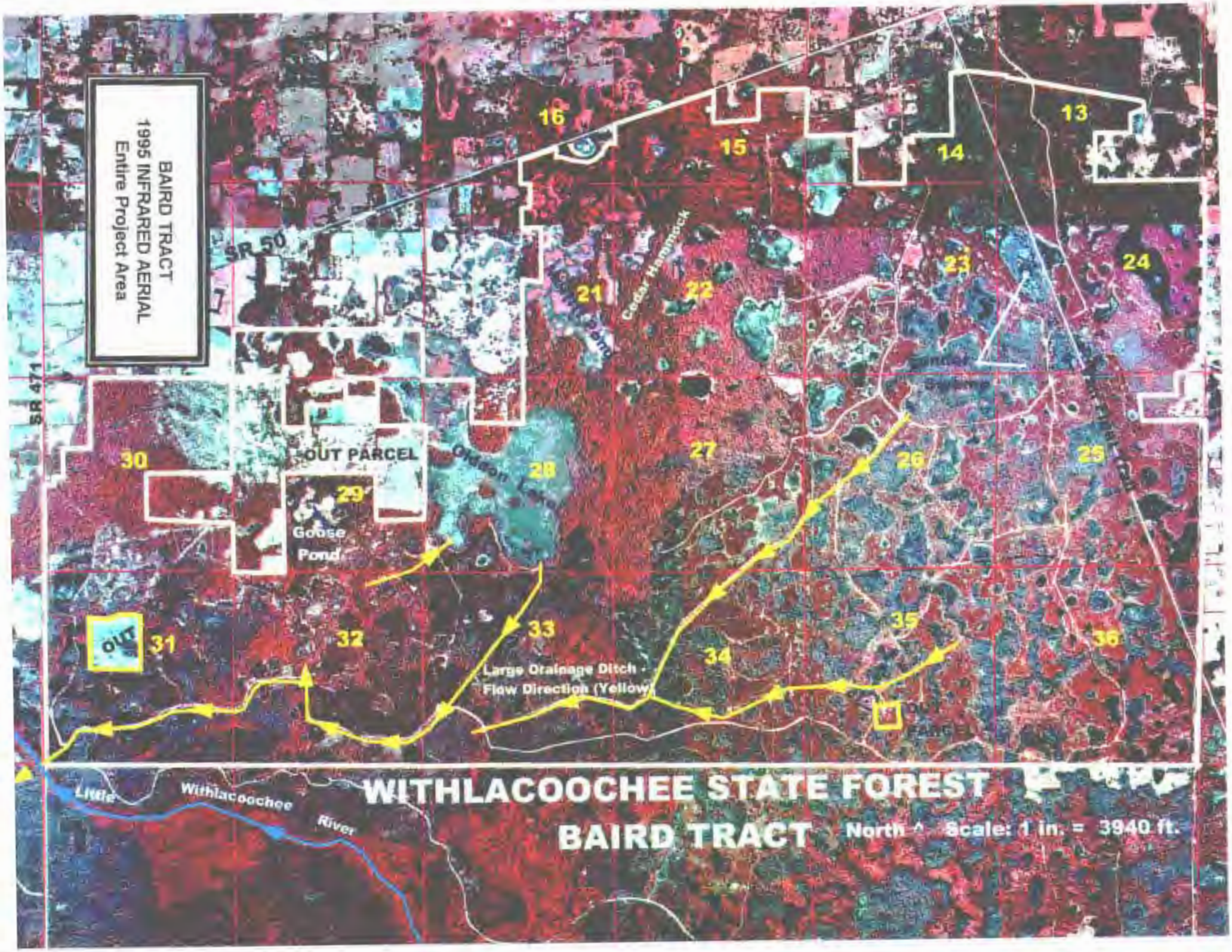
ATTACHMENT 4

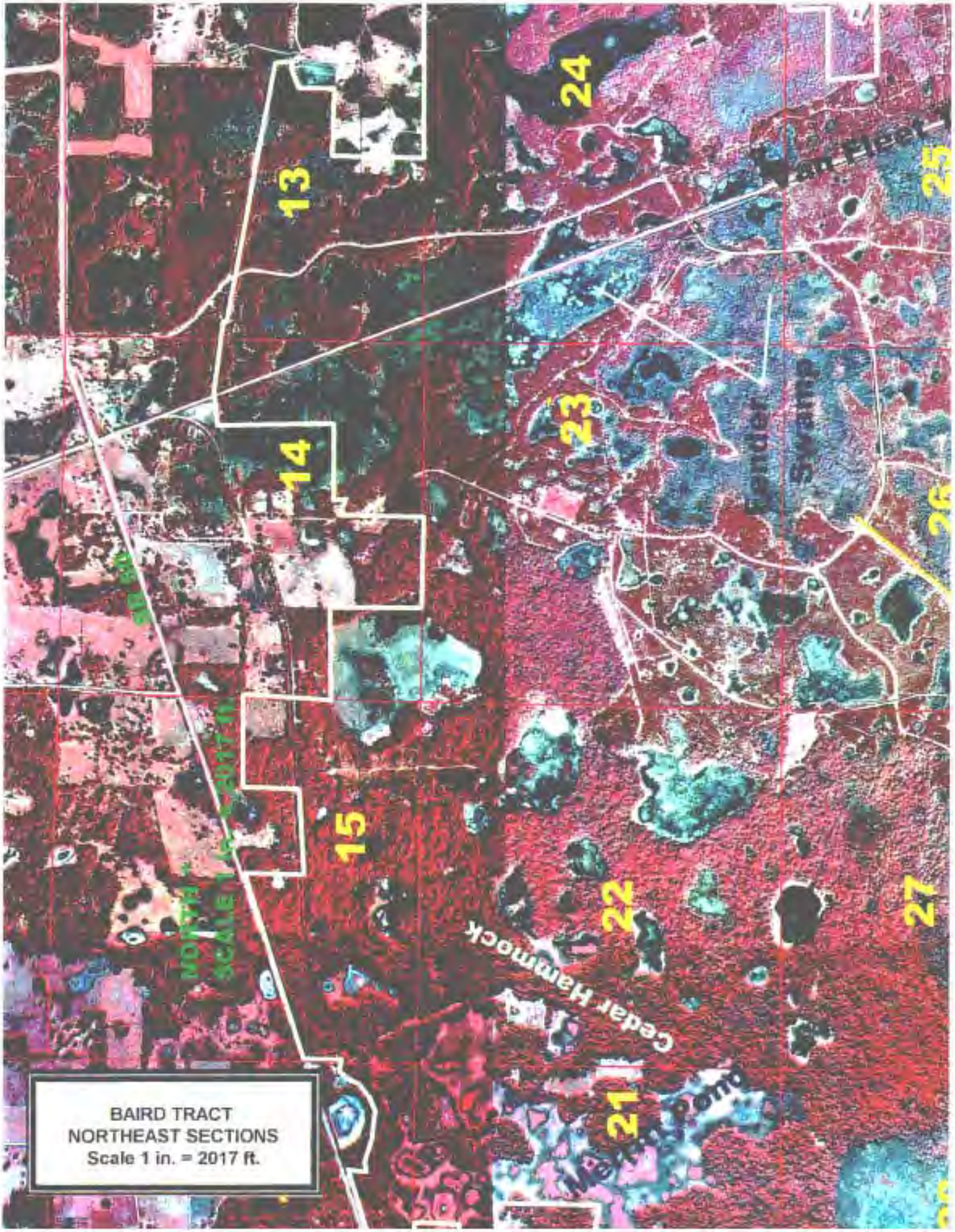


2000 0 2000 4000 Feet

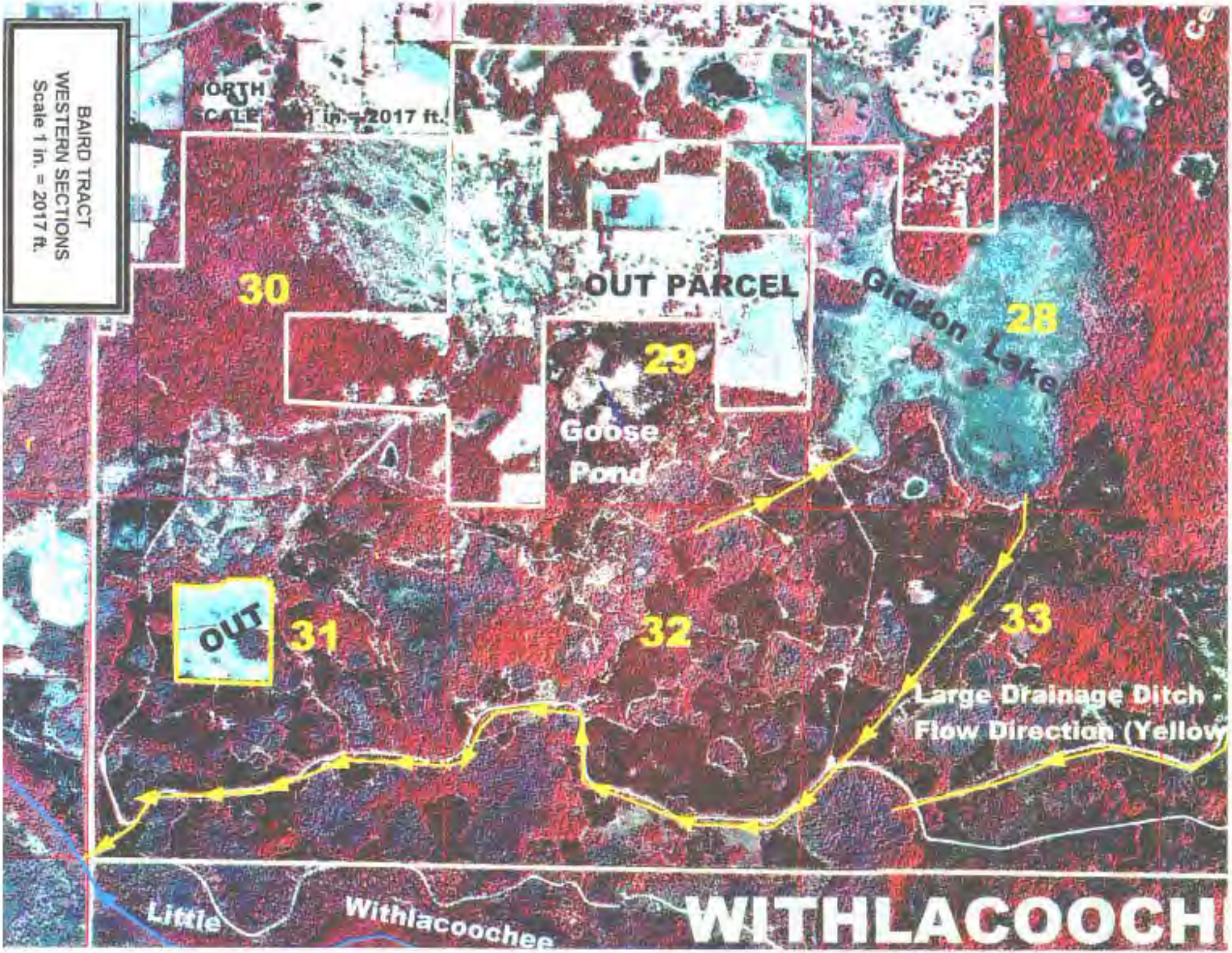
N

BAIRD TRACT
Natural Resource Conservation Survey November 1988

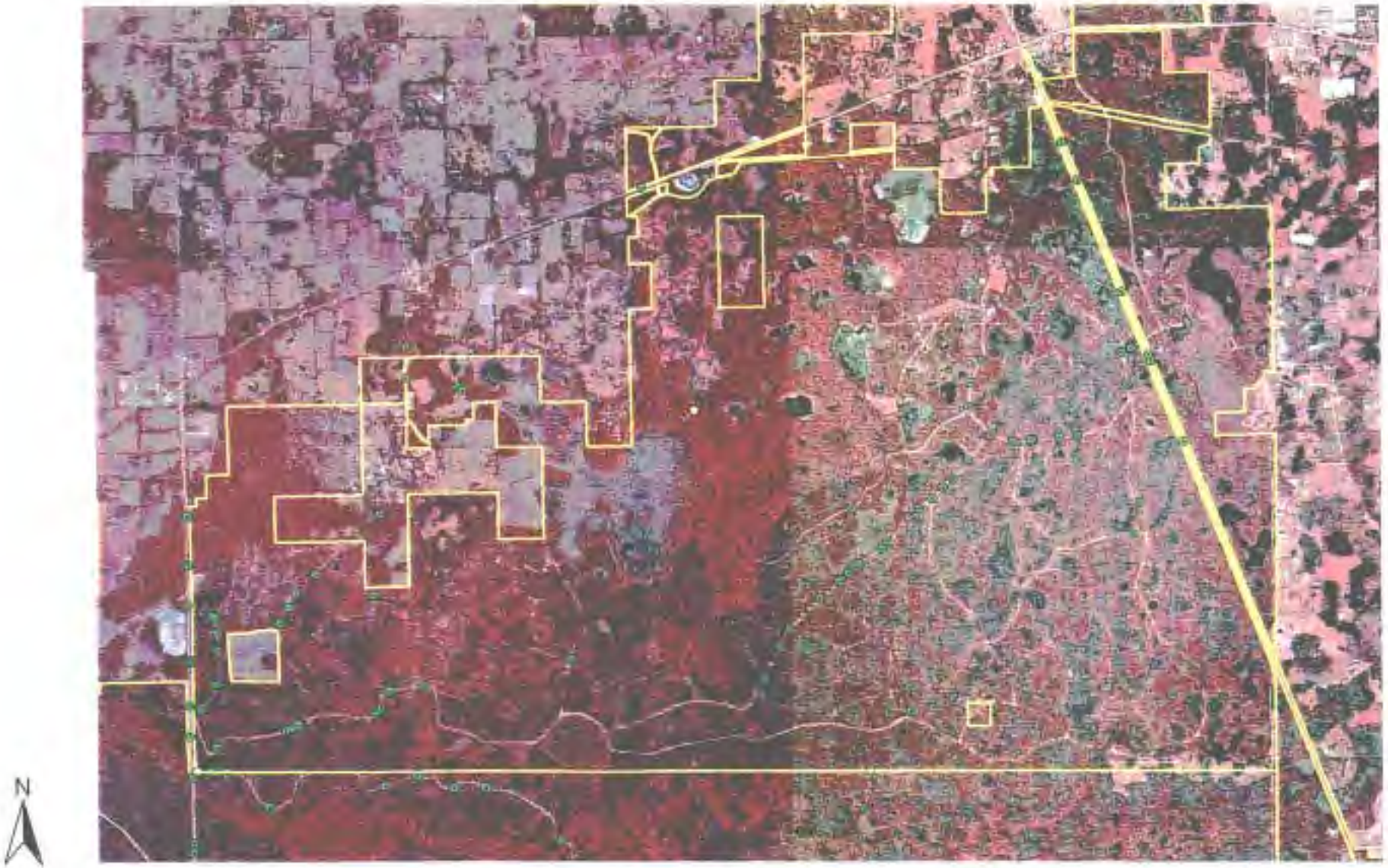

BAIRD TRACT
1995 INFRARED AERIAL
Entire Project Area
SR 50
SR 471
16
15
14
13
23
24
21
22
Cedar Hammock
OUT PARCEL
30
29
28
27
26
25
Goose
Pond
OUT
31
32
33
34
35
36
Large Drainage Ditch -
Flow Direction (Yellow)
Little
Withlacoochee
River
WITHLACOOCHEE STATE FOREST
BAIRD TRACT
North ^ Scale: 1 in. = 3940 ft.



BAIRD TRACT
NORTHEAST SECTIONS
Scale 1 in. = 2017 ft.


BAIRD TRACT
WESTERN SECTIONS
Scale 1 in. = 2017 ft.
NORTH
SCALE 1 in. = 2017 ft.
OUT PARCEL
30
29
28
31
32
33
OUT
Giddon Lake
Goose Pond
Large Drainage Ditch -
Flow Direction (Yellow
Little Withlacoochee
WITHLACOOCH

BAIRD TRACT
SOUTHEAST SECTIONS
Scale 1 in. = 2017 ft.
Sander
Swamp
27
26
25
35
36
34
ge Ditch
n (Yellow)
OCHEE STATE FOREST
1 in.
2017
NORTH



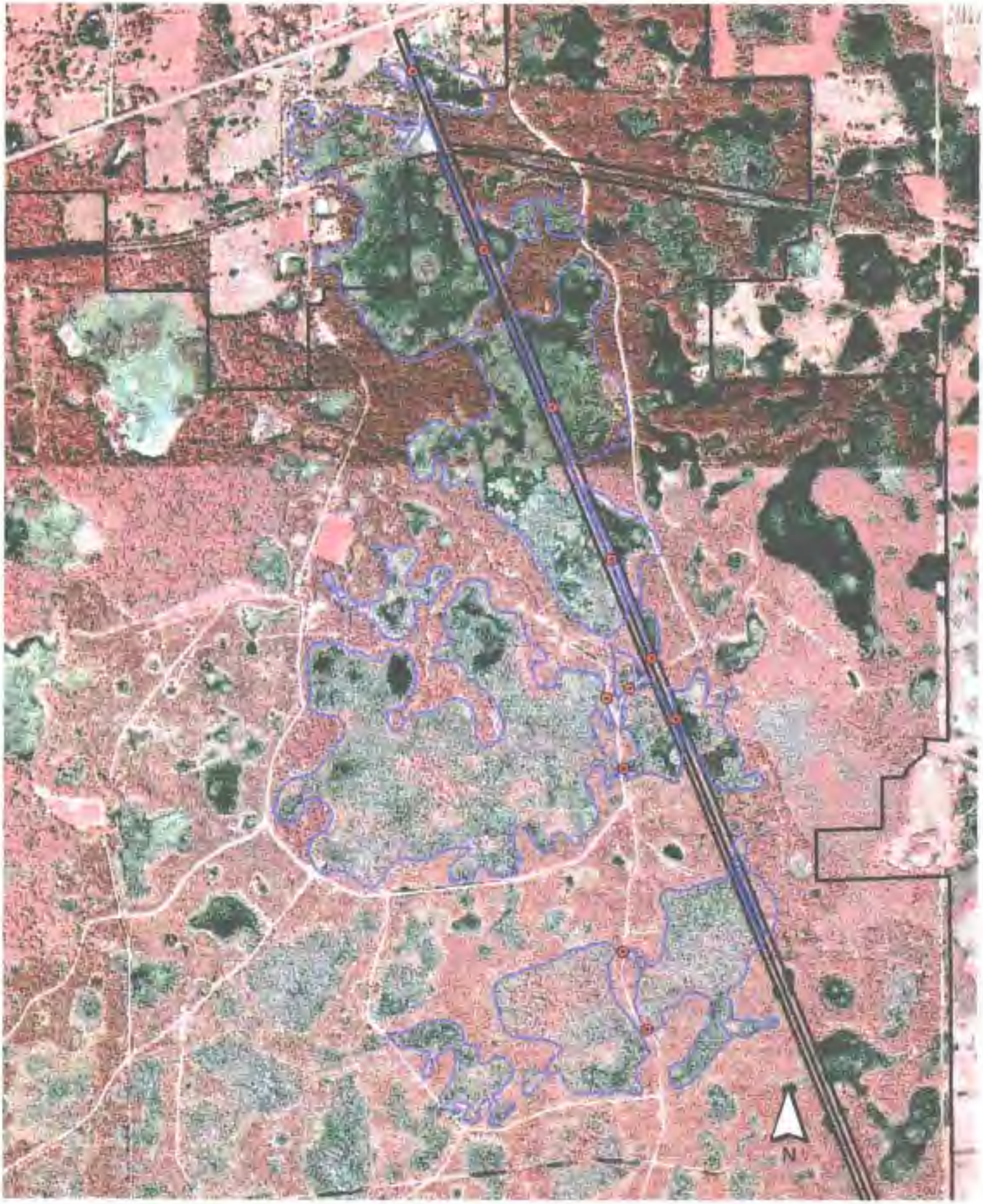
Overall Project Area W/Structures

Gidden Lake, Goose Pond, Merritt Pond
Restoration Area

N

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 #:4316872.018	COE #:_____
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

SR 64 Projects (3.26 acres)

1 (Seg. 1) – 0.68 ac. 617 (Fluccs)
1.29 ac. 640 (Fluccs)
0.45 ac. 641 (Fluccs)
TOTAL 2.42 acres

2 (Seg. 2) - 0.33 ac. 630 (Fluccs)
0.51 ac. 641 (Fluccs)
TOTAL 0.84 acres

SR 70 Projects (5.86 acres)

3 (Seg. 1) - 0.9 ac. 641(Fluccs)

4 (Seg. 2) - 2.1 ac. 615 (Fluccs)
1.7 ac. 640 (Fluccs)
TOTAL 3.8 acres

TOTAL 8.06 Acres

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Enhancement X Restoration (Upland & Wetland Habitat) Mitigation : **115 ac.**
SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N
Mitigation Bank? N Drainage Basin(s): Manatee River Water Body: None SWIM water body? N

Project Description

A. **Overall project goal:** 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 have been interconnected with large ditches which have substantially altered the wetland hydrology and vegetative composition. The restoration includes 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 will also be 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. The hydrology of the marshes were substantially altered by the deep cross and connector 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 have 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).

Mitigation Project – Rutland Ranch, Page 2

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 (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.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The anticipated FDOT wetland impacts (total 7.96 acres) includes 4.85 acres of non-forested and 3.11 acres of forested wetlands. The proposed mitigation plan will result in wetland enhancement (75 acres) from the hydrologic restoration, wetland restoration from grading the spoil material to historic wetland grade elevations and planting (5 acres), upland habitat restoration from grading ditches in the palmetto prairie (10 acres), upland habitat enhancement and restoration around Wetlands 1-4 and 12 (25 acres) which will establish and maintain upland habitat corridors. This results in a cumulative mitigation acreage of 115 acres to mitigate for the 8.06 acres (14.3-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: There are no existing 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 : The only SWIM project in this basin is Terra Ceia (SW50). The Terra Ceia project includes restoration and enhancement of salt-water and estuarine habitat, and is mitigating for salt-water wetland impacts associated with one DOT project to date (2004).

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: 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)

Mitigation Project – Rutland Ranch, Page 3

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 stain 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 any 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 by 2004, 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 but cattle have not been re-introduced by early, 2004. The WMD has bush-hogged the pastures and bahia is the dominant cover grass. 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 introduction of 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, they were capable of conveying 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 other marsh enhancement and restoration areas have already achieved over 90% coverage of desirable herb coverage by 2004.

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 are transitioning to more desirable and appropriate wetland species have provided foraging opportunities for wildlife. Prior to construction, the marshes within the proximity of the pastures had so 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 existing drainage ditches that directly discharge into a nearby potable water source (Lake Manatee Reservoir). Retaining surface water on-site will result 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 proposed 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 is 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 some 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. Evaluation in early 2004 has indicated that except for Wetland 12, all the enhanced uplands and wetlands have exceeded the success criteria. However, monitoring will continue until Wetland 12 also achieves success criteria. The first of at least three annual monitoring reports will be conducted in 2005.

Attachment D – FDOT Mitigation

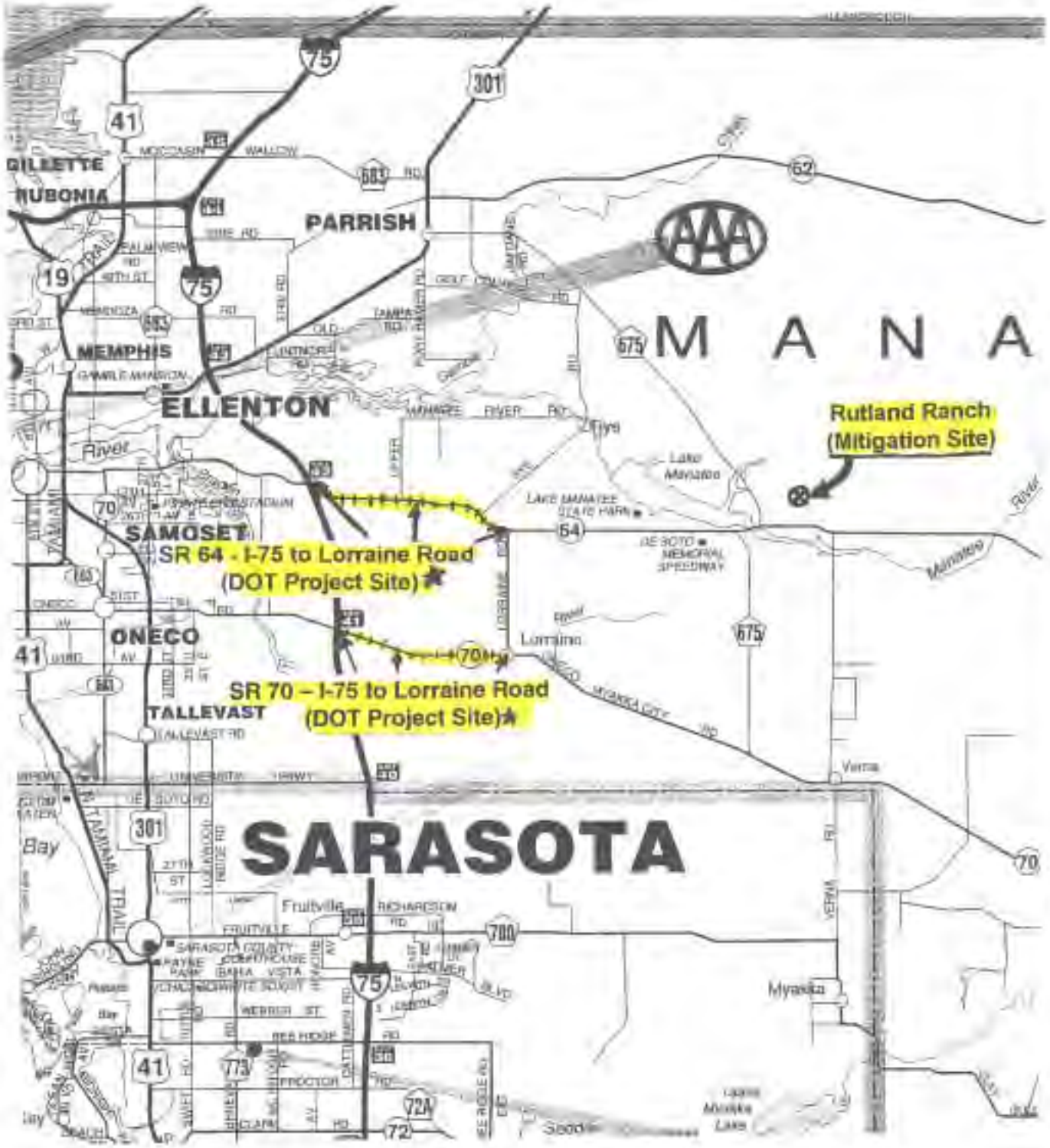
A comparison of the type of wetland impacts was conducted and compared to the proposed restoration activities. Rather than scatter the various activities to mitigate for a variety of wetland impacts, they were combined based on the general site location and proposed activities relative to the anticipated 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 0.33 acres of mixed forested wetland (#630) and 0.51 acres 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 0.84 acre and compensation of 17.2 acres** (ratio 20-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 and ACOE permits were issued in 2004.

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 of the most disturbed wetlands on the mitigation site (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

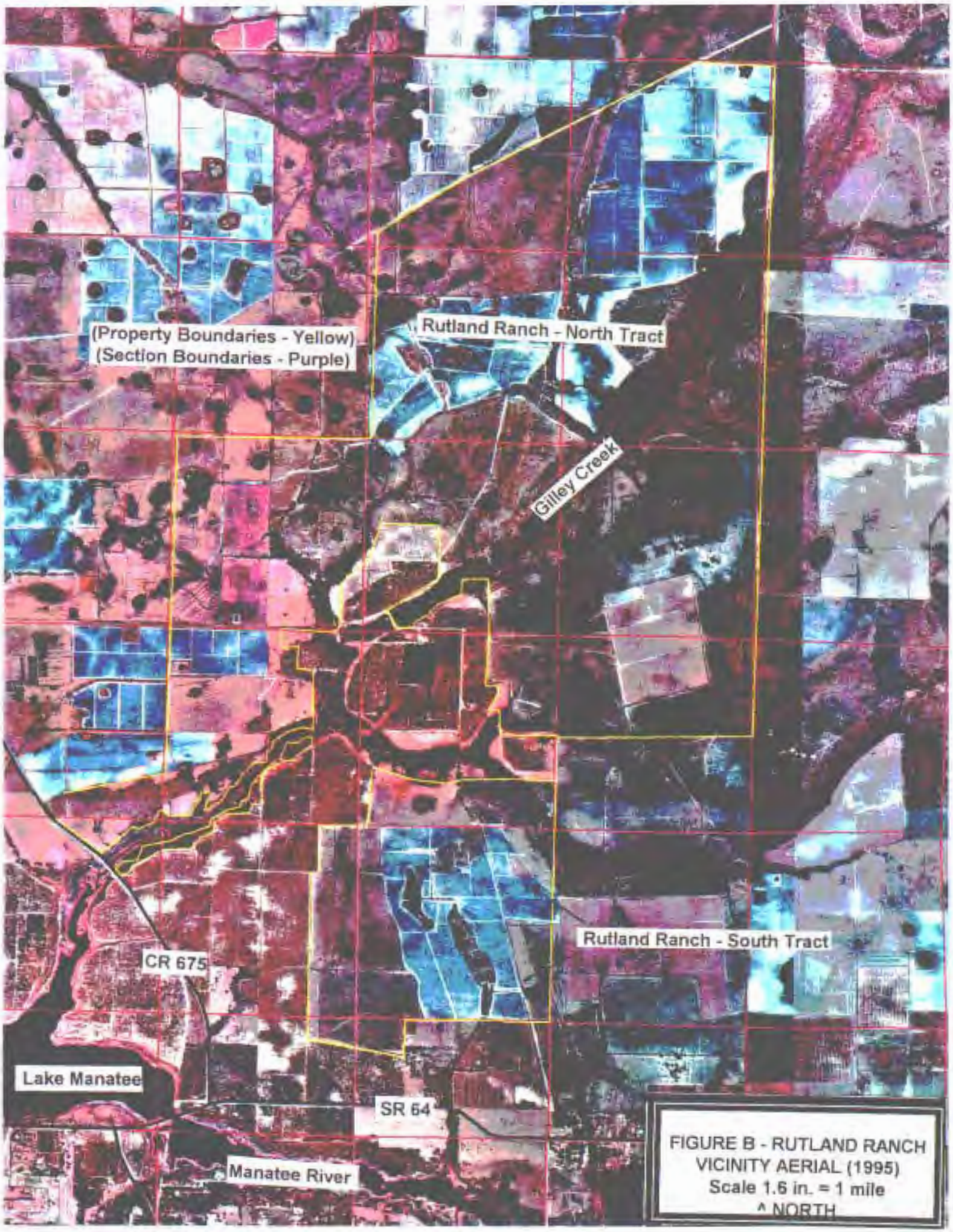
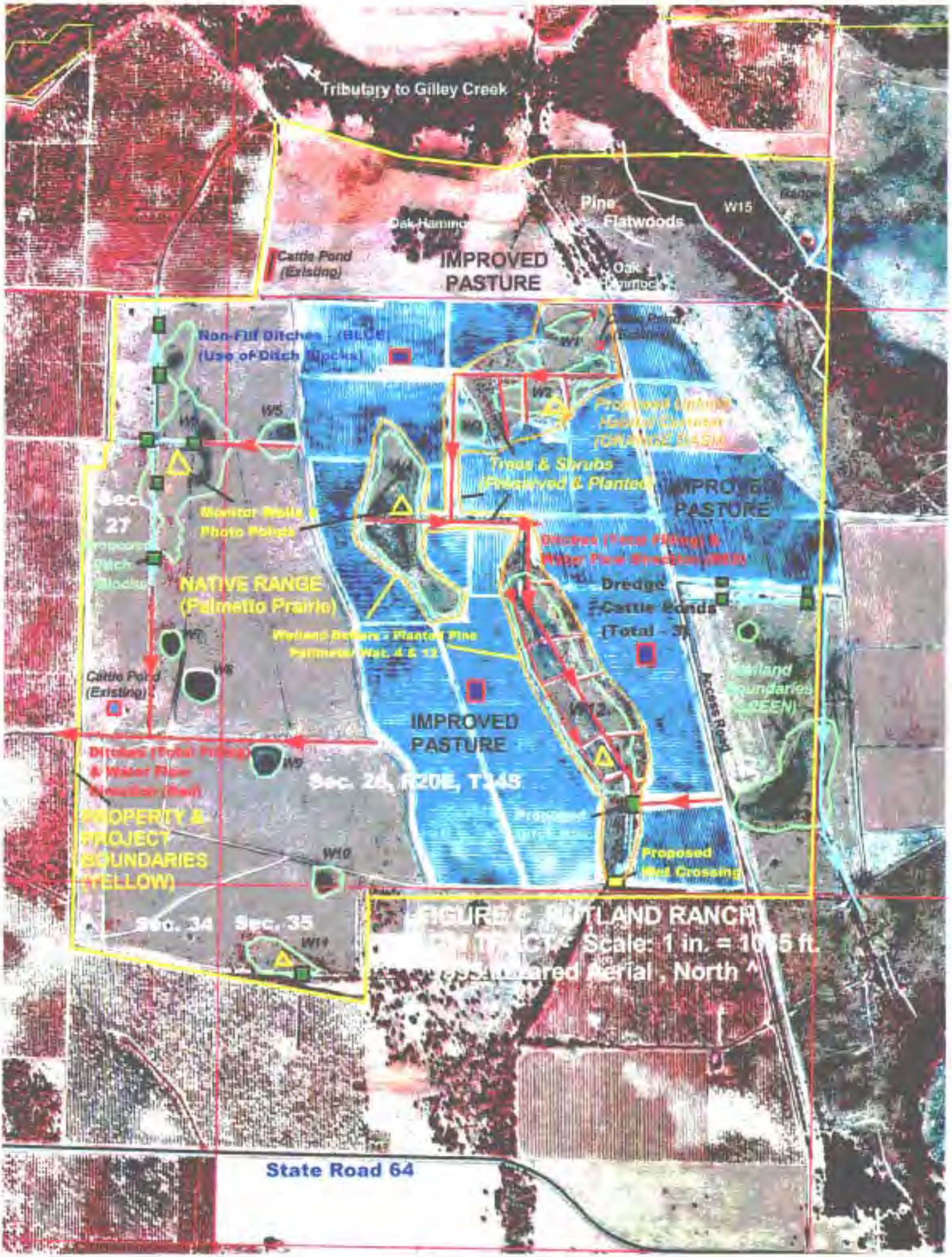


FIGURE B - RUTLAND RANCH
VICINITY AERIAL (1995)
Scale 1.6 in. = 1 mile
^ NORTH



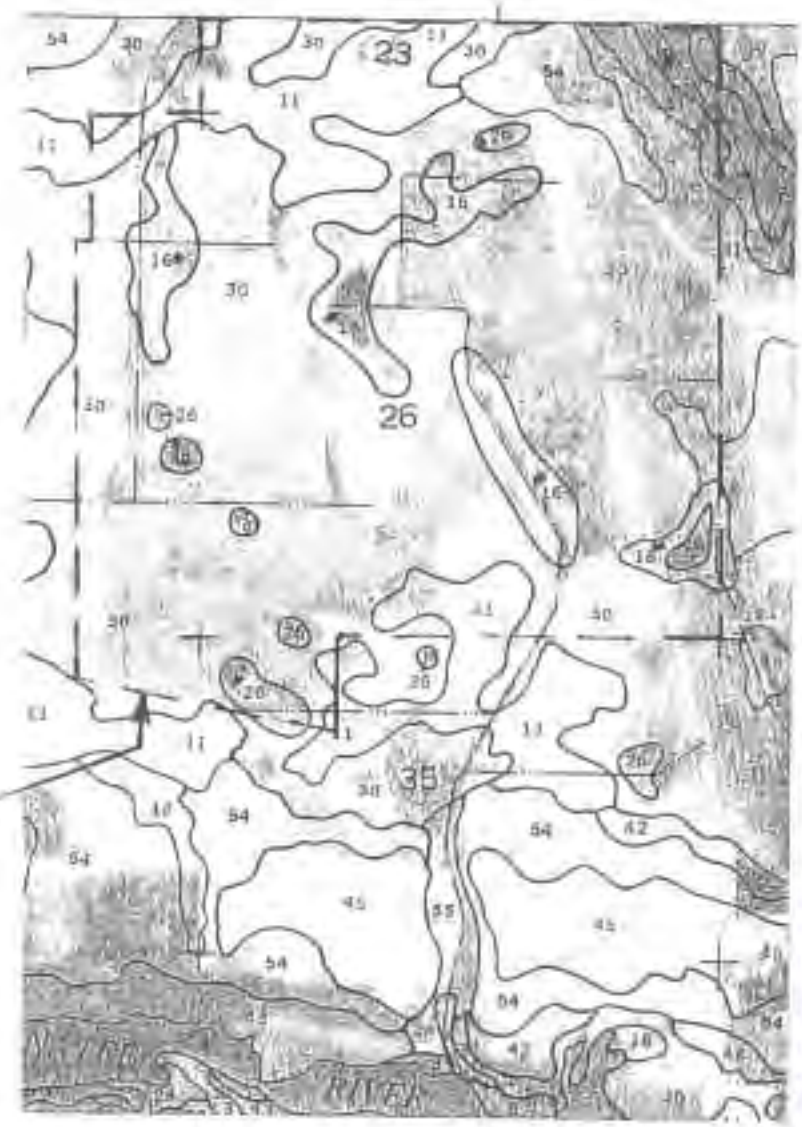
Tributary to Gilley Creek
Pine Flatwoods
W15
Oak Hammock
Cattle Pond (Existing)
IMPROVED PASTURE
Oak Hammock
Non-Fill Ditches - (BLUE)
(Use of Ditch Blocks)
W1
W2
W5
Trees & Shrubs (Preserved & Planted)
IMPROVED PASTURE
Sec. 27
Monitor Wells & Photo Points
NATIVE RANGE (Palmetto Prairie)
Dredge
Cattle Ponds
(Total - 3)
Wetland Berms - Planted Pine Palmetto Wet. 4 & 12
Cattle Pond (Existing)
W8
IMPROVED PASTURE
W12
Access Road
Ditches (Total Filling) & Water Flow Direction (Red)
W9
Sec. 26, R20E, T34S
PROPERTY & PROJECT BOUNDARIES (YELLOW)
W10
Proposed Wet Crossing
Sec. 34
Sec. 35
W11
Scale: 1 in. = 1085 ft.
Aerial , North
State Road 64

SOILS LEGEND

11-Cassia f.s.
*16-Delray 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.

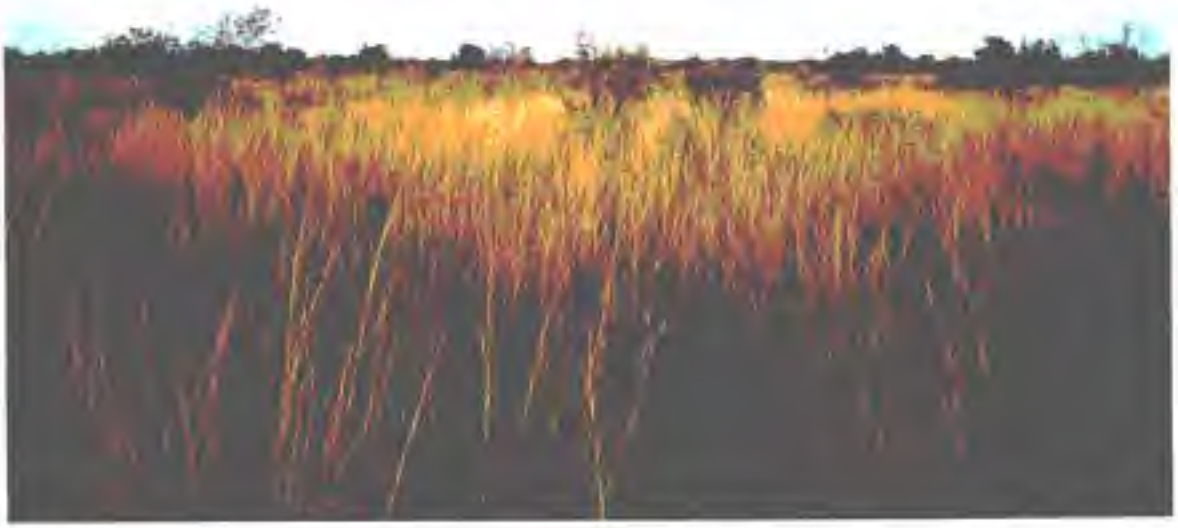
July, 2002 – Same view as above, wetland hydrology has been restored with maximum surface water depth of 18 inches in the marsh core. Natural regeneration of maidencane occurring with supplemental plantings of pickerelweed, arrowhead, and bulrush. Some of the oaks and pines that generated on the low 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(ies): Polk Location: Sect. 1, 2, T29S, R24E, Sec. 6, T29S, R25E

IMPACT INFORMATION

1 – FM 1975331, US 27 – Towerview Rd. to SR 540	ERP #: 43023834.002	COE #: 200205668 (IP-JF)
2 - FM 1976791, US 27 – SR 544 to Blue Heron Bay*	ERP #: 43023431.000	COE #: 200202574 (IP-JF)
3 - FM 1940931, US 17 (SR 35) – Peace River to Tropicana	ERP #: 43016955.001	COE #: 200102990 (IP-JF)
4 - FM 1938991, US 17 – Livingston to Hardee County	ERP #: 43022736.000	COE #: 200105669 (IP-MN)
5 - FM 1971681, SR 60A (Van Fleet Dr.)-CR 555 to Broadway	ERP #: 44023032.000	COE #: 2002000069 (NW-MS)
6- FM 4110391, US 27- CR 546 to SR 544	ERP #: _____	COE #: _____
7- FM 1977061, US 27 – SR 540 to SR 542	ERP #: _____	COE #: _____
8- FM 1977071, US 27 – SR 542 to CR 546	ERP #: _____	COE #: _____
9 - FM 1976381, US 98 – Carpenter's Way to Daugherty Rd.	ERP #: 44013552.003	COE #: 200206904 (NW-14)
10 - FM 1977051, US 27 – SR 60 to Towerview Rd.	ERP #: 44023431.003	COE #: 200402920 (NW-CAS)
11- FM 4082682, US 98 – Manor Drive to CR 540A	ERP #: _____	COE #: _____
12- FM 4082683, US 98 – CR 540A to SR 540	ERP #: _____	COE #: _____
13- FM 4154901, US 17 – Charlotte C.L. to SW Collins	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 (FLUCCS):

1- FM 1975331 3.90 ac. 640

2- FM 1976791* 0.60 ac. 631
0.90 ac. 641
TOTAL 1.50 acres

3- FM 1940931 3.00 ac. 630
0.49 ac. 640
0.93 ac. 641
TOTAL 4.42 acres

4- FM 1938991 0.48 ac. 618
6.18 ac. 630
0.74 ac. 631
0.59 ac. 640
0.20 ac. 641
3.40 ac. 641x
TOTAL 11.59 acres

5- FM 1971681 0.46 ac. 630

6- FM 4110391* 0.8 ac. 630
3.1 ac. 641
2.8 ac. 641x
TOTAL 5.7 acres

7- FM 1977061 0.02 ac. 510
0.08 ac. 610
0.01 ac. 617
0.44 ac. 631
1.22 ac. 641
TOTAL 1.77 acres

8- FM 1977071 2.7 ac. 641
1.1 ac. 644
TOTAL 3.8 acres

9- FM 1976381 0.1 ac. 615

10- FM 1977051 0.01 ac. 510
0.18 ac. 641x
TOTAL 0.19 acre

11-FM 4082682 3.0 ac. 630
1.0 ac. 644
TOTAL 4.0 acres

12-FM 4082683 1.9 ac. 644

13- FM 4154901 3.20 ac. 615
1.22 ac. 641
TOTAL 4.42 acres

TOTAL – 43.75 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 X Restoration X Enhancement ___ Preservation Mitigation Area: **473 acres**

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

Drainage Basin(s): Peace Water Body(s): Banana Creek Canal, Lake Hancock SWIM water body? Y

Project Description

A. **Overall project goal:** Historically, surface water from Banana Lake maintained a sheet flow hydrology 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 connector ditches, excessively drained the floodplain area to convert forested wetlands and marshes into pastures. The substantial differences in habitat transition before and after canal construction are exhibited between the 1941 aerial (Figure D-1) and 1952 aerial (Figure D-2). In 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. The proposed wetland enhancement will be primarily achieved by filling portions of the Banana Creek Canal and other contributing ditches to restore the wetland floodplain to a sheet flow hydrology, replanting the historical limits of the forested wetlands, and supplementing the planting of regenerated marsh habitat. This will allow the wetlands provide water quality treatment and attenuation of surface water flow from Banana Lake before discharging into Lake Hancock. Both these lakes are included in the Surface Water Improvement and Management (SWIM) program and the property was designated an acquisition priority under the SWFWMD Florida Forever and Polk County's acquisition programs (Fig.A).

B. **Brief description of current condition:** Of the entire Circle B Bar Reserve (Figure F), the majority of the remnant wetlands are associated with wet improved pastures adjacent to the Banana Lake Canal (site photos). For purposes of site description, the designated project area (473 acres) is delineated into west (Fig. G) and east (Fig. H) of the central access road crossing. At the time of acquisition, the pastures still had sufficient cover of hydrophytic species, presence of hydric soils, and minimal groundwater hydrology to be designated as wetlands per state and federal criteria. Prior to initial hydrologic restoration in 2003, bahiagrass, carpetgrass, and pigweed provided the dominant cover but scattered soft rush was also common (predominantly southeast pasture). The northeast pasture (Fig. H) has a diverter ditch along the northern boundary and the canal separates it from the southeast pasture. Two seepage maple / bayheads are still present, one along the southeast project boundary, the other located along the western boundary (Figure G). Two smaller remnant cypress wetlands are within the eastern area. However, the existing forested wetlands within the project area are half of the historic limits because of the dewatering impacts from the canal, resulting in tree fall and 18-24 inches of muck oxidation in the remnant western swamp and a foot of oxidation in the southeastern swamp. A large levee was constructed along the western property boundary (Figure G), impounding water in the wetland west of the project area and diverting ground and surface water away from the remnant forested wetland within the project area. A large tributary ditch was constructed along the southwestern project boundary, dewatering the on- and off-site wetlands south of the property boundary. Both the western levee and southwestern canal

divert surface and groundwater flow directly into the Banana Creek Canal. The several decades of extensive over-drainage and previously incorporated dewatering pump system have substantially altered the wetland functions and conditions of the entire site, converting the area to a dominance of upland pasture grasses for intensive cattle grazing (refer to site photos); resulting in minimal species diversity and hydrology to adequately support appropriate hydrophytic species and habitat conditions for wildlife. After public acquisition, the dewatering pump system was discontinued and with the rains from El Nino in 2003 and hurricanes in 2004, the wet pastures within the eastern portion of the designated mitigation area were inundated to commence partial hydrologic restoration. The extended hydroperiods resulted in the desired bahiagrass mortality and additional regeneration of hydrophytic vegetation. Due to the higher grade elevations of the western pastures, this hydroperiod recovery cannot be achieved until the historic sheet flow conditions are restored through the proposed construction activities.

C. **Brief description of proposed work:** The two existing access road berms (Fig. H – east and central roads) will be reinforced (synthetic liner, additional fill cap, culverts, limerock road base, sodded sideslopes) and utilized to restore the wetland hydrology while still maintaining access across the property. Both access roads will be slightly elevated and widened to construct structurally sound water control facilities (culverts, wide overflow saddle swales). The ditches and segment of the Banana Creek Canal within the western portion of the project will be backfilled to restore hydrologic sheet flow patterns throughout the wetland floodplain. The historic limits of the forested wetland will be planted with tree species. The graded areas will have herbs planted on 3-ft. spacings, as well as scattered herb plantings within currently non-vegetated obligate marsh pockets. Monitoring will be conducted for a minimum five years post-construction; herbicide maintenance will be perpetually implemented by the SWFWMD and reimbursed by FDOT. Perpetual management of the property will be conducted by the Polk County Natural Resources Department, with cost-share management fees paid by the SWFWMD. The enhancement & restoration plan for the designated mitigation area include the following proposed activities and associated acreage per habitat type:

Marsh Enhancement	339 acres (Predominantly within the eastern portion)
Forested Wetland Enhancement	40 acres (Adjacent to western and southeastern project boundary)
Forested Wetland Restoration	50 acres (Within the west / central portion)
Upland Habitat Restoration	24 acres (Predominantly along the wetland boundary, west portion)
Upland Habitat Preservation	19 acres (Preservation of oak habitat on east canal spoil ridge area)
TOTAL	**473 acres**

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 DOT R/W. Additional proposed impacts submitted by FDOT in the future will be evaluated to determine if they can be appropriately mitigated at the Reserve. Considering the low quality habitat conditions and functions of the wetland habitat at the Reserve, the proposed wetland enhancement is substantial and more closely resembles major wetland restoration activities due to the minimal existing wetland functions and values. A wetland functional assessment (WRAP) was conducted for the mitigation area and it was determined that the ecological "lift" associated with the improvements will result in 142 functional credits, an overall mitigation ratio of acreage- to-credits of 3.3-to-1. As the functional assessment of the proposed roadway wetland impacts are conducted, these credits are debited from the total. Not all the available credits will be utilized, approximately 20 credits have been debited from the seven FDOT projects permitted through December, 2005.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: As of 2005, the only permitted mitigation bank selling credits in the Peace River basin is Boran Ranch (BRMB), located within the southern portion of the basin (DeSoto County). The BRMB has been selected to provide mitigation for wetland impacts associated with several FDOT mitigation projects in the southern portions of basin (refer to SW 53 in the DOT mitigation plan, $675,000 provided in purchased credits through 2003). The budget and the available credits at Circle B Bar Reserve are approximately 25% of the costs of purchasing credits from the mitigation bank. In addition, 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. The enhancement of the entire Peace River watershed has required substantial emphasis on the hydrologic restoration (water quality and quantity) of the northern headwater areas. This has been and will continue to be a major goal and objective of many existing and proposed public restoration projects in the basin (e.g. Tenoroc (FDOT Mit. - SW 47), Saddle Creek, Lake Hancock, Banana Lake, Peace Creek Canal, Lake Lena Run, Winter Haven Chain-of-Lakes).

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 SWIM project, the site is located between two SWIM projects, Banana Lake Restoration (conducted in the late 1980's) and the current evaluation of Lake Hancock. The Banana Lake restoration removed high nitrogen and phosphorus-laden sediments that accumulated due to the direct discharge of untreated sewage for 60 years. Recent studies have indicated high phosphorus levels within Banana Lake are re-occurring due to natural phosphate reserves within the surrounding soil matrix (north side of Banana Lake was mined for phosphate ore in the 1920's and 30's). By restoring and enhancing the wetland vegetation and hydrology of the designated mitigation area, additional water quality treatment and attenuation can lessen the nutrients flowing directly from Banana Lake into Lake Hancock via the Banana Creek Canal.

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: SWFWMD contract for minimum five years of monitoring & maintenance, perpetual management to be conducted by 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: $1,700,000 (total);

Planning, Design & Permitting - $100,000

Construction & Planting - $1,300,000

Maintenance & Monitoring - $300,000

Attachments

___X___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).

__X__2. Recent aerial photograph with date and scale. 1995 Infrared Aerials are depicted on Figures F-H.

___X___3. Location map and design drawings of existing and proposed conditions. Location maps are depicted on Figures A, B. Existing conditions and conceptual design plans depicted on Figures F-H. Final construction design plans available from Mark Brown.

__X__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 conducted to ensure no off-site impacts, 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 fieldwork and equipment orders, 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 – DOT Mitigation.

Attachment A – Existing Site Conditions & Proposed Work

West Portion (Figure G) – Vegetative Conditions

Monitoring Station 1 – Prior to 2003, the remnant 40-acre forested wetland in the western portion of the project area had dominant canopy cover provided by red maple (*Acer rubrum*). Sub-dominant coverage was provided by sweet bay (*Magnolia virginiana*), black gum (*Nyssa sylvatica* var. *biflora*), American elm (*Ulmus americana*), laurel oak (*Quercus laurifolia*), and cypress (*Taxodium distichum*). The subcanopy also included a dominant of these species but because of the altered hydrology and subsequent muck oxidation, sapling generation was very minimal and almost all the historic cypress was gone. The understory provided less than 50% cover, dominated by ferns (*Woodwardia* spp., *Thelypteris* spp.), lizard's-tail (*Saururus cernuus*), dayflower (*Commelina diffusa*), and some Virginia willow (*Itea virginica*). The lack of appropriate wetland hydrology and decades of cattle use limited ground cover and resulted in some invasion of undesirable species such as pokeweed (*Phytolacca americana*) and soda apple (*Solanum khasianum*).

Due to the muck oxidation, the grade elevations have been lowered in this remnant wetland from an historic elevation average of 102 ft. decrease to 100 ft.; with a deeper interior pocket of 99.5 ft. This was reconfirmed upon survey of the grade elevations within the forested wetland portion west and south of the perimeter berm. Over the years, this berm (average 5 ft. in height) has acted as a levee that impounds contributing

water in the off-site wetlands (thereby not allowing associated muck oxidation) and diverts flow into the Banana Creek Canal where it enters the Reserve property in the southwest corner. The canal flow into the property has been restricted and during heavy rain events, was historically blocked from entering the Reserve property by an existing culvert flapgate. This berm and culvert has resulted in extended surface water flooding impoundment within the wetland area west and south of the Reserve, and minimal hydroperiods within the entire on-site wetland floodplain. This adjacent portion of the forested wetland (over 50 acres) is owned by the City of Lakeland (south) and the University of South Florida – Lakeland Campus (west), who reviewed and concur that the proposed restoration plan will also benefit the impounded wetlands on their property and not be in conflict with their activities.

As anticipated, with the El Nino rains in 2003 and the lower grade elevations within the remnant forest system, there was partial and temporary hydrologic restoration. Historically, this excess surface was either diverted from entering the property or pumped into canal or lake. Due to the muck oxidation and unstable footing, the trees within an approximately 6-8 acre southern portion of this 25-acre wetland were toppled by two hurricanes that crossed the site in 2004. The down trees have provided more ground habitat structure for denning & nesting opportunities, and opened up to the understory to allow regeneration of appropriate vegetation; particularly smartweed. The remaining trees have appeared to stabilize with the temporary hydrologic restoration, but will continue to be monitored and replaced if additional tree fall should occur.

Permanent restoration of the ground and surface water hydrology within the forested wetland will be conducted through a few methods. There is an existing dredged pond in the southwest corner of the site that provides a good settling basin for canal flow entering the property. This pond has the potential of good wildlife and water quality attributes and therefore will only be partially backfilled to construct and plant a littoral zone. However, instead of the pond water flowing back into the canal to force water flow toward Lake Hancock, swale breaches will be cut into the pond's containment berm to allow overflow north into an existing shallow swale. In turn, this spreader swale will allow seepage and sheet flow north into the forested wetland. The culvert and flapgate will be removed and therefore allow the impounded water in the adjacent wetlands to hydrologically restore to historic flow levels and velocity. Afterward, three large breaches in the western perimeter berm will be graded down to match existing wetland grade. This berm also has an adjacent ditch that will act as a spreader swale to allow western flow into the remnant forested wetland. Cut material from the berm will be used to construct blocks in the spreader swale to allow equivalent linear flow into the forested wetland. After drainage flow patterns are restored into the wetland system, the canal and contributing ditches will be backfilled within the western half of the project area. A large ditch block will be constructed where the existing central access road crosses the canal, prior to backfilling the remaining portion of the canal so that sediment doesn't flow to Lake Hancock. If dewatering of the canal west of the central access road ditch block is necessary, the pumping will be conducted over the berm and temporarily stored into the eastern canal for settling prior to backfilling the western canal segment. This will provide more stable conditions for construction equipment to access and properly fill a dry canal, and ensure that sediment will not be eroded or deposited downstream.

Monitor Stations 2, 3, 4 – Historic aerials indicate that a portion of the wet pasture just east of the remnant forested wetland was also historically a forested wetland. The tan colored areas on the infrared aerial (Figure G) indicate the area that was heavily dominated by bahiagrass (*Paspalum notatum*), but also bermuda grass (*Cynodon dactylon*), carpet grass (*Axonopus affinis*), with scattered pennywort (*Hydrocotyle umbellata*), thistle (*Cirsium smallii*), dog fennel (*Eupatorium capillifolium*), and soda apple. The dark shadow signature depicted east of Station 2 was also dominated by bahia and thistle, but also has some coverage of soft rush (*Juncus effusus*) and dayflower; and periodically had surface water seepage. There is another smaller dark signature west of Station 3 that was dominated by bahia, smartweed (*Polygonum* spp.), bitter dock (*Rumex* spp.), and pigweed (*Amaranthus retroflexus*); and subdominants of dayflower, thistle, pennywort, soft rush, and scattered arrowhead (*Sagittaria lancifolia*) in the lowest elevation. A smartweed pocket is located south of Station 4 and there is a 10-acre smartweed pocket east of Station 4 that abuts the central access road. An increase in hydrophytic vegetation (particularly smartweed) has regenerated in this wet pasture since the cattle were removed (December, 2002) and the 2003 El Nino rainfall conditions. But generally, since the west pasture averages 1-2 feet higher than the east pasture, except for the smartweed pocket southeast of Station 4, this area will not maintain appropriate sheet flow hydrology and hydroperiod unless the proposed structures are constructed.

Along with the Banana Creek Canal located through the center of this pasture, there are three contributing ditches that adequately drain the surficial groundwater table from this pasture. The ditch along the southwestern property boundary is as large as the main canal. The adjacent spoil material impounds water in the wetland south of the property (City of Lakeland property), while the deep hydraulic gradient draws down the surficial groundwater table from entering the property. This flow is forced east then north to connect with the main canal. This dewatered condition resulted in tree fall and additional clearing was previously conducted to convert the entire area into pasture. Unlike Station 1, the surficial muck depth averages 12 inches over sand in this pasture. One area between Stations 2 and 4 has the highest elevations of the wet pasture. The grade elevations range 101-102 ft., and the historic and restored seasonal high water table (SHWT) for this wetland area is estimated to be 100.5 ft. So this area was historically a very transitional wetland area. The area is dominated with bahia and any previous hydric soil characteristics have oxidized and disappeared over the years. In order to restore and expand wetland conditions for this area, a proposed pond with shallow slopes will be constructed (referred to as obligate zone on Figure G). In addition to the southwestern settling pond and canal segments within the eastern half of the project area, this 1.5-acre pond will provide a valuable open water component and planted littoral zone that will enhance the surrounding wetland system; providing a foraging and resting location for reptiles, amphibians, fish and other species that will utilize the entire wetland enhancement area. The dredged material will be utilized to make-up for the shortage of necessary material to restore natural grade for the canal and ditches, as well as provide fill cap material to stabilize the central access road crossing.

West Portion - Hydrologic Restoration

Background Information - Extensive site evaluations were conducted in the 1980's to determine the historic water elevations of Lake Hancock. This information was extrapolated to determine where the historic water elevations extended throughout the Lake Hancock Reserve. The lake elevations are currently controlled by an outfall structure that maintains an ordinary water level of approximately 98.0 feet with a normal ordinary high elevation of 98.7 ft. The 10-year flood elevation is 102.4 ft., minimum flood elevation is 99.0 ft., and minimum low management elevation of 96.0 ft. Based on the study, various biological and geologic evidence indicate that the normal ordinary high elevation of the lake was historically 100.5 feet; approximately two feet higher than the lake currently achieves during normal rainy season conditions. This elevation actually correlates closely with many of the wetland boundaries and remnant cypress buttresses at the Reserve. There is a current study evaluating the possibilities and limitations of elevating Lake Hancock from the current elevations to potentially approximate the historic conditions. Not only with this provide more water quality and quantity storage, but it is viewed as a means to restore minimum flow levels for the upper Peace River. That evaluation and potential land purchases will require several years beyond the timeframe necessary to construct the mitigation project. As of January, 2005, based on several ecological and economical factors, there is a recommendation that establishing an ordinary high water elevation of 100.0 ft. would be the preferred alternative for the lake. This would not result in achieving all of the historic conditions but does provide many ecological and water resource benefits.

As a result, the surface water hydrologic modeling of the designated mitigation area had to take into consideration various scenarios of possible lake elevations from the existing to historic condition; as well as the 10-year, 25-year, and 100-year flood elevations associated with any scenario. Altering the lake elevation would not revise the proposed mitigation plan or the culvert invert elevations, but was necessary to determine the necessary culvert quantities, sizes, and locations that would be necessary to implement the mitigation project. Under any lake elevation scenario, the proposed structures require to be sized to accommodate the potential for a 100-year flood event, without restricting flow regimes or impacting adjacent landowners. Therefore, installing small culverts and overflow swales that would require total reconstruction if the lake is elevated would be a waste of time and money; while not affecting the habitat quality of the mitigation area. These structures are depicted in the construction plans and the following information summarizes the concepts.

Central Access Road - As a result, there are several 24-inch culverts, as well as 100-ft. long overflow saddles proposed for construction within the existing berm access roads (refer to construction plans). These

road berms and associated culverts parallel the gradual decline in grade elevations to provide very gradual "stair-step" flow between the west portion to east portion of the designated mitigation area, and subsequently into the lake. These berms have been in place for several decades, but are predominantly made of muck soils and were only used for access and diverting flow to locations where surface water could be pumped over the canal berms and into the lake. In the fall, 2005 the muck was displace into the adjacent ditches and clean fill was placed for road reconstruction. The water flow between the west and east portion of the site will be controlled by stabilizing the central access road berm. Sixteen 24-inch culverts will be installed along this berm, nine of the culverts will have an invert elevation of 100.5 ft. to restore historic SHWT conditions. Four of the equally dispersed culverts will have invert elevations of 100.0 ft. to restore normal pool another four culverts will have an invert elevations of 99.5 ft. to maintain a base flow from west to east across the wetland. The grade elevations within the western portion of the site are more variable than the eastern portion, generally ranging from 99.5 feet in the deepest pockets of the remnant forested system to 102.0 feet within the higher grades.

The use of the proposed base flow, NP and SHWT elevations will provide a 6-12 inches of fluctuation that will maintain the NP surface water approximately 3-6 inches deep across the majority of the wetland during the majority of the year and averaging 6-12 inches deep during the rainy season. This shallow water depth will provide opportunities for wildlife and wading birds to forage during the rainy season, and allow shallow surface water pools in the dry season for a water source; as well as concentrate food resources. In addition, the shallow water fluctuation results in more vegetative surface area, that will uptake more nutrients and increase the opportunity for additional water quality treatment.

However, the designated mitigation area is large and has received extensive drainage alteration for several decades. Just in the three years of site evaluation, the area has been observed with no groundwater present even in the canal (summer, 2001) to the El Nino and hurricane period of impounded surface water within the eastern portions of the site (summers, 2003 & 2004). Even with the extensive modeling and restoring sheet flow conditions, the wetland hydroperiod will be variable from year to year. As a result, in order to maintain more consistency and control to cover contingency of too much or too little surface water, the four base flow culverts will have the potential of single, 6- inch flashboard risers installed during extended dry periods. This will provide the opportunity to maintain overflow at the NP elevation. These flashboard risers will not be necessary if the lake is elevated to 100.0 ft. In addition to the culverts, the access road berm will be topped with three overflow saddles that extend over 100 ft. in length with invert elevations of 101.0 ft. These gradual slope saddles will allow floodwaters to overflow shorter sections of the access road rather than the entire road at one time. The top of the access road berm will have a 4- inch of crushed concrete material so that vehicles can drive across the berm. The berm will have an average 5:1 sideslopes that will be hydroseeded with bahia.

Western Access Road – The pre-existing access road range in elevation of 100.0 to 100.5 feet elevation and the adjacent pasture grades are 99.8 to 100.0 ft. range. So in order to maintain water sheet flow hydrology from west to east, this road will be lowered to 100.0 ft. A synthetic liner will be installed approximately 4 inches below grade and capped with crushed concrete. This wet crossing will have maximum water elevations of 3-6 inches above grade during the wet season, which can still allow vehicular crossing if necessary.

West Portion – Planting Plan

The recent tree fall area will be restored with plantings (10 ft. spacings) of cypress, black gum, and pop ash (*Fraxinus caroliniana*). The remaining forested portion has stabilized from the flood events but will be part of the monitoring activities to evaluate any additional tree fall and replanted accordingly. For the restoration of the forested wetland area surrounding this remnant canopy area, a variety of tree species are proposed for planting within two designated zones (refer to construction plans). The tree species will include red maple, bald cypress, black gum, sweet bay, American holly (*Illex cassine*), popash, sweet gum (*Liquidambar styraciflua*); as well as laurel oak in the higher elevations. Initial planting will include 27,900 trees (1 gal., 10 ft. centers) in the restored forested area. Shrubs proposed for planting include buttonbush (*Cephalanthus occidentalis*) with wax myrtle (*Myrica cerifera*) in the higher elevations. Along with the natural regeneration of desirable herbs, plantings of arrowhead, bulrush (*Scirpus validus*), duck potato (*Sagittaria latifolia*), fireflag

(*Thalia geniculata*), pickerelweed, soft rush, sand cordgrass (*Spartina bakeri*), spikerush (*Eleocharis interstincta*), and spatterdock (*Nuphar luteum*) in the shallow-cut pond. Herb plantings (74,000) will be on 3 ft. centers within exposed soil areas where the spoil material is backfilled into the ditches. The cordgrass will be planted on 4 ft. spacings within the remaining bahiagrass covered higher elevations. Supplemental plantings of trees, shrubs and plants will be conducted as necessary every year to achieve appropriate coverage and maintain success criteria. The upland pastures adjacent to the wetland mitigation area were purposely included to allow for restoring upland habitat buffers, which will include planting of longleaf pine (*Pinus palustris*), live oak (*Quercus virginiana*), and wax myrtle.

East Portion (Figure H) – Vegetative Conditions

Unlike the west portion, the construction doesn't propose filling of the Banana Creek Canal because of the habitat value of the existing laurel oak hammocks on the adjacent spoil and excessive volumes of off-site fill material that would otherwise be required to fill the substantial voids in the canal. Instead, two ditch blocks will be incorporated with the access road crossings to ensure surface and ground water conditions are maintained without directly flowing into the lake. These blocks will also maintain surface water conditions year round in the canal segments that can be used as foraging and resting locations for alligators and other wildlife.

As depicted on the infrared aerial (Figure H), there has been a dramatic vegetative difference between the southeastern (Monitor Stations 7 & 9) and northeastern wet pastures (Monitor Stations 5, 6, 8, 10). The southeastern pasture is bordered to the south by a linear maple/bayhead system that is down gradient of deep sandy soil ridge of a large contributing area south of the property. This ridge provides groundwater seepage for the bayhead and the southeastern wet pasture. This southeast wet pasture had a dominance of bahia, dog fennel, and scattered soft rush clumps. As depicted on the soil survey (Figure C), this pasture has deep muck (32 – Kaliga muck) that provides adequate groundwater seepage from the ridge to maintain the hydrophytic vegetation. With the pasture flooding during 2003 and 2004, mortality of the majority of bahia and fennel occurred and there is regeneration and recruitment of desirable hydrophytic vegetation such as pickerelweed, smartweed, pennywort, and arrowhead. However, there have also been pockets of cattails and primrose willow that received sufficient eradication in the summer 2003 but increased in 2004 due to sustained hydroperiods. Exotic and nuisance species control is included in an intense herbicide maintenance program.

However, the contributing basin, soil characteristics, and intense cattle management of the northeastern pasture is substantially different than the southeastern pasture. Prior to the 2003 rainfall conditions, this pasture was almost exclusively bahia with scattered soda apple and pigweed (refer to photos). As evident on the infrared aerial, a few small pockets of smartweed were present. The contributing basin flow from north of the pasture was diverted by the construction of a ditch along the designated northern mitigation boundary. Soil borings in this pasture indicated an average of 18 inches of sand over a dense clay horizon that extends below 70 inches (24-Nittaw sandy clay loam, 44-Paisley fine sand). The clay horizon adequately maintained soil moisture during the rainy season but any excess water was historically pumped over the spoil berm and into the canal or lake. During the dry season, the groundwater could not vertically percolate up through the clay so dry pasture conditions were easier to manage and maintain compared to the continuous groundwater seepage of the southeast pasture. These pastures hydrologically performed like a closed basin because the Banana Creek Canal berm and lakeshore berm contain surface water collected from rainfall. With the discontinued pumping and substantial rains in 2003, the clay acted as an aquitard and the pastures were purposely allowed to inundate. Subsequently, the northeastern pasture had an average of 6-8 inches of surface water for most of 2003 and 2004. Bahia mortality occurred and hydrophytes such as smartweed recruited and generated.

East Portion - Hydrologic Restoration

Eastern Access Road - The same principles of hydrologic restoration for the culvert and saddle crossing at the central road have been applied for the eastern road berm; essentially a 6-inch stair-step decrease from the central road that matches the gradient decrease. There will be sixteen 24-inch culverts installed with

eight culverts set at 100.0 feet (SWHT), four culverts set at 99.5 feet (NP), and four culverts at 99.0 ft. to maintain a base flow. The grade elevation of the enhanced marsh between the central and eastern access road has an average contour range of 99.0-99.5. Therefore, selecting similar control elevations for the culverts will maintain hydroperiod fluctuation ranges 3-6 inches above grade for NP and 6-12 inches for SHWT. The base flow culverts will also have the ability to have 6-inch riser boards installed so that the overflow can be elevated to the NP elevation if necessary during drought conditions. There will be four – 100 ft. wide saddle crossings constructed across the top of the berm to allow floodwaters to overflow the road at elevation 101.0 ft.

The pre-existing wood bridge crossing for the eastern access road crossing of the Banana Creek Canal will be replaced with a large ditch block. In order to maintain the oak hammock habitat along the two spoil ridges adjacent to the eastern portion of the canal, those spoil areas will be preserved and not backfilled into the canal. The open water that will be maintained in the canal will provide resting and foraging habitat for alligators and other wildlife species. A recreational access road/trail has been installed on the berm bordering the north side of the canal. The majority of the oaks on this berm are located on the sideslopes so the berm is also used as a corridor by wildlife.

Lakeshore Berm – The grade elevations for the southeast and northeast pastures between the central access road and the lakeshore berm are generally around 98.0-99.0 ft. In order to restore a hydrologic connection to the lake, three 48-inch concrete culverts will be installed within the berm bordering the canal just north of where the canal discharges into the lake. For the southeast wetland cell, the southern berm will be breached and culverts are not necessary since the berm isn't accessed for vehicles. The culverts and berm breach will have invert elevations of 97.5 ft. so there will be an equalization of the lake and marsh hydrology and hydroperiods. This allows alligators, fish, amphibians and other wildlife to have easy access between the lake and marsh.

For additional hydrologic enhancement, the ditch located along the northern project boundary will be backfilled with adjacent spoil material. Along with the contributing flow through the central access road, backfilling this ditch will restore contributing surface and ground water flow from the north.

East Portion – Planting Plan

Supplemental plantings of more obligate species (arrowhead, bulrush, fireflag, pickerelweed, spikerush) will be conducted in the summer, 2006 within the obligate pockets that currently have less vegetative coverage. The perimeter ditch along the northern project boundary will be planted with soft rush and pickerelweed after backfilling and restoring grade elevations. The natural regeneration will be monitored for recruitment and if necessary, supplemental planting will be conducted as deemed necessary after the first year.

Additional Pond Construction

Suitable soil will be necessary to provide fill cap material for the existing central and eastern access roads. The majority of donor material has been obtained from the previously discussed shallow pond dredged in the southwestern portion of the site. The remaining fill material is obtained by widening the existing rectangular-shaped borrow pit adjacent to SR 540 and constructing a small stormwater pond within the northwest quadrant of the Reserve (refer to construction plans).

The SR 540 pond widening will have a shallow littoral zone planted with the same herbs as within the mitigation area; along with cypress, maple, and myrtles. This pond is proposed for recreational use (fishing, remote control boats) by Polk County, and will not be accounted for as mitigation credit. The planting will be conducted to stabilize the slopes, exclude exotic species coverage, and provide appropriate littoral zone habitat for fish cover.

A 3-acre pond will be constructed within the northwestern corner of the Reserve property. Currently, surface water contributing from north of the SR 540 is routed through a ditch to the designated mitigation area. The pasture area adjacent to the ditch will be graded into a shallow settling pond with a wide littoral zone and

planted with appropriate vegetation. This pond will provide additional water quality treatment and attenuation of flow before entering the designated mitigation area. Between this pond and the downstream receiving forested wetland, the ditch is bordered by improved pasture that will have minimum 50 ft. buffers planted with pines, oaks, and myrtles; providing a wildlife corridor within the northwest portion of the property to the mitigation area.

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 the 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. Ten monitoring stations have been designated (Figures G & H) to evaluate the hydrologic and qualitative vegetative conditions across the project area (refer to site photos). 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 30% canopy of the restored forested wetland, measuring trees over 10 ft. tall and shrubs over 5 ft. tall. Herb cover for the forested wetlands and marsh will include 80% cover of desirable species and less than 10% cover of exotic and nuisance species. Wildlife use and restored hydrology will be documented and within the anticipated ranges specified per the final design.

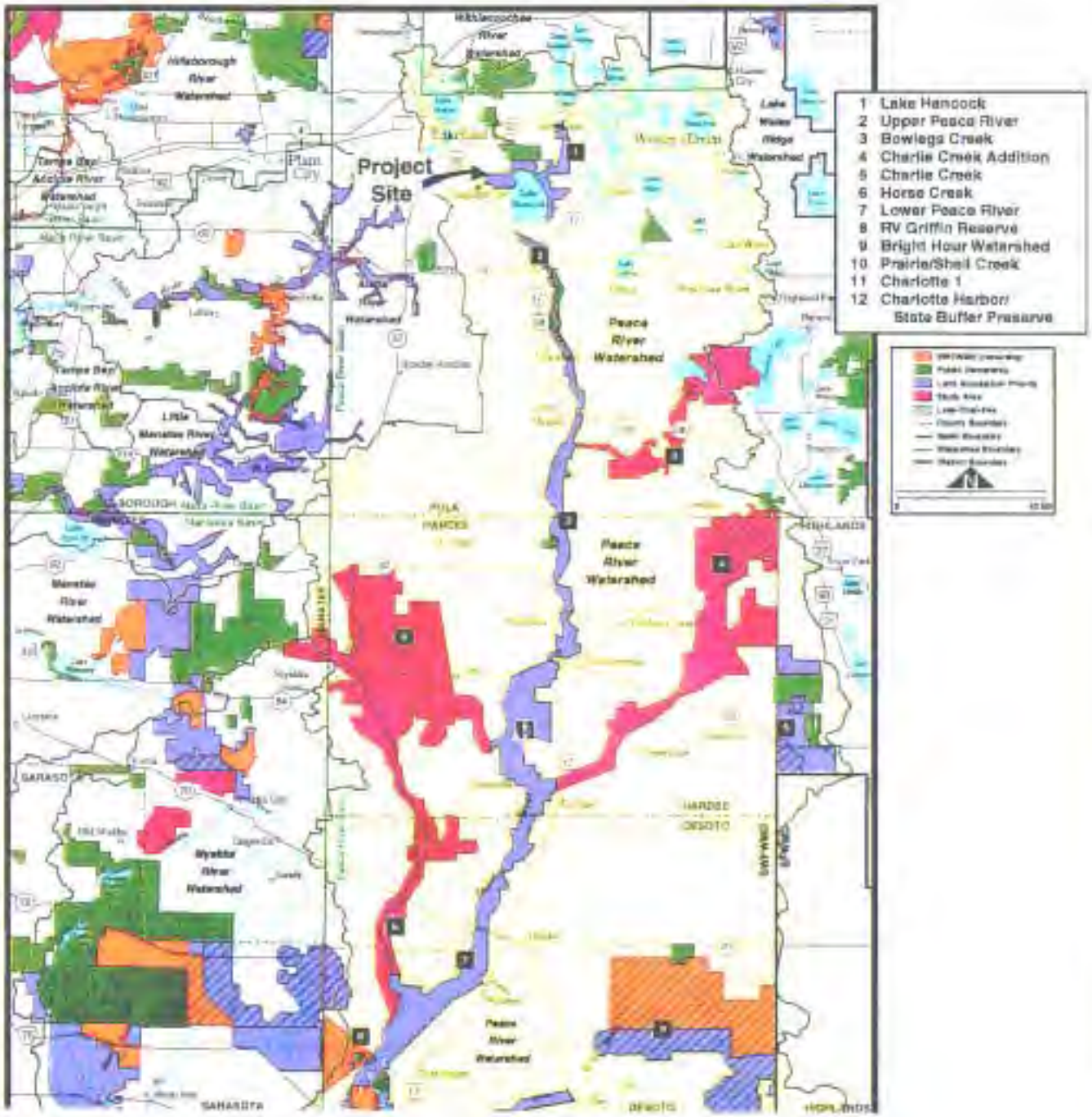
Attachment C – FDOT Mitigation

The following information summarizes the anticipated wetland impacts for those projects proposed for mitigation through construction activities at Lake Hancock Reserve. The 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 are 10.2 acres of temporary impacts and 4.1 acres of permanent wetland and surface water impacts associated with construction activities proposed at the Reserve. The temporary impacts are primarily associated with constructing the southwest pond in the bahia pasture and elevating the ditches to match historic wetland grade elevations. The permanent impacts include 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 roadway projects permitted through January, 2005.

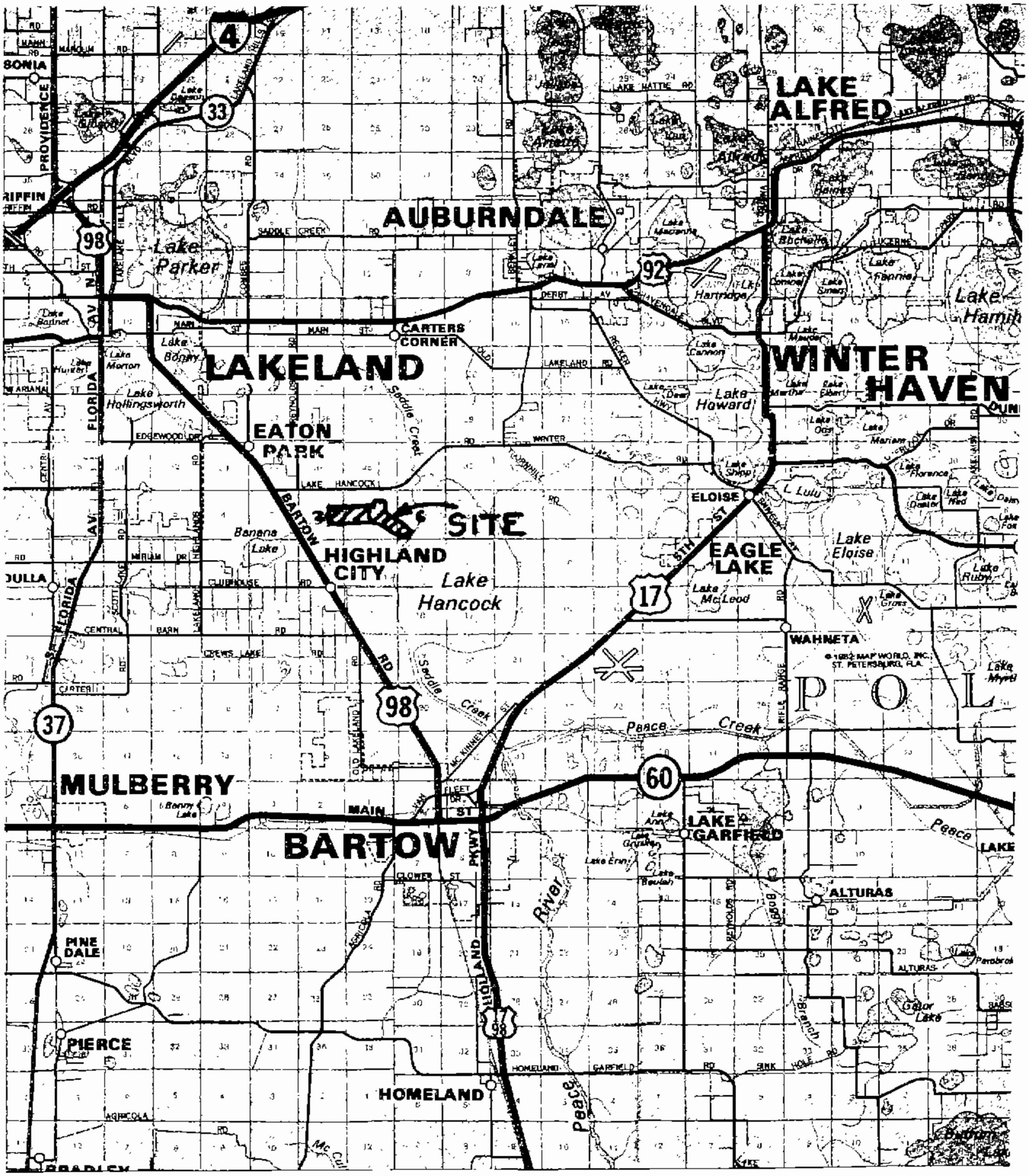
DOT Wetland Impacts	Proposed Mitigation
1- FM 1975331 US 27 – Towerview Rd. to SR 540 Freshwater Marsh – 3.9 acres **TOTAL – 3.9 acres**	Marsh Enhancement – 6.28 acres Upland Buffer Habitat Restoration – 5.0 acres **TOTAL – 11.28 acres (ratio 3:1)**
2 – FM 1976791 US 27 – SR 544 to Blue Heron Bay Shrub 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)**

3 – FM 1940931 US 17 – Peace River to Tropicana Mixed Forested Wetland – 3.00 acres Freshwater Marsh – 1.42 acres **TOTAL – 4.42 acres**	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)**
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**	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 – 46.3 acres (ratio 4:1)**
5 – FM 1971681 SR 60A – CR 555 to Broadway Mixed Forested Wetland – 0.46 acres **TOTAL – 0.46 acres**	Forested Wetland Restoration – 1.8 acres Upland Buffer Habitat Restoration – 2.0 acres **TOTAL – 3.8 acres (ratio 5:1)**
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**	Future determination when impacts are evaluated and finalized. Permitting scheduled for April, 2009. Construction scheduled for July, 2010.
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**	Final determination when impacts are evaluated and finalized. Permitting scheduled for July, 2010. Construction scheduled for October, 2010.
8 – FM 1977071 US 27 – SR 542 to SR 546 Marsh – 2.7 acres Lake Marsh – 1.1 acres **TOTAL - 3.8 acres**	Final determination when impacts are evaluated and finalized. Permitting scheduled for July, 2009. Construction scheduled for October, 2010.
9 – FM 1976381 US 98 – Carpenter's Way to Daugherty Road Stream Swamp – 0.1 acre **TOTAL – 0.1 acre**	Forested Wetland Restoration – 0.3 acre Upland Buffer Habitat Preservation – 0.5 acre **TOTAL – 0.8 acre (ratio 8:1)**
10 – FM 1977051 US 27 – SR 60 to Towerview Road Open Water – 0.01 acre Ditch – 0.18 acre	Marsh Enhancement – 1.5 acres **TOTAL – 1.5 acre (ratio 8:1)**

TOTAL – 0.19 acre	
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**	Final determination when impacts are evaluated and finalized. Permitting scheduled for February, 2007. Construction scheduled for October, 2010.
12 – FM 4082683 US 98 – CR 540A to SR 540 Lake Marsh – 1.9 acres **TOTAL – 4.0 acres**	Final determination when impacts are evaluated and finalized. Permitting scheduled for February, 2007. Construction scheduled for November, 2010.
13 – FM 4154901 US 17 – Charlotte C.L. to SW Collins Stream Swamp – 3.2 acres Marsh – 1.22 acres **TOTAL – 4.0 acres**	Final determination when impacts are evaluated and finalized. Permitting scheduled for February, 2007. Construction scheduled for November, 2010.
TOTALS – 43.75 Impact Acres	**GRAND TOTALS – 473 Mitigation Acres** Forested Wetland Enhancement – 40.3 Acres Forested Wetland Restoration – 50.6 Acres Marsh Enhancement – 339.0 Acres Upland Habitat Restoration – 24.0 Acres Upland Habitat Preservation – 19.4 Acres



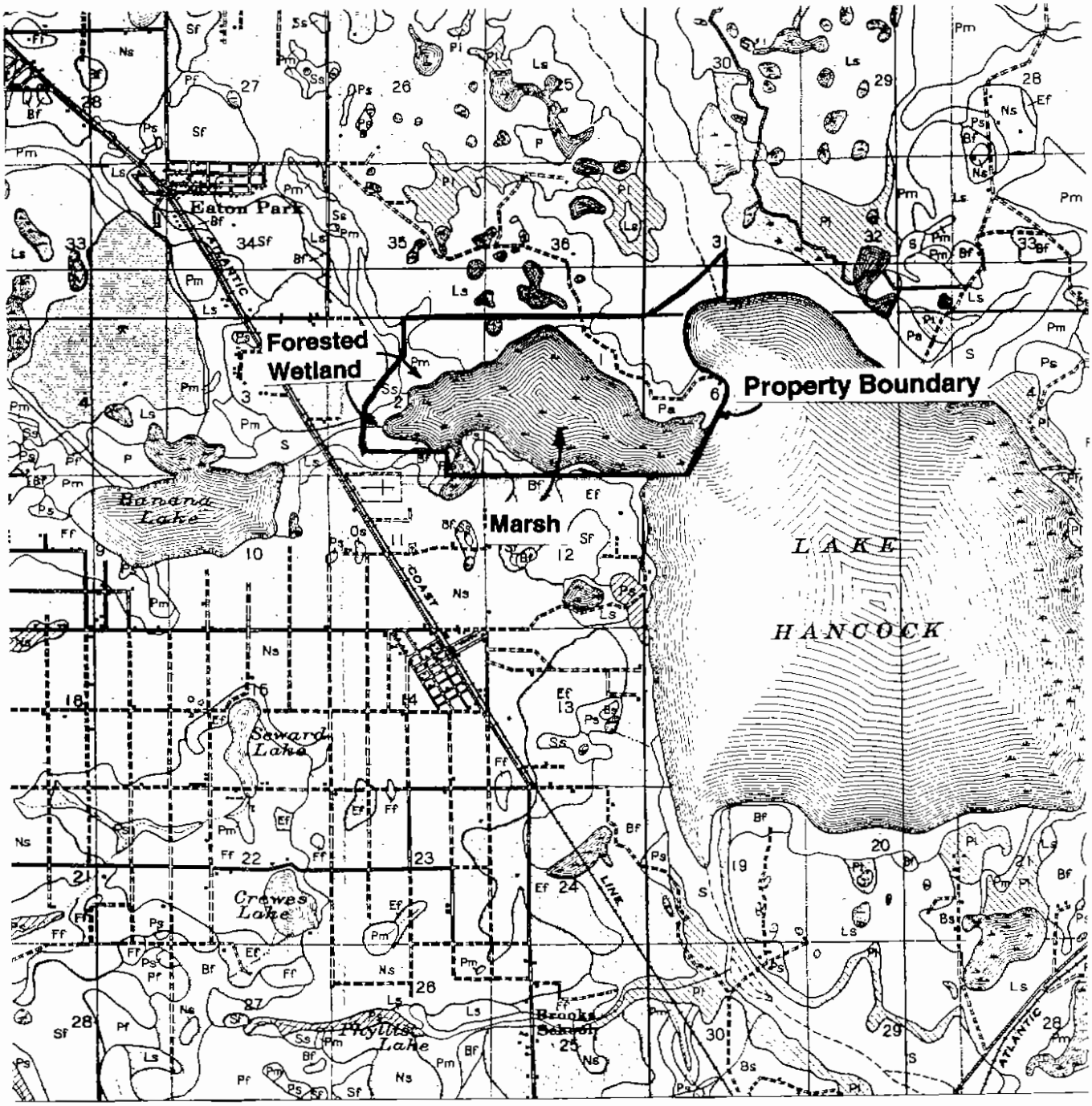
FDOT - District 1 MITIGATION SITE (Peace River Basin)	LAKE HANCOCK / CIRCLE B BAR RESERVE (SW 66)	FIGURE A WATERSHED BASIN MAP



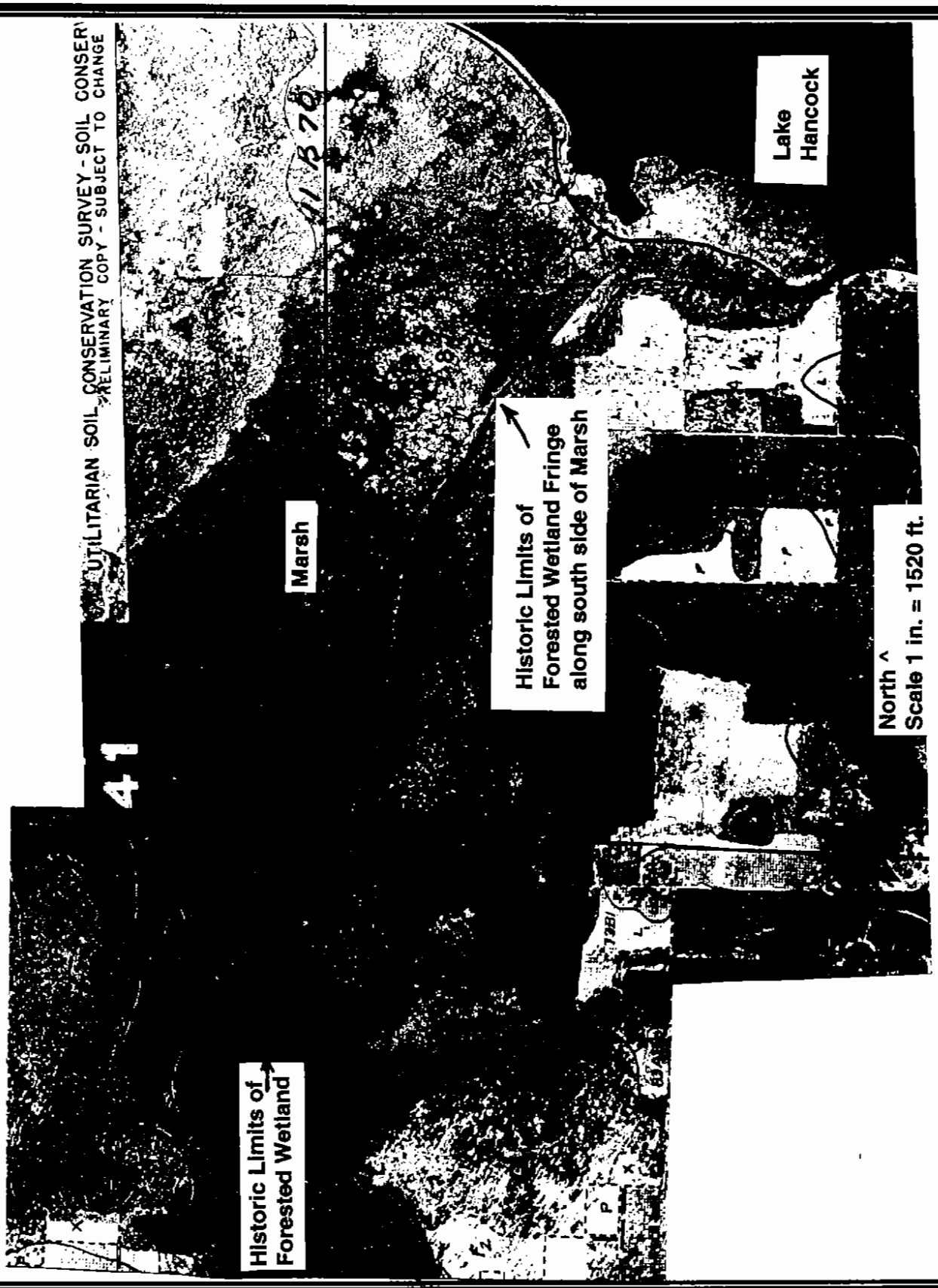
North ^

Scale 1 in. = 3 miles

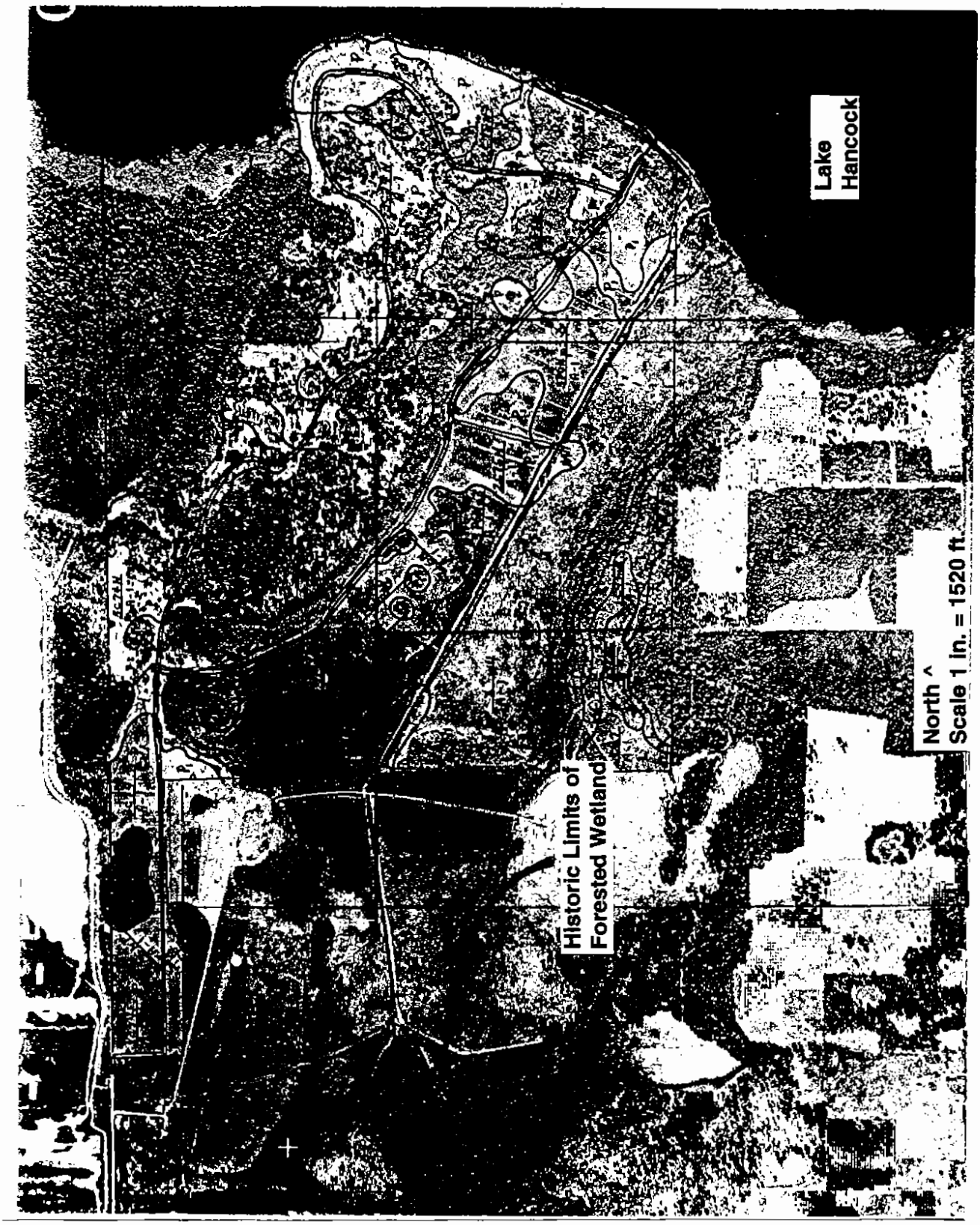
FDOT - District 1 MITIGATION SITE (Peace River Basin)	LAKE HANCOCK / CIRCLE B BAR RESERVE (SW 66)	FIGURE B LOCATION MAP



FDOT - District 1 **MITIGATION SITE** **(Peace River Basin)**	**LAKE HANCOCK /** **CIRCLE B BAR RESERVE** **(SW 66)**	**FIGURE C** **1927 SOIL SURVEY**



FDOT - District 1 MITIGATION SITE (Peace River Basin)	LAKE HANCOCK / CIRCLE B BAR RESERVE (SW 66)	FIGURE D-1 1941 AERIAL



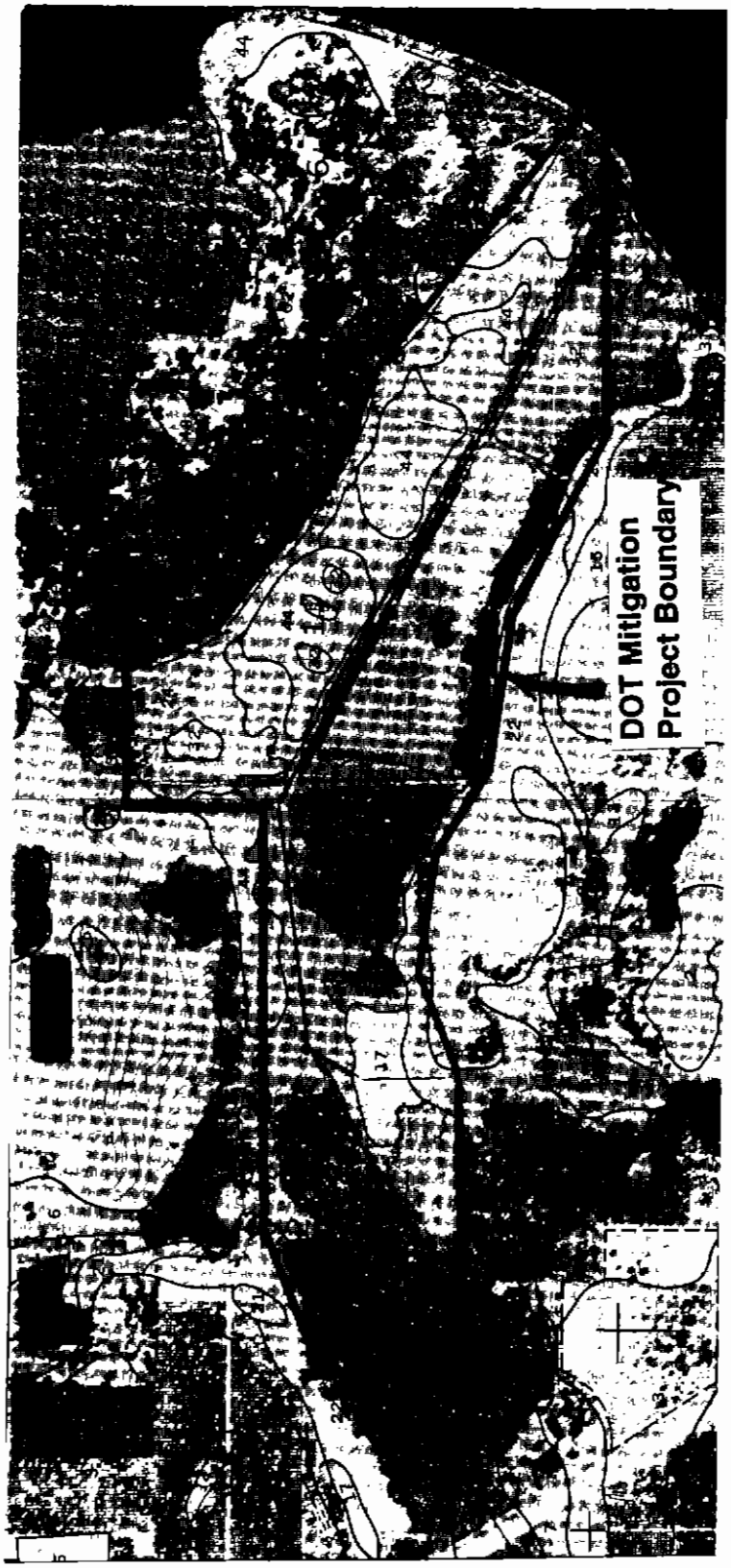
FDOT - District 1 MITIGATION SITE (Peace River Basin)	LAKE HANCOCK / CIRCLE B BAR RESERVE (SW 66)	FIGURE D-2 1952 AERIAL

Soils Legend

7 - Pomona f.s.
13 - Samsula muck *
17 - Smyrna & Myakka f.s.
21 - Immokalee s.
22 - Pomello f.s.
24 - Nittaw s.c.l.*
32 - Kaliga muck *
35 - Hontoon muck *
44 - Paisley f.s. *

* - Hydric Soils

North ^
Scale 1 mile = 3.13 in.



FDOT - District 1 MITIGATION SITE (Peace River Basin)	LAKE HANCOCK / CIRCLE B BAR RESERVE (SW 66)	FIGURE E NRCS - POLK COUNTY SOIL SURVEY

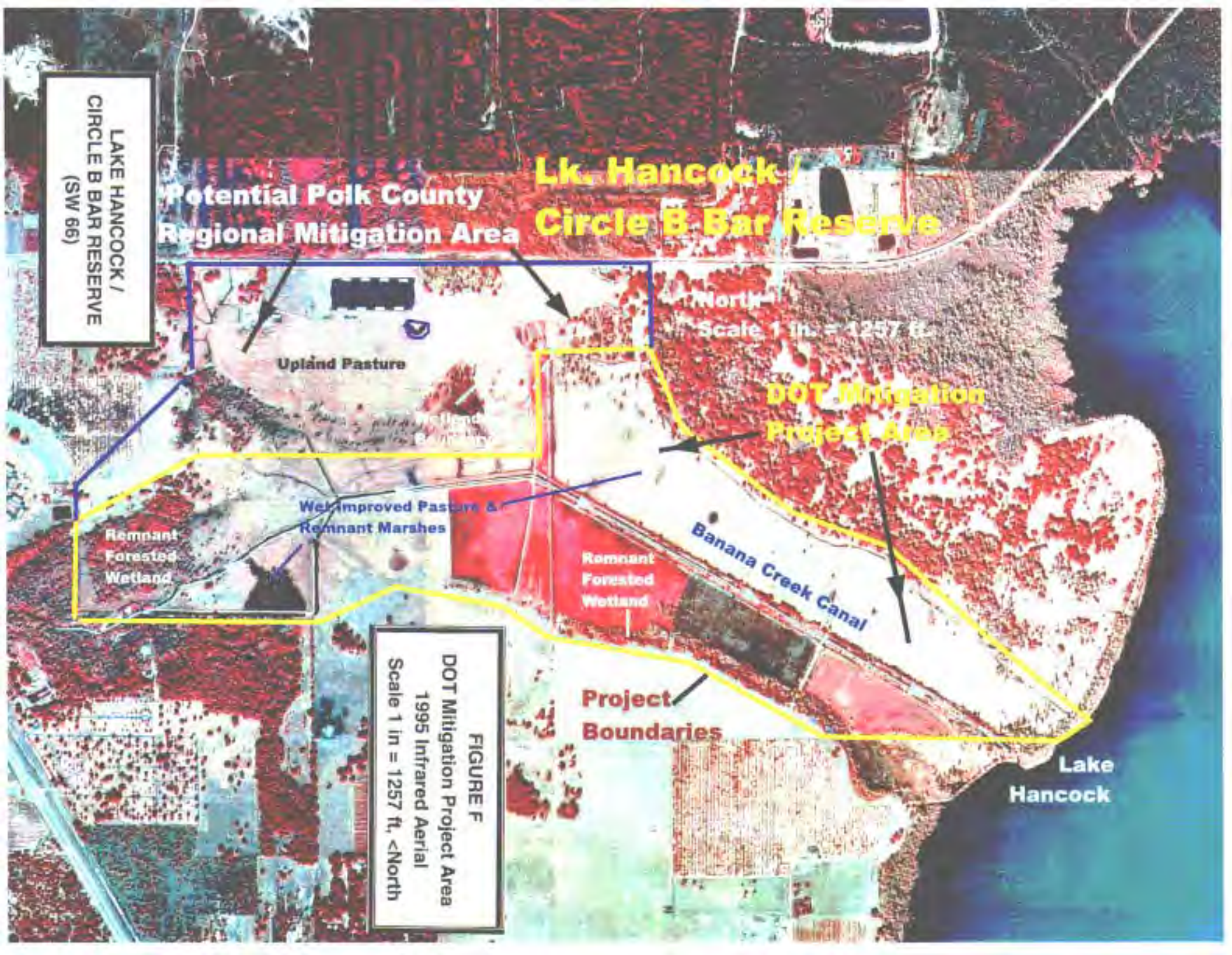
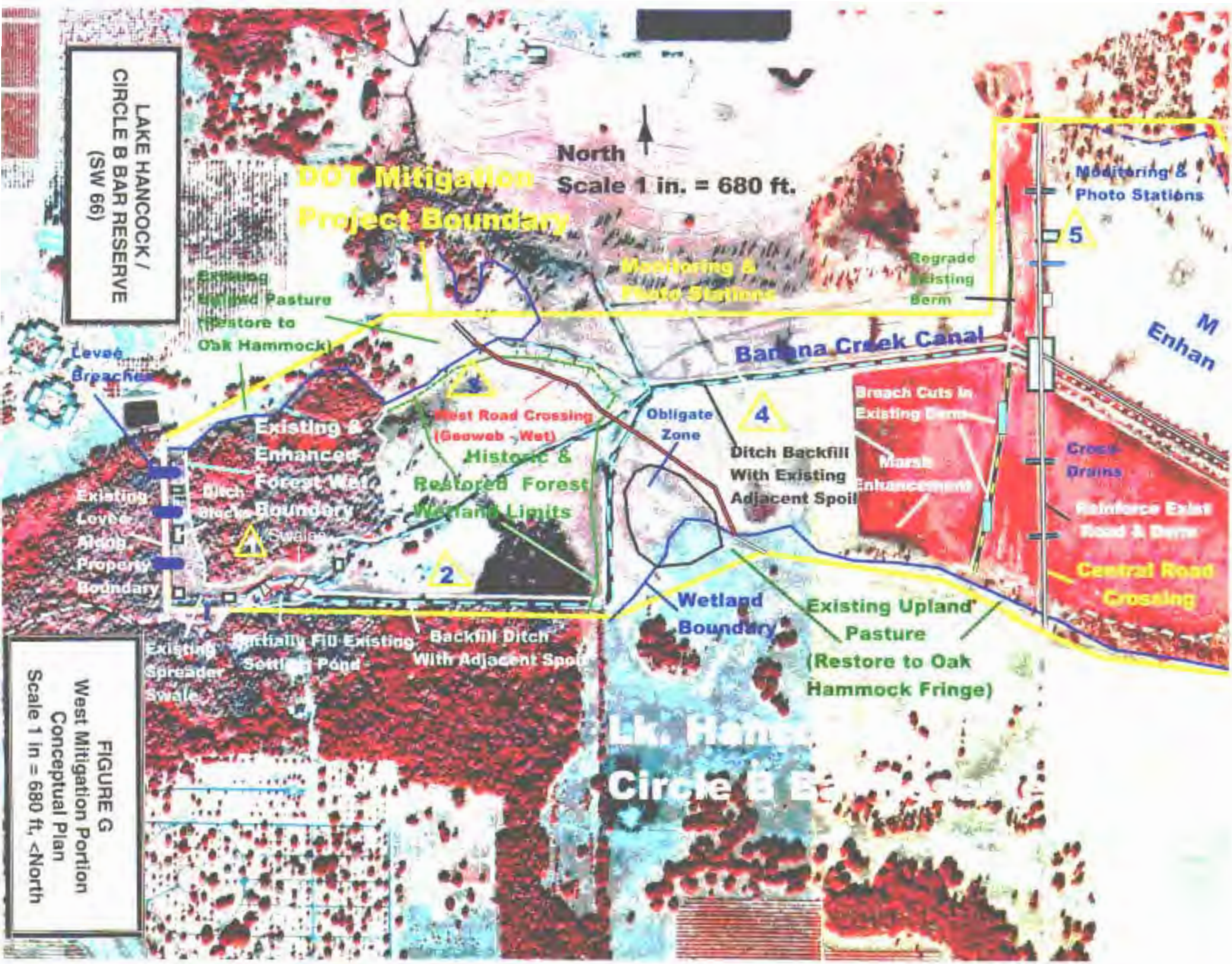


FIGURE F
DOT Mitigation Project Area
1995 Infrared Aerial
Scale 1 in = 1257 ft, <North


LAKE HANCOCK / CIRCLE B BAR RESERVE (SW 66)
North
Scale 1 in. = 680 ft.
DOT Mitigation Project Boundary
Monitoring & Photo Stations
Regrade Existing Berm
Monitoring & Photo Stations
5
Existing Upland Pasture (Restore to Oak Hammock)
Levee Breaches
Banana Creek Canal
M
Enhan
Breach Cuts In Existing Berm
Marsh Enhancement
Obligate Zone
4
West Road Crossing (Geoweb , Wet)
Existing & Enhanced Forest Wet Boundary
Historic & Restored Forest Wetland Limits
Ditch Backfill With Existing Adjacent Spoil
Creek Drains
Reinforce Exist Road & Berm
Existing Levee Along Property Boundary
Ditch Block
Swale
1
2
Central Road Crossing
Wetland Boundary
Existing Upland Pasture (Restore to Oak Hammock Fringe)
Existing Spreader Swale
Partially Fill Existing Settling Pond
Backfill Ditch With Adjacent Spoil
Lk. Han
Circle B B
FIGURE G
West Mitigation Portion
Conceptual Plan
Scale 1 in = 680 ft, <North

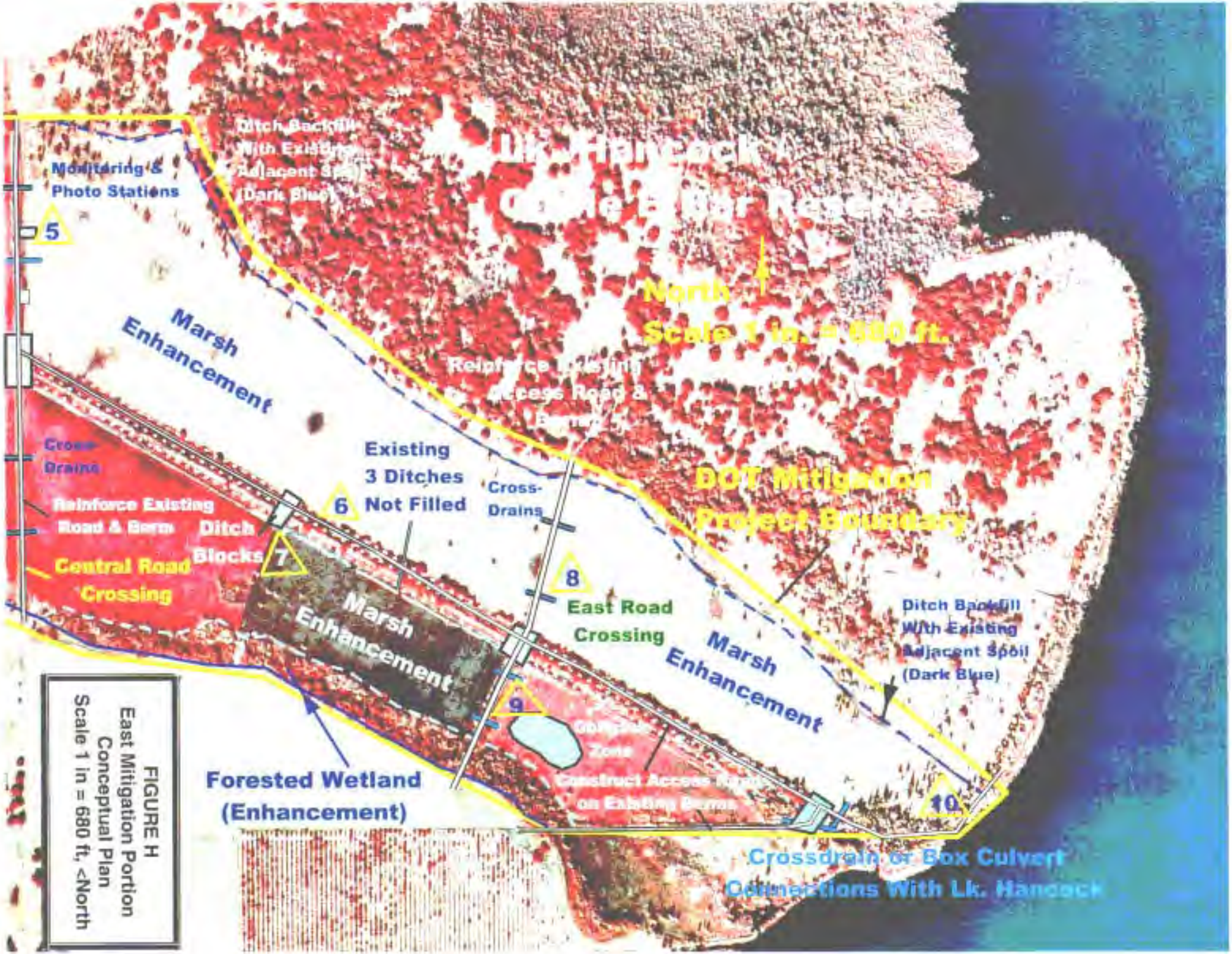


FIGURE H
East Mitigation Portion
Conceptual Plan
Scale 1 in = 680 ft, <North

Monitoring Station 1 – Typical condition of the western remnant forested wetland. As exhibited by the exposed roots, the dewatered condition has resulted in 18-24 inches of muck oxidation. Dominant vegetation includes maple, some sweet bay, tupelo, but no sapling generation.

Monitoring Station 3 – View south over proposed forested wetland restoration area Dominant cover of bahia with minimal coverage provided by pigweed, thistle, and within the lower elevations (right), scattered soft rush and smartweed.

FDOT – District 1 MITIGATION SITE (Peace River Basin)	LAKE HANCOCK / CIRCLE B BAR RESERVE (SW 66)

Monitoring Station 4 - View east over proposed enhanced marsh, typical conditions of the west portion pasture. Bahia is very dominant cover, with bermuda, pennywort, carpet grass, and a few pockets of soft rush and smartweed (right background).

Southeast Pasture – View from southern project boundary looking north over southeast pasture. This pasture is slightly lower in elevation and has sufficient hydrology to allow more soft rush to generate than the other pastures (top), but lack of maintenance during dry periods allows this pasture to generate dense coverage of fennel (bottom). Restoring appropriate wetland hydroperiods will eradicate the fennel.

FDOT – District 1 **MITIGATION SITE** **(Peace River Basin)**	**LAKE HANCOCK / CIRCLE B BAR RESERVE** **(SW 66)**

Central Access Road – View south along the access road berm to be reinforced (right) and adjacent ditch (center) that will be have ditchblocks installed to direct surface water flow to the northeast pasture (left and photo below).

Monitoring Station 5 – View from atop the existing central berm (shown in top photo) looking over adjacent ditch and northeast pasture. Bahia very dominant with pigweed, soda apple, and few small pockets of slightly lower elevations with scattered smartweed. Area to be enhanced into marsh habitat to replace the wet improved pasture.

FDOT – District 1 MITIGATION SITE (Peace River Basin)	LAKE HANCOCK / CIRCLE B BAR RESERVE (SW 66)

Monitoring Station 10 – Area adjacent to bottom photo, view west over northeast bahia pasture and proposed marsh enhancement area. Banana Creek Canal under oaks (left, south) and upland oak hammock (right, north) border the proposed marsh.

Monitoring Station 10 – View from atop the berm bordering Lake Hancock, Looking west at the northeast pasture (left background) and diverter ditch (center). This ditch diverts contributing ground and surface water flow from reaching the northeast pasture, and will be filled to aid in restoring wetland hydrology.

FDOT – District 1 MITIGATION SITE (Peace River Basin)	LAKE HANCOCK / 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 - SWIM Engineer Phone No: (813) 985-7481, ext. 2212
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 : 5.3 ac. 642 (Fluccs code)

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 t13.8 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: Mike Holtkamp, WMD - SWIM Engineer Phone Number: (813) 985-7481, ext. 2212

Entity responsible for monitoring and maintenance: SWFMWD- 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 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

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 Figure B.

X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (Location Map) and Figure C (Design Drawings).

X 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.

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 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 (*Lagucularia racemosa*) and black mangroves (*Avicennia germains*) 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, Borrichia frutescens,* and *Sesuvium portulacastrum.* Mangrove recruitment will also occur within this zone to further diversify the installed plant communities.

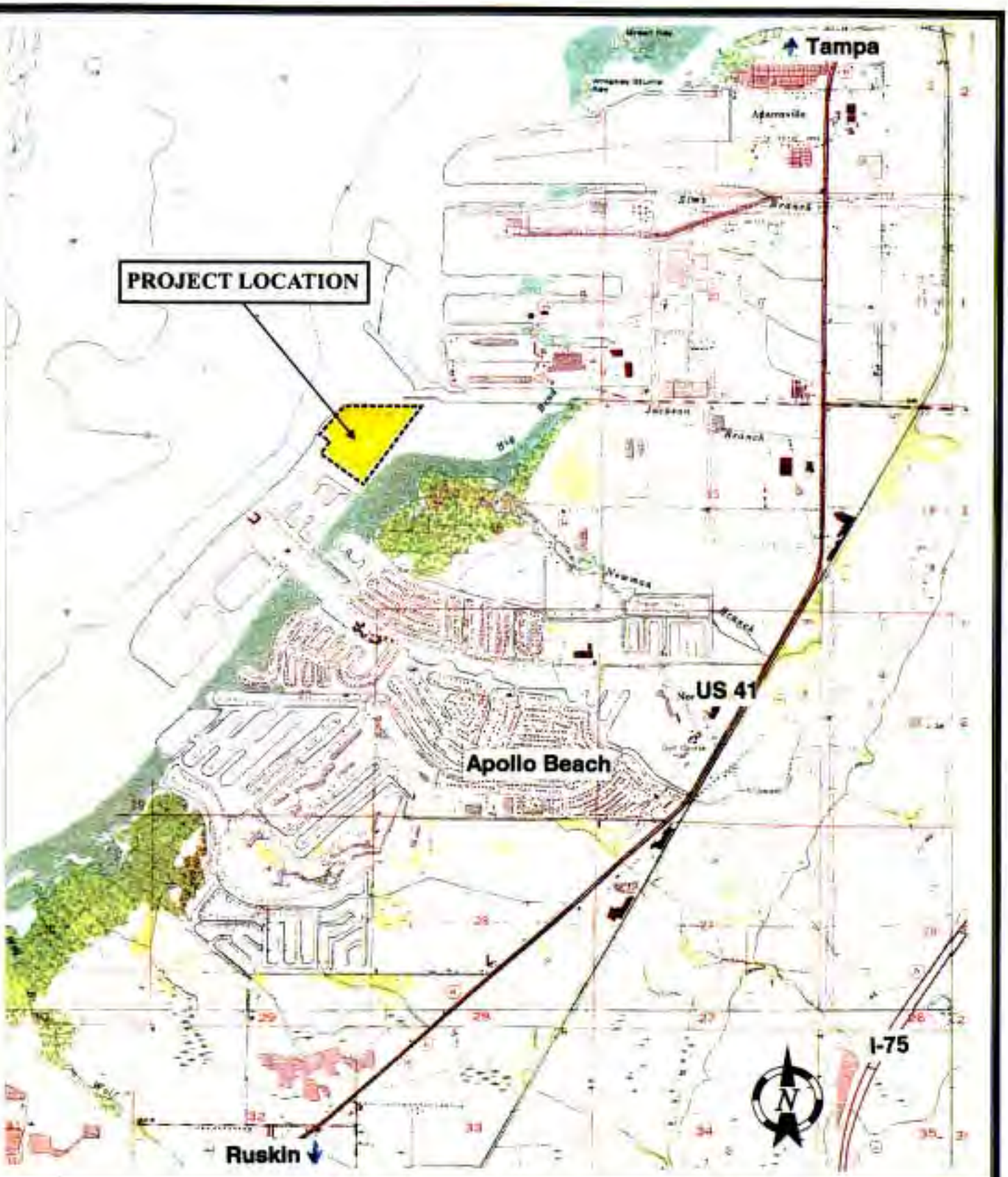
A portion of the excavated material is used to construct sand dune habitat along the northern top-of-bank. The dunes and surrounding areas will be enhanced by plantings of sea oats (*Uniola paniculata*), railroad vine (*Ipomoea pescaprae*), beach sunflower (*Helianthus debilis*), along with transplanted 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. The few remaining Australian pines will be girdled, herbicide treated, and left as dead snags for additional habitat value.

Attachment B – Maintenance & Monitoring Plan, Success Criteria

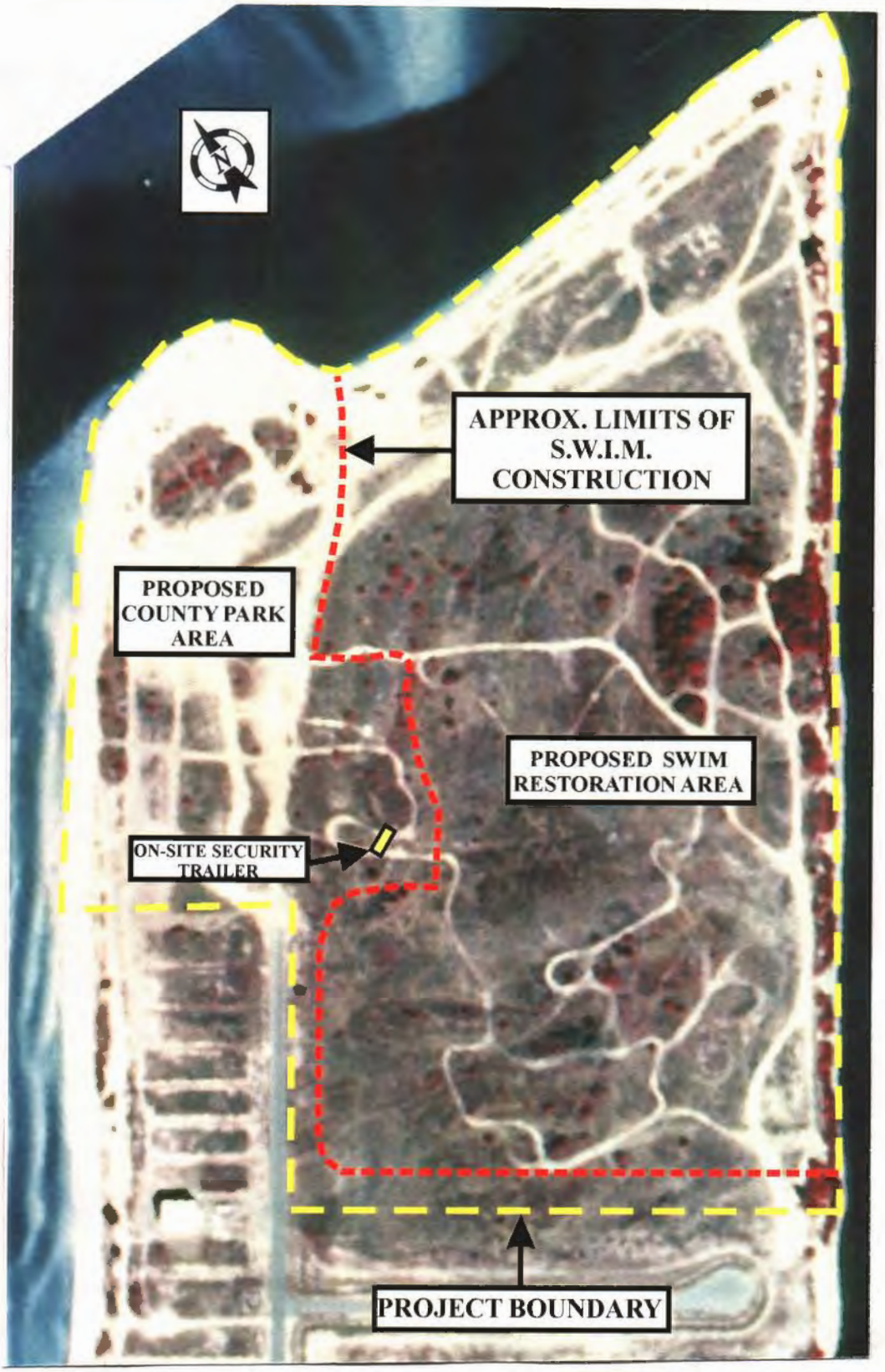
For estuary creation and restoration projects, with proper construction of appropriate wetland grades to allow for sufficient tidal action, the planted vegetation will survey and recruit throughout the wetland. Salt water limits the re-establishment of exotic vegetation that is more of a concern with 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.**

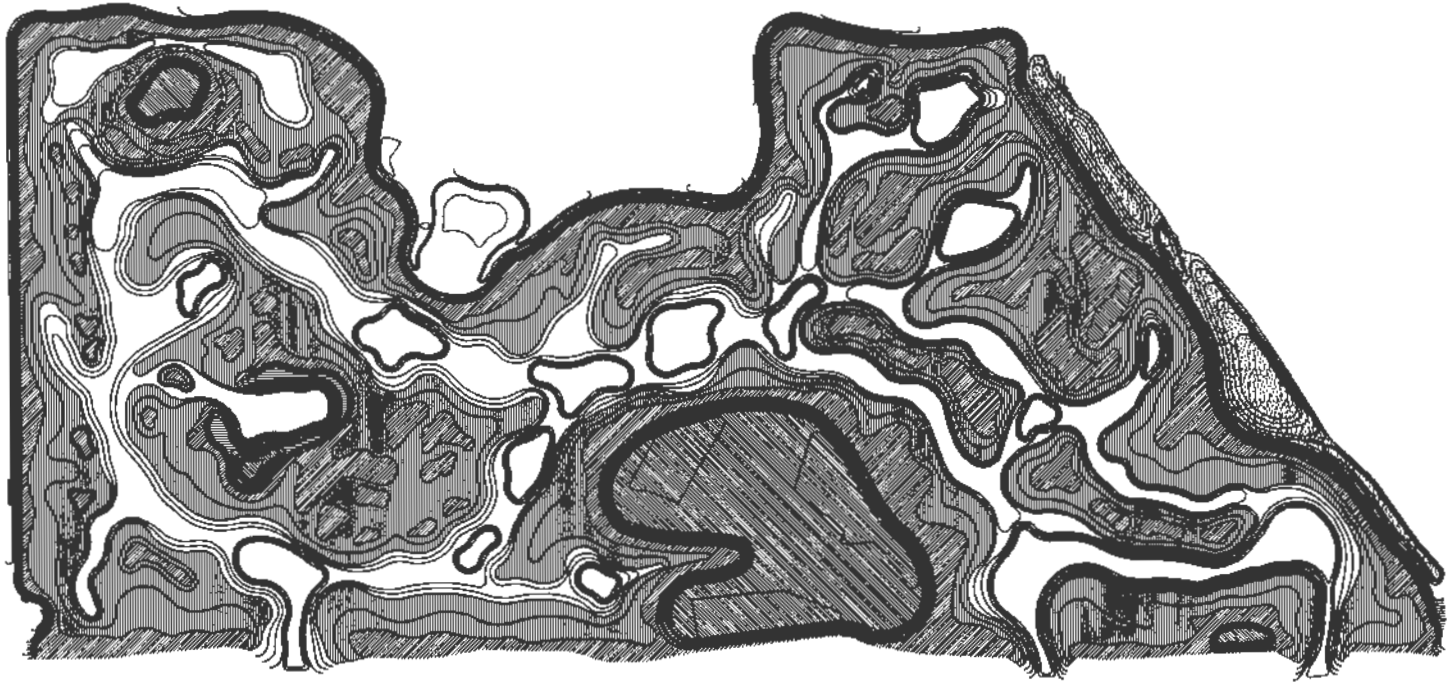


FDOT - District 7 **MITIGATION SITE** **(Tampa Bay Drainage Basin)**	**APOLLO BEACH** **(SW 67)**	**FIGURE B** **1995 Infrared Aerial** **Scale 1 in. = approx. 300 ft.**

FDOT - District 7 **MITIGATION SITE** **(Tampa Bay Drainage Basin)**	**APOLLO BEACH** **(SW 67)**	**FIGURE C** **Grading Plan** **Scale 1 in. = approx. 300 ft.**

ZONE	SYMBOL	PLANT SPECIES	SIZE	SPACING O.C.	ELEVATION	PLANT QUANTITY
FRESHWATER		Spartina alterniflora	1 gal	3.0	7.5 - 8.5	350
		Helanthus debilis	1 gal	3.0	7.5 - 8.5	300
		Myrica cerifera	3 gal	5.0	8.5 - 9.0	50
LOW MARSH		Spartina alterniflora	1 gal	2.0	0.5 - 2.0	150,000
HIGH MARSH		Iva frutescens	1 gal	3.0	2.0 - 2.5	6,000
		Salicornia virginica	1 gal			6,000
		Batis maritima	1 gal			6,000
		Paspalum vaginatum	1 gal	3.0	2.0 - 3.0	21,000
		Borrichia frutescens	1 gal			10,500
		Spartina patens	1 gal	3.0	2.5 - 3.0	7,000
		Distichlis spicata	1 gal			7,000
		Spartina bakeri	1 gal			10,500

ZONE	SYMBOL	PLANT SPECIES	SIZE	SPACING O.C.	ELEVATION	PLANT QUANTITY
SLOPES		Paspalum vaginatum	1 gal	2.0	3.0 to TOB	12,250
UPLAND		Helianthus debilis	1 gal	3.0	3.0 - 9.0	3,000
		Paspalum vaginatum	1 gal			3,000
		Gaillardia pulchella	1 gal			3,000
		Coccoloba uvifera	3 gal	10.0		500
		Myrica cerifera	3 gal			500
DUNES		Uniola paniculata	1 gal	2.0	7.0 to TOB	19,000
		Ipomomea pes-caprae	1 gal	3.0		19,000
		Helianthus debilis	1 gal			3044
		Iva imbricata	1 gal			760
		Coccoloba uvifera	3 gal	3.0		760



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(ies): 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: 0.08 ac. 619 / 612 / 642 (Fluccs) – Permanent Impacts from Bridge Embankment Fill:
0.72 ac. 612 / 642 Permanent Impacts from Shading
2.51 ac. 612 / 642 Temporary Impacts from Construction

TOTAL3.31 Acres

Note: The total proposed 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: 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 re-graded the area 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 2 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 0.8 acres 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 place. To compensate for the additional 2.75 acres of permanent mangrove and estuarine impact, the impacts are mitigated though 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 losses of wetland habitat function and value within the Peace basin. Since the on-site wetland restoration and enhancement adequately compensates for a portion of the impacts, the mitigation bank can adequately and appropriately mitigate 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 : There were no existing or currently 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 environmental firms 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: $21,000 (total)
Planning, Design, Site Evaluations, Contract Preparation - $3,000
Planting (4.57 acres) - $9,000
Maintenance & Monitoring (2 years) - $9,000

Attachments

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

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) and Figures 13-16 (bridge plan views) for pre-post construction conditions.

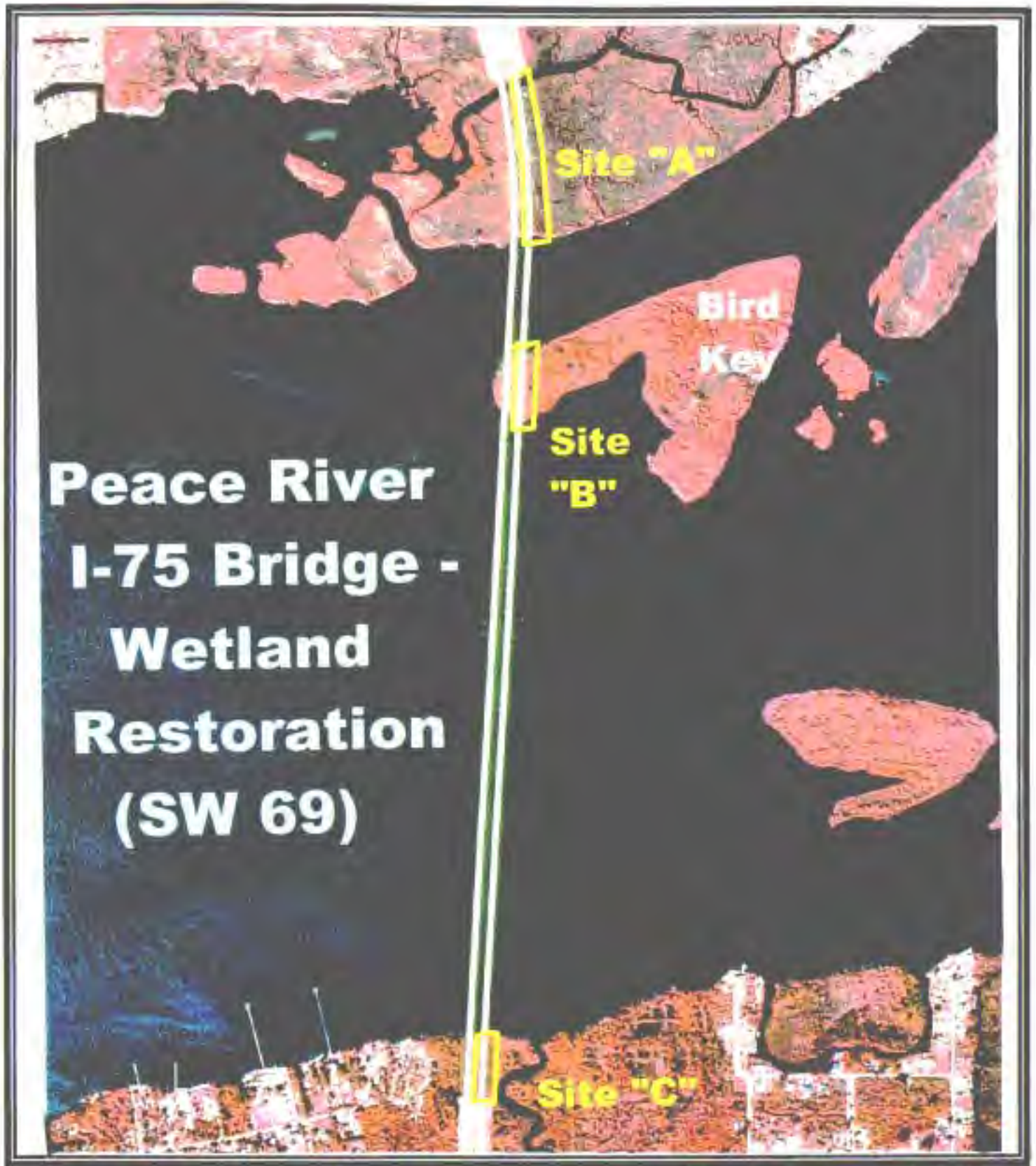
X **4. Detailed schedule for work implementation, including any and all phases.** Refer to previous discussion on activities.

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 2 -year monitoring period. The monitoring will be conducted on a semi-annual basis for a minimum 2-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 2-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 any 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.

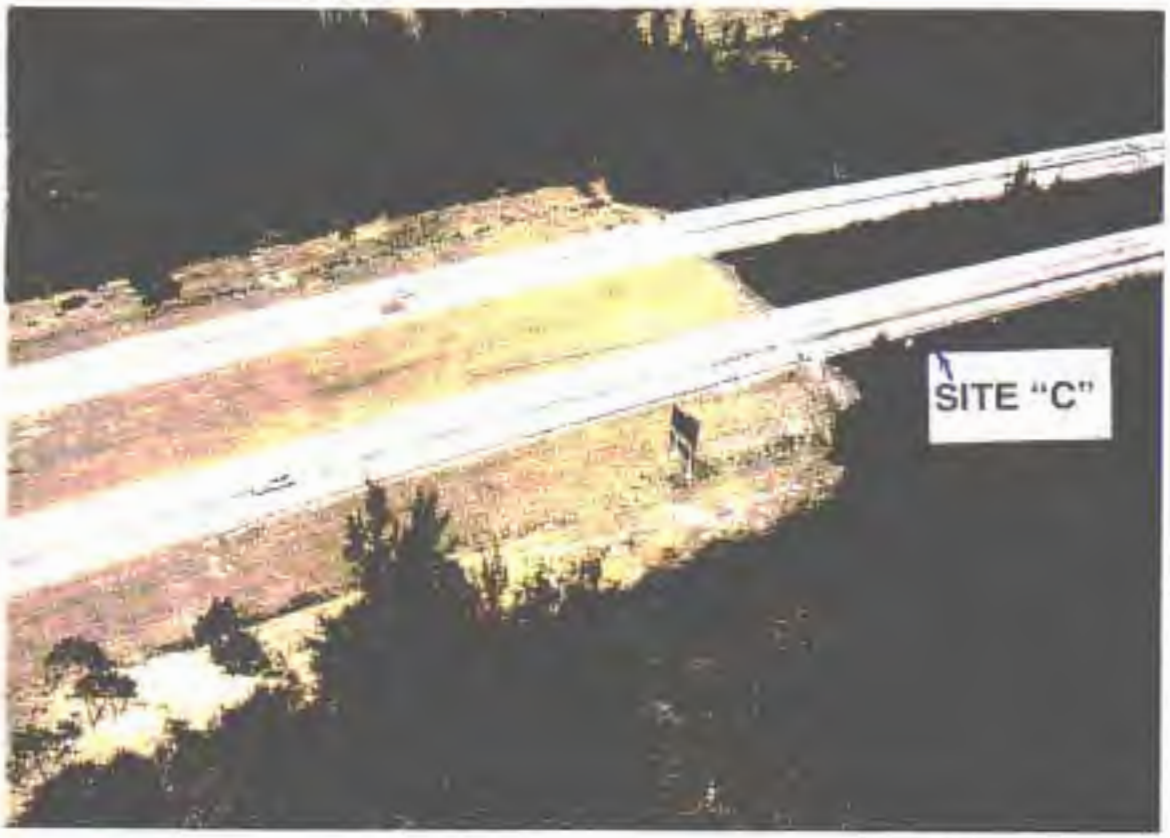
FDOT - District 1 MITIGATION SITE (Peace River Basin)	PEACE RIVER / I-75 BRIDGE RESTORATION (SW 69)	FIGURE A LOCATION MAP ^North, Scale 1.7 in. = 1 mile



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.

Wetland S1
Facing South

Seagrass bed
on west side
of bridge



Wetland I
Facing West

Wetland I
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.

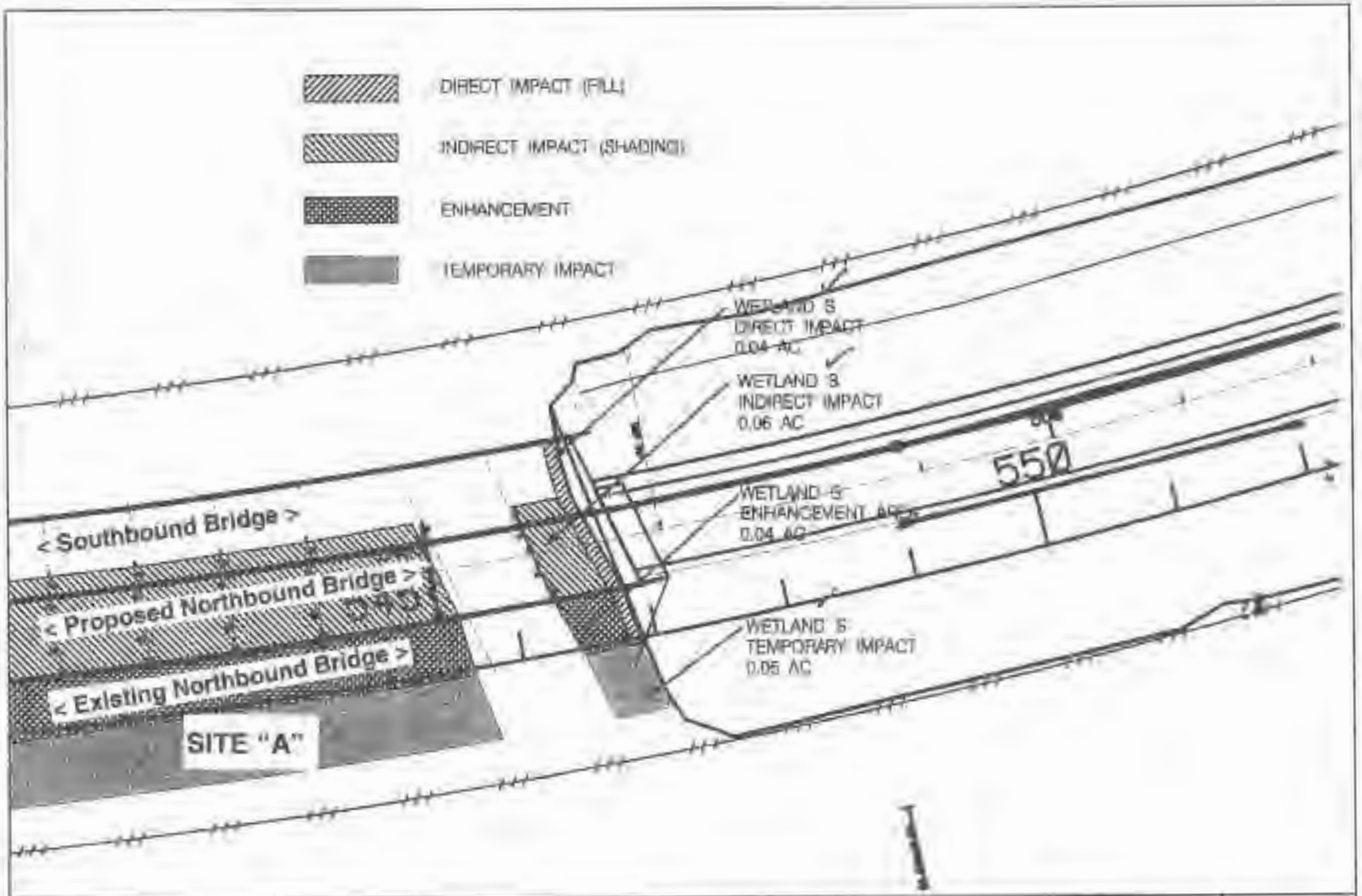
Site C - View of the temporary impact area (right) and proposed span removal (left). The temporary impact area is dominated by white mangrove, including shrub-size mangroves that have generated under the edge of the existing bridge span.

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 witin the river will not be impacted by bridge construction.

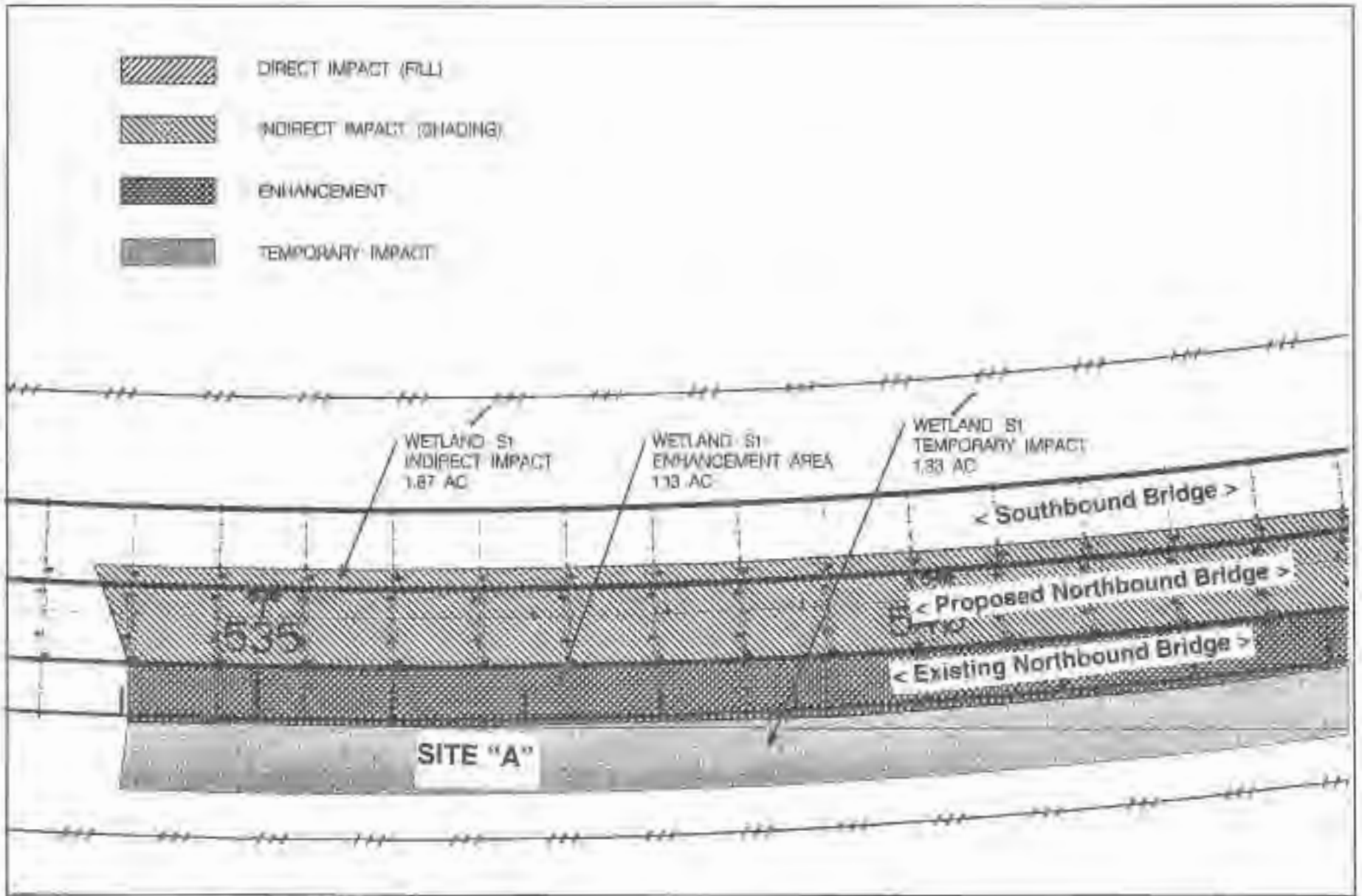
FDOT - District 1 Mitigation Site (Peace River Basin)	Peace River / I-75 Bridge Restoration (SW 69)



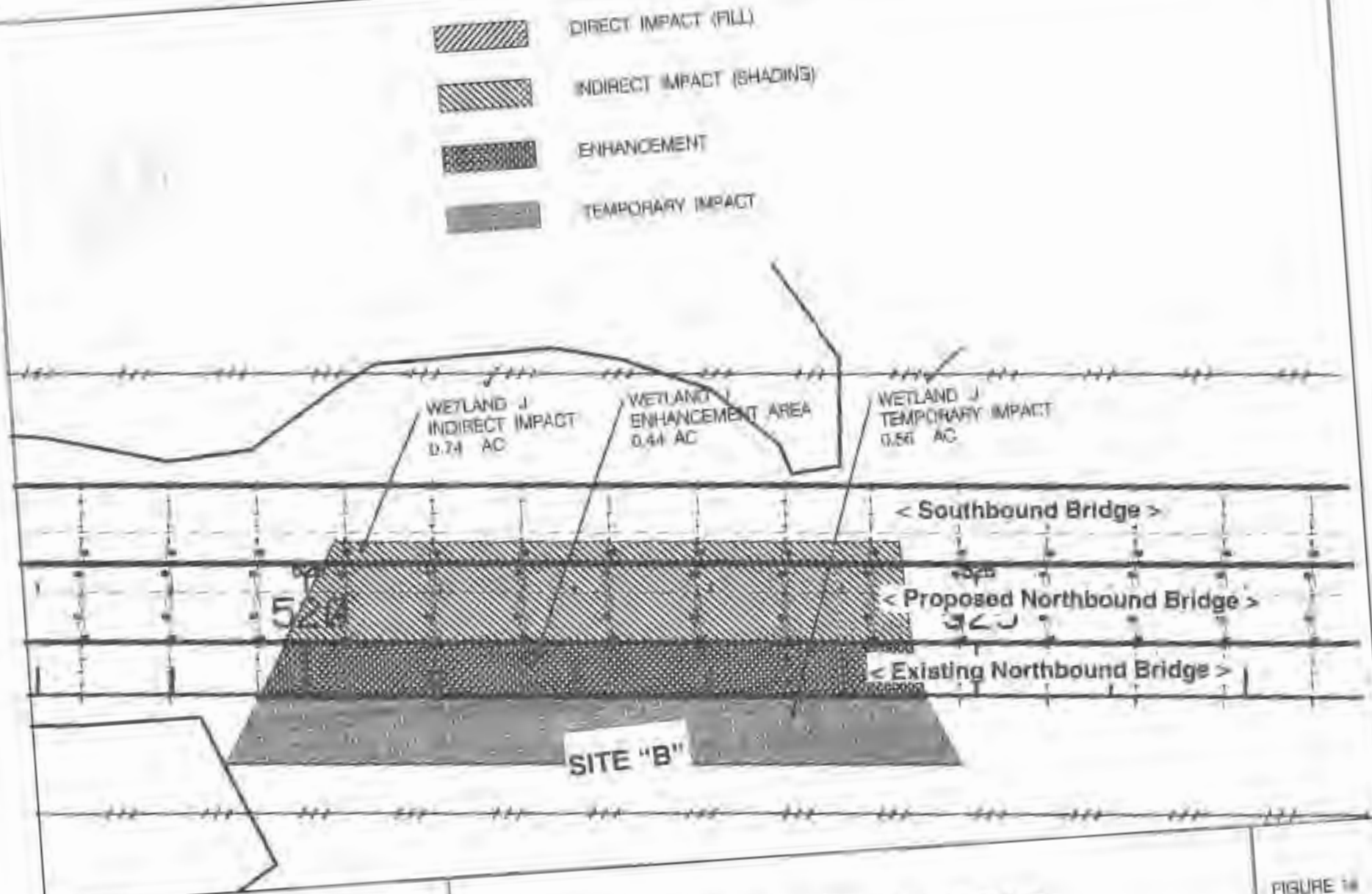
I-75 (S.R.93) OVER THE PEACE RIVER
REDECKING AND WIDENING
DESIGN-BUILD PROJECT

WETLAND IMPACT AREAS

FIGURE 1b



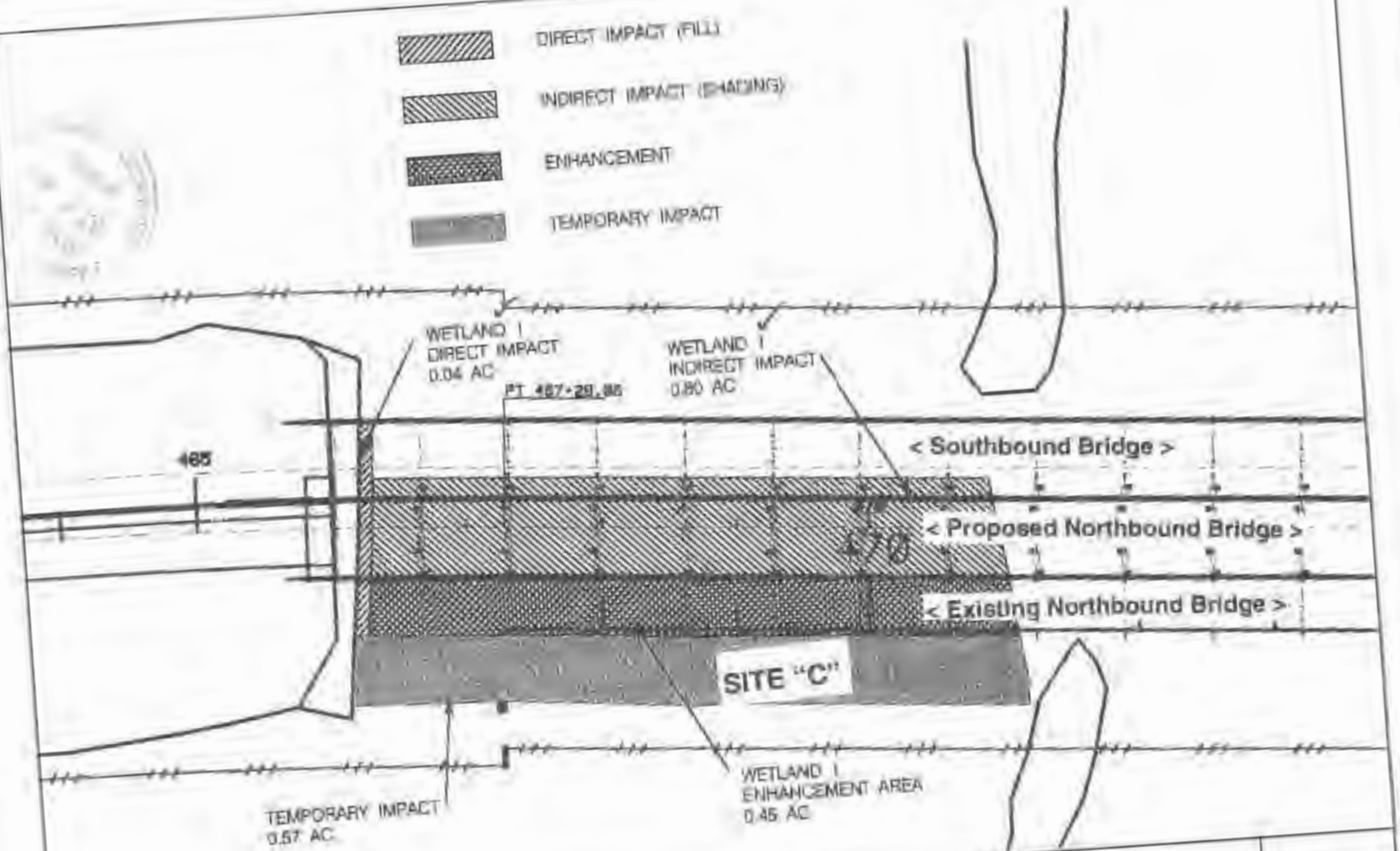
I-75 (S.R.93) OVER THE PEACE RIVER REDECKING AND WIDENING DESIGN-BUILD PROJECT	WETLAND IMPACT AREAS	FIGURE 15



I-75 (S.R.93) OVER THE PEACE RIVER
REDECKING AND WIDENING
DESIGN-BUILD PROJECT

WETLAND IMPACT AREAS

FIGURE 14



I-75 (S.R.93) OVER THE PEACE RIVER
REDECKING AND WIDENING
DESIGN-BUILD PROJECT

WETLAND IMPACT AREAS

FIGURE 13

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District
Mitigation Project Name: **Ft. DeSoto Park** Project Number: **SW 70**
Project Manager: Eric Fehrmann, Pinellas County Phone No: (727) 464-4761
County: Pinellas Location: Section 8, 9, T33S, R16E

IMPACT INFORMATION

1 -FM: 2569031, SR 682 (Bayway Bridge), SR 679 to W. Toll Plaza ERP #: 4423532.000 COE #: NA (USCG)
2-FM: 2571521, SR 679 (Bayway), Intercoastal to Bridge ERP #: 47023803.000 COE #: 200204286 (NW-PW)
3-FM: 2570831, SR 699 (Gulf Blvd.) – 192nd Ave. to Walsingham/Ulmerton ERP #: 44025373.000 COE #: 200307110 (NW 14)
4-FM: 4091541, SR 688 (Ulmerton) – Wild Acres to El Centro/Ranch. ERP #: _____ COE #: _____

Drainage Basin: Upper Coastal Water Body: Intercoastal Waterway, Pinellas Aquatic Preserve SWIM water body? N

Acres / Impact Types:
1- 0.1 ac. 540 (Fluccs) 3 – 0.1 ac. 612 (Fluccs)
0.3 ac. 641 4 – 0.2 ac. 500 (Canal)
0.4 ac. 911 0.6 ac. 530 (Pond)
TOTAL: 0.80 acre TOTAL 0.8 acre

2 – 0.3 ac. 540 (Fluccs) **TOTAL – 1.9 Acres**

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation ___ Restoration _X_ Enhancement ___ Preservation Mitigation Area: **_13_ acres**
SWIM project? _Y (cost-share funds from SWIM)_ Aquatic Plant Control project? _N_ Exotic Plant Control Project? _N_
Mitigation Bank? _N_ Drainage Basin(s): Upper Coastal Water Body(s): Mullet Key Bayou SWIM water body? Y

Project Description

A. Overall project goal: The Ft. DeSoto Park Aquatic Habitat Management Area includes a couple islands that were connected to Mullet Key 40 years ago by the construction of filled causeway roads. These causeways blocked historic tidal circulation patterns to the inner portion of the bays, resulting in severe stress and mortality of seagrass habitat. With construction of two – 40 foot bridge spans through the causeways, flow patterns will be restored to the inner bays and enhance the health and survivorship of seagrass beds. Based on previous studies, the minimal area of anticipated seagrass enhancement is 200 acres (Figure B). Secondary enhancement includes hydrologic improvements to the adjacent mangrove habitat and additional seagrass beds further from the proposed bridges. This has been a very critical project for salt-water aquatic and wetland habitat improvements. Prior to the first phase construction in 2004, the project was proposed and supported by multiple agencies for over 15 years but could not be implemented due to insufficient funds. The ecological value of this project has been recognized with Pinellas County receiving regional, state, and national awards for engineering and environmental excellence.

B. Brief description of current condition: Prior to construction, tidal flow patterns filled the inner bays, then discharged with a slow and often stagnant condition, not conducive to flushing which lead to elevated water temperatures in the summer, water quality degradation, and seagrass mortality. Since construction of the western span in 2004, substantial tidal flow conveyance has been demonstrated.

C. Brief description of proposed work: With assistance from eight agency funding sources, Pinellas County constructed the first of two bridge spans (Figures D,E, F) in the locations of historically open water breaks between the islands (Figure C). These spans will allow significant hydrologic flow 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.

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 impact includes the 0.4 acre shading impact to a seagrass bed (#911) associated with the widening of the Pinellas Bayway Bridge. The Bayway Bridge crosses the Intercoastal Waterway along Boca Ciega Bay and is 7miles north of Ft. DeSoto Park. The Ft. DeSoto Park 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 DOT impacts and associated funds ($170,000) are sufficient to compensate for 10% 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 received mitigation credit for 10% (13 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: There are no existing or currently 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 : Ft. DeSoto Park is located at the mouth of Tampa Bay, which is a SWIM water body, within the Tampa Bay National Estuary Program, Pinellas County Aquatic Preserve, and a TMDL High Priority Water Body. This project is within the Pinellas County Capital Improvement Plan. In addition to Pinellas County funds, the various other agencies and funds necessary and designated toward cost-sharing the project include SWFWMD-SWIM ($416,750), Gulf of Mexico Program ($100,000), USEPA ($50,000), Pinellas County Environmental Foundation ($250,000), NOAA ($75,000), FDCA ($153,000), USFWS (potential, $50,000), and the FDOT mitigation funds ($170,000). Construction was conducted on the western and most important bridge span in 2004. The second proposed bridge span is delayed until sufficient funding sources can be obtained. If funds cannot be obtained for the additional bridge span, the County is currently evaluating the potential of utilizing a series of box culverts for conveyance.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: A private contractor selected by Pinellas County

Contact Name: Eric Fehrmann 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 - $170,000

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 to occurred to construct the bridge approaches. These minor impacts were mitigated by grading some of adjacent 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 - bridge 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 project 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. The existing dredged channels within the proposed enhancement areas (Fig. B) are not included in the mitigation acreage.

X 4. Detailed schedule for work implementation, including any and all phases. Construction of the western bridge span was conducted in 2004. The need for a Phase II-Eastern Span is being evaluated relative to the habitat improvements associated with the western span. Due to the substantial expense associated with constructing a bridge span, the County may decide to install box culverts to achieve tidal connections.

X 5. Proposed success criteria and associated monitoring plan. No specific success criteria, however periodic monitoring of seagrass health and water characteristics are being conducted post-construction. A monitoring plan for water quality and seagrass conditions was proposed and accepted 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, etc.

X 6. Long term maintenance plan. Maintenance of the seagrass beds is not necessary. The salt-tolerant species planted near the bridge spans will be 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. Except for the Bayway Bridge project with the minor seagrass impact, the majority of the remaining wetland impacts per project are very minimal and represent low-quality wetland and surface water impacts within a very urban area of western Pinellas County. The majority of the FDOT projects designated for mitigation at Ft. DeSoto were ultimately permitted without requiring mitigation; each typically only having 0.1-0.2 acre of ditch and open water habitat impacts. Additional roadway projects with minor, low quality wetland impacts will be evaluated to possibly provide additional funds to reimburse Pinellas County for not only the western bridge span, but hopefully fund the construction of the eastern span.

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 Acanoe 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 Ain 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 seived, 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 DE SOTO
(SW 70)

FIGURE A
LOCATION MAP

PINELLAS COUNTY ENGINEERING DEPARTMENT
STATE OF FLORIDA

PLANS OF PROPOSED
FORT DESOTO WATER CIRCULATION IMPROVEMENT

SERVING YOU EVERY DAY

P.I.D. NO. 921573

RELATED STANDARDS AND SPECIFICATIONS

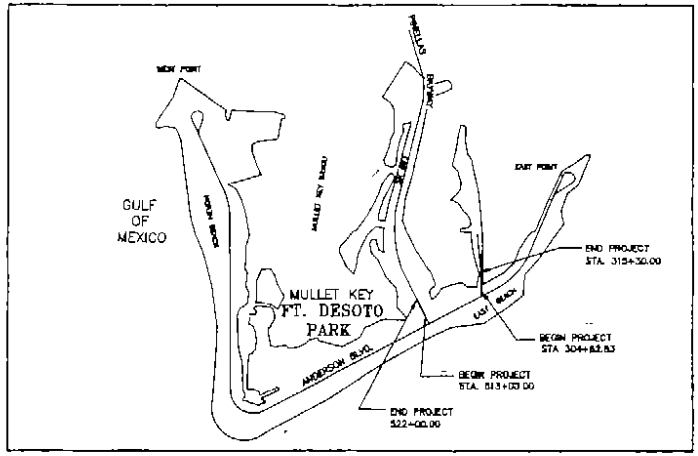
DOCUMENT	DESCRIPTION
D-1	FLORIDA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", 2000 AND ALL SUPPLEMENTAL SPECIFICATIONS THERETO.
D-2	STATE OF FLORIDA "MANUAL OF UNIFORM MINIMUM STANDARDS FOR DESIGN, CONSTRUCTION AND MAINTENANCE FOR STREETS AND HIGHWAYS", MAY, 2000.
D-3	FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".
D-4	PINELLAS COUNTY "SPECIFICATIONS FOR NEW STORMWATER STRUCTURES, PLANT MATERIAL, EQUIPMENT AND CONSTRUCTION METHODS", JULY, 2000. NOTE: THE PROVISIONS OF DOCUMENT D-4 SHALL SUPERSEDE CORRESPONDING PROVISIONS OF DOCUMENT D-1.
D-5	FLORIDA DEPARTMENT OF TRANSPORTATION "ROADWAY AND TRAFFIC DESIGN STANDARDS", JANUARY, 2000.
D-6	PINELLAS COUNTY ENGINEERING DEPARTMENT "SPECIFICATIONS FOR ROAD AND DRAINAGE CONSTRUCTION" (FOR CONTENT CORRESPONDING TO THESE PLANS)
D-7	PINELLAS COUNTY, DEPARTMENT OF PUBLIC WORKS "STANDARD CONSTRUCTION DETAILS" (JANUARY, 1995).

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

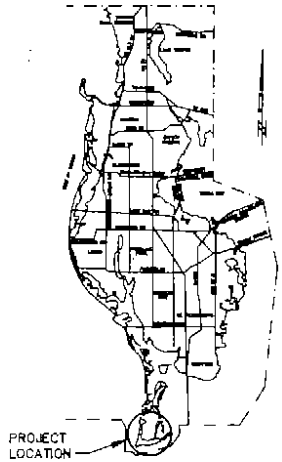
UTILITY WARNING NOTE

[illegible]

SUMMARY OF REVISIONS	
DATE	DESCRIPTION



SECTION No. 8, 9
TOWNSHIP No. 33 S RANGE No. 16 E



INDEX OF PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2	SUMMARY OF QUANTITIES
3	DRAINAGE MAP
4	[illegible]
5	TYPICAL SECTIONS
6	[illegible]
7–8	[illegible]
9–10	PLAN & PROFILE [illegible]
11–12	PLAN & PROFILE [illegible]
13	PLAN & PROFILE [illegible]
14	PROPOSED RELOCATED BIKE PATH
15–22	CROSS SECTIONS
23	DRAINAGE DETAILS
24	RAMP DETAILS
25	TEMPORARY EVERVAGE ROAD PLAN & PROFILE
26	TEMPORARY MAINTENANCE ROAD PLAN & PROFILE

LENGTH OF PROJECT

	TOTAL	
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

ROAD CLASSIFICATION: PARK
DESIGN SPEED: 40 MPH

[illegible] DATE
[illegible]
FLORIDA REGISTERED PROFESSIONAL ENGINEER No. [illegible]
[illegible] COURT STREET
CLEARWATER, FLORIDA 33756
(727) 464-[illegible]

PROJECT PRODUCTION TEAM
(CORE MEMBERS)

DESIGN: STEVE BURGE
(TEAM LEADER) ([illegible])
RIGHT-OF-WAY: BOBBY BLAKE
CONSTRUCTION: ROB BERTHER
SURVEY: DANNY BURGER
TRAFFIC: ROBERT DAVIS
HIGHWAY: DONNA GRZIOLL
UTILITY COORDINATOR: ROBERT JANOWSKI

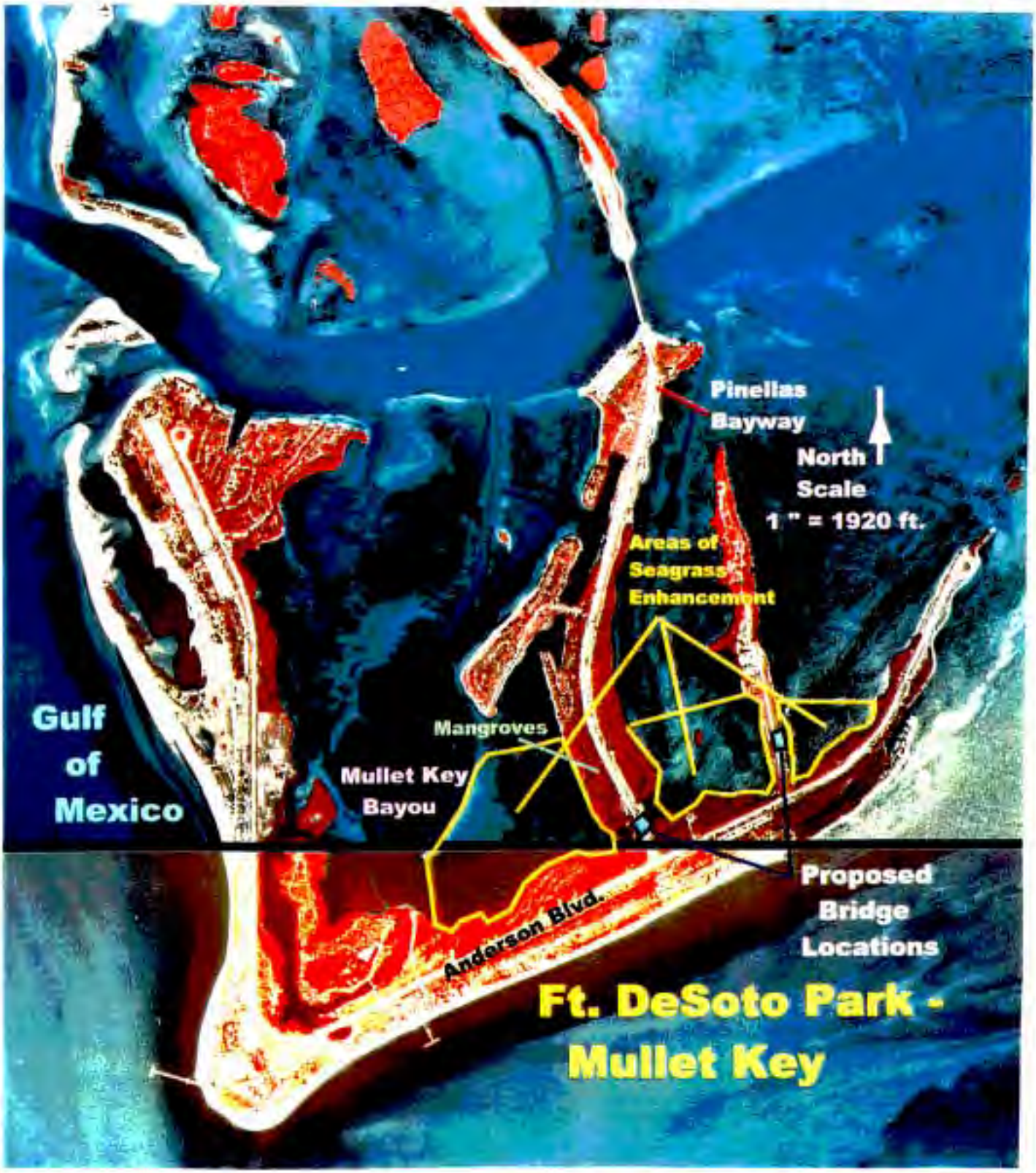
SUBMITTED BY & RECOMMENDED FOR APPROVAL BY: _____ DATE
[illegible] FLORIDA, DIVISION ENGINEER

RECOMMENDED FOR APPROVAL BY: _____ DATE
ELIZABETH WARNER, DIRECTOR OF PARK DEPARTMENT

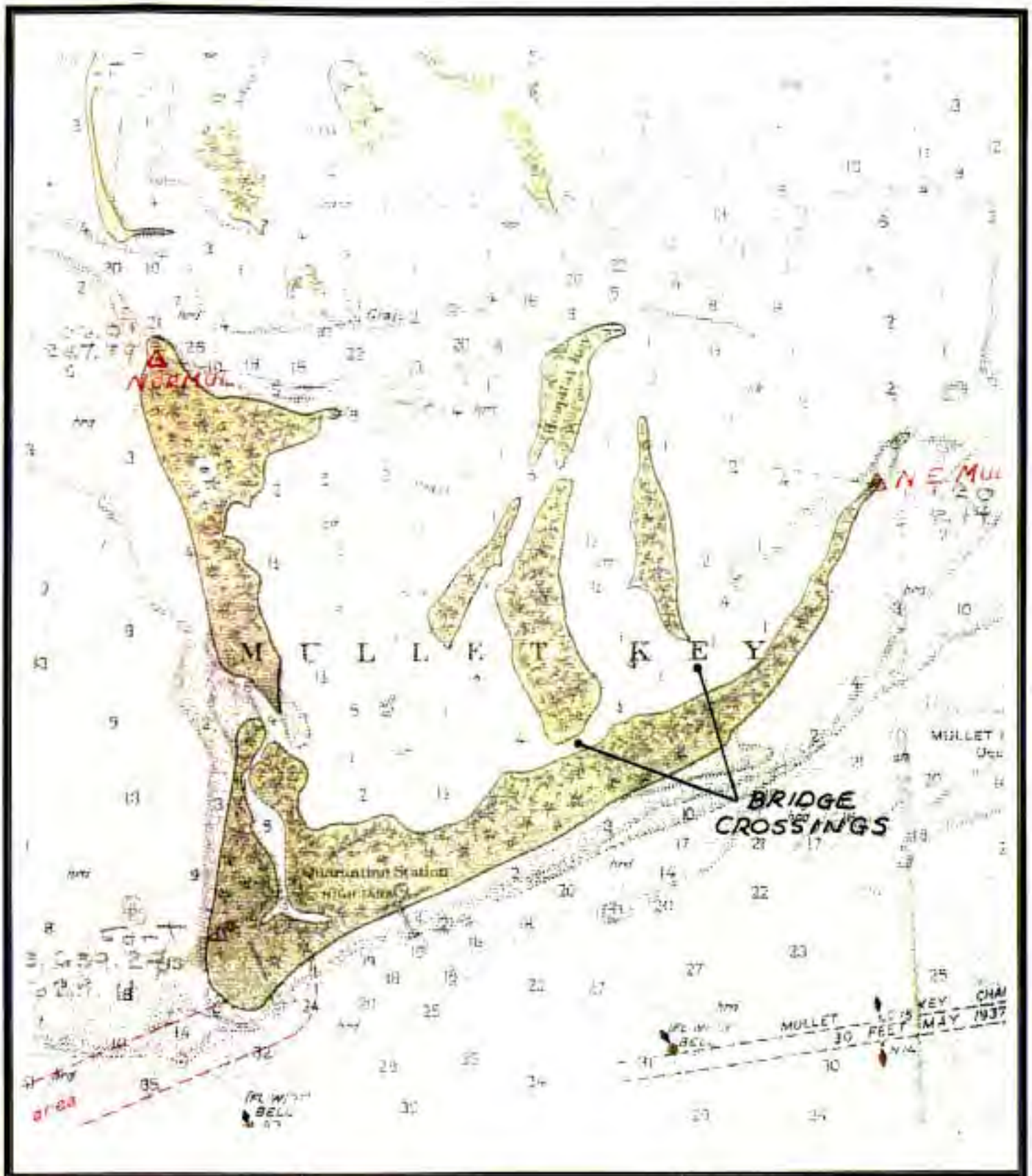
RECOMMENDED FOR APPROVAL BY: _____ DATE
JAN A. HERBST, P.E., DIRECTOR OF ENGINEERING

APPROVED BY: _____ DATE
J. KEITH WICKS, P.E., DIRECTOR OF PUBLIC WORKS

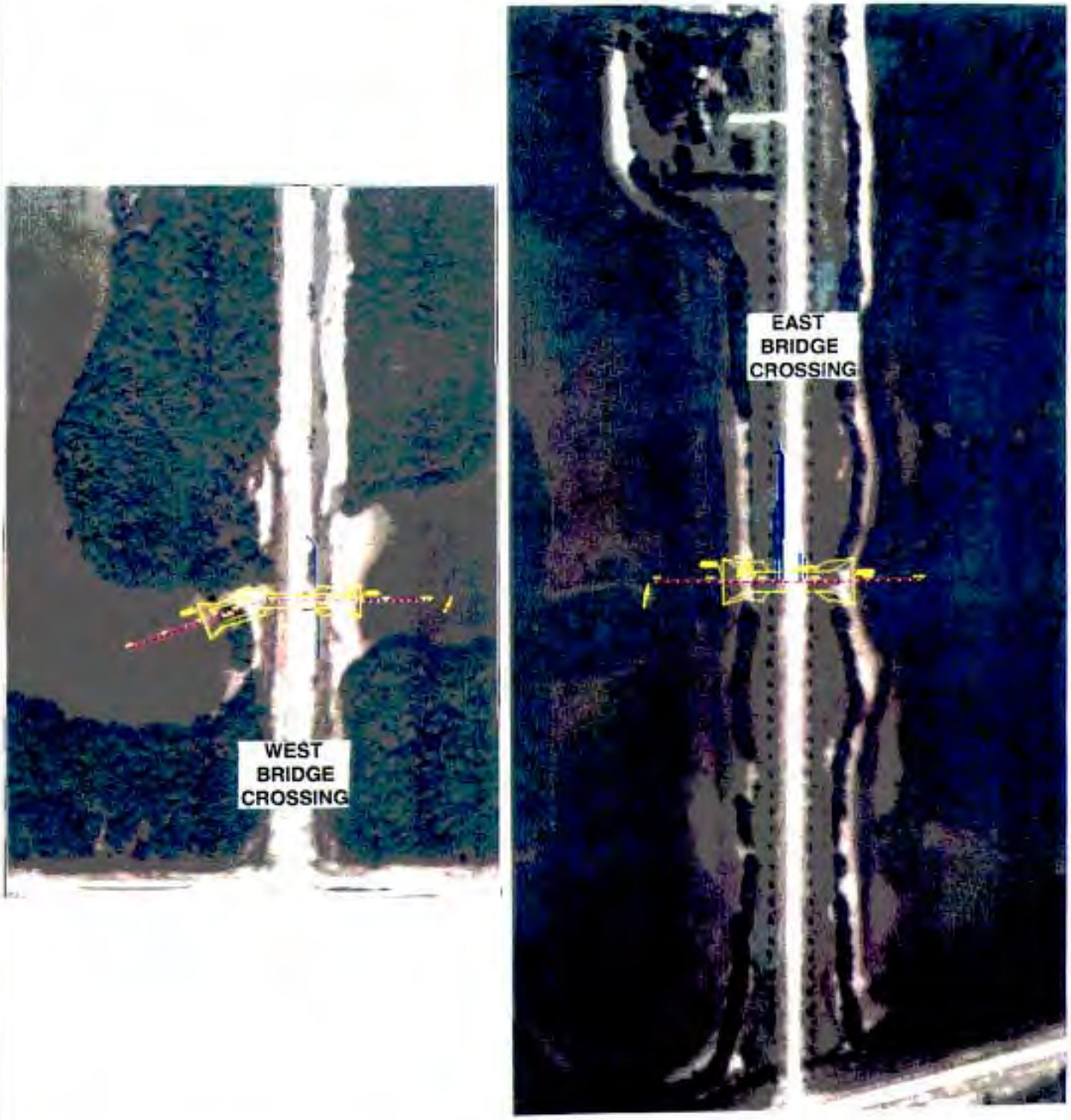
SHEET 1 OF 26



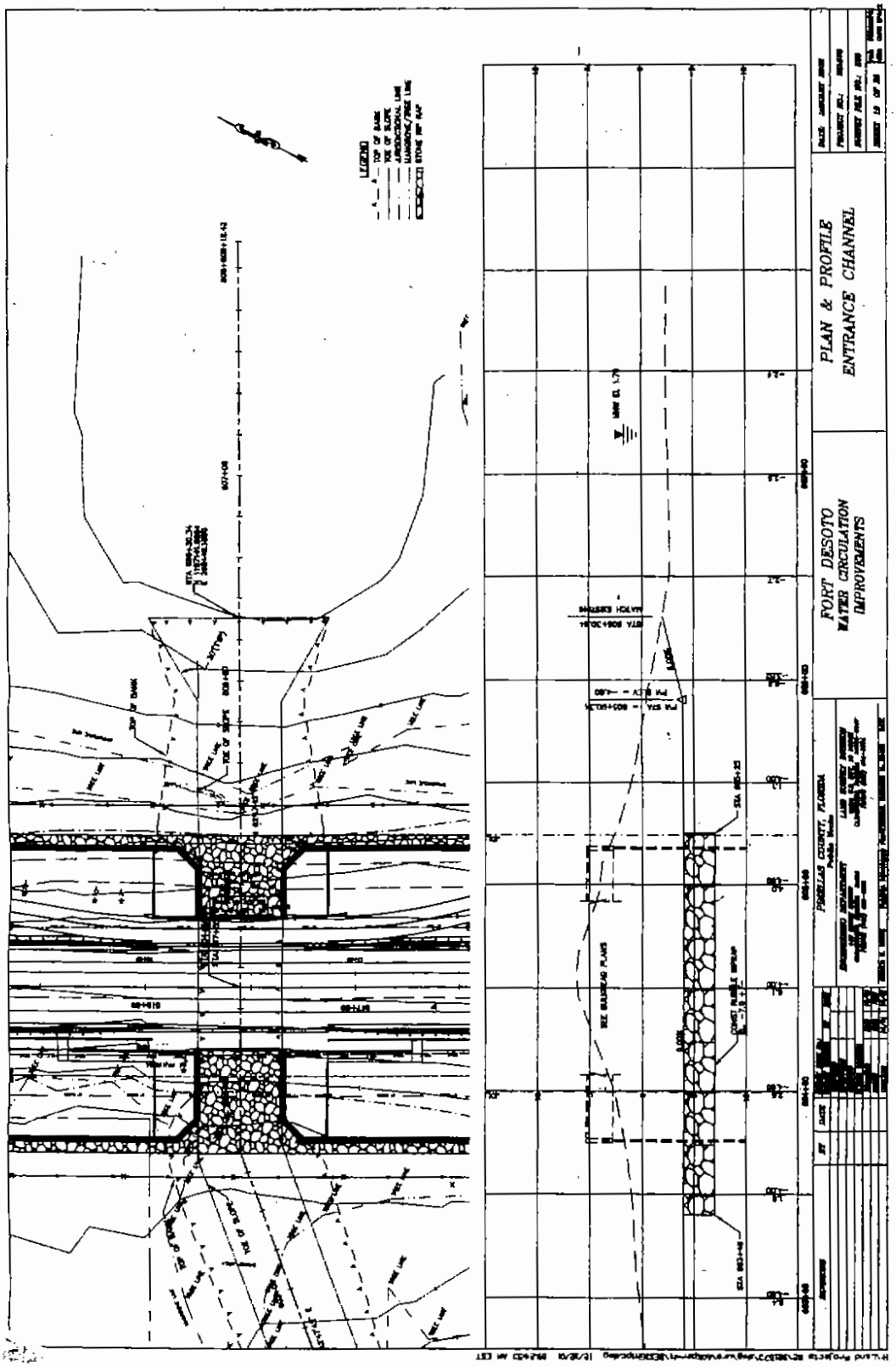
FDOT - District 7 MITIGATION SITE (Upper Coastal Basin)	FORT DE SOTO (SW 70)	FIGURE B 1995 INFRARED AERIAL



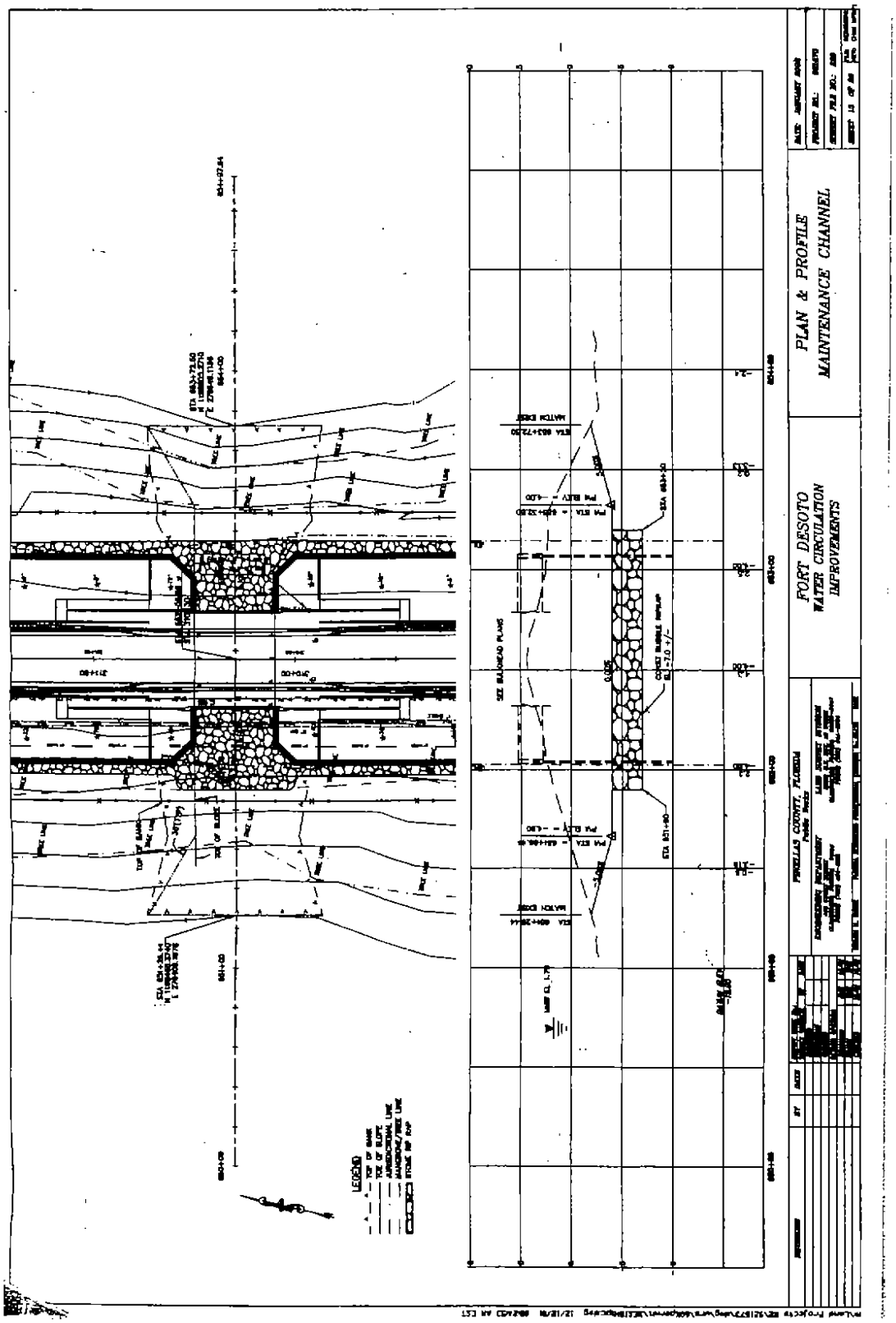
FDOT - District 7 **MITIGATION SITE** **(Upper Coastal Basin)**	**FORT DE SOTO** **(SW 70)**	**FIGURE C** **HISTORICAL CONDITIONS**



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



FDOT - District 7 **MITIGATION SITE** **(Upper Coastal Basin)**	**FORT DE SOTO** **(SW 70)**	**FIGURE F** **Design Plan & Profile** **Maintenance 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 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 Number: **SW 71**
Project Manager: Linda Seufert, Park Supervisor Phone No: (727) 893-7317
County: Pinellas Location: Sec. 16, 35, T31S, R16E

IMPACT INFORMATION

(1) FM: 4037701 – US 19, CR 816 to SR 582 ERP #: 44022085.001 COE #: NW 14 PCN
(2) FM: 2568881 – US 19, Coachman Rd. to Sunset Point ERP #: 4411760.013 COE #: 200104383 (LP-PB)
(3) FM: 4082011 – Himes Avenue to Hillsborough Avenue ERP #: 44002448.002 COE #: 200208419 (NW-MS)
(4) FM: 4062561 – East-West Trail, Coopers Bayou - Bayshore ERP #: 44022718.001 COE #: 200105298(NW-PB)
(5) FM: 2570701 – US 19, 49th St. to 118th Avenue ERP #: 44000188.002 COE #: 200206325 (IP-MGH)
(6) FM: 2555991 – SR 676 (Causeway Blvd.) US 301 to US 41* ERP #: 43027063.000 COE #: SAJ-2004-5583(IP-MIS)
(7) FM: 2558881 – US 301 – Sligh Ave. to Tampa Bypass* ERP #: 43024246.000 COE #: 200206711 (IP-JF)
(8) FM: 2569311 – Gandy Blvd., US 19 to 4th Street ERP #: _____ COE #: _____
(9) FM: 2569951 – SR 686 (Roosevelt) – Ulmerton to 40th St. 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 :

(1) FM 4037701 0.1 ac. 618 (Fluccs)
(2) FM 2568881 0.3 ac. 617
0.2 ac. 618
TOTAL 0.5 acre

(3) FM 4082011 0.1 ac. 618 (Fluccs)
(4) FM 4062561 0.1 ac. 618
(5) FM 2570701 0.1 ac. 617
(6) FM 2555991 0.2 ac. 610

(7) FM 2558881 6.4 ac. 617
1.9 ac. 618
TOTAL 8.3 acres

(8) FM 2569311 0.5 ac. 530 (Pond)
0.1 ac. 641x
TOTAL 0.6 acre

(9) FM 2569951 0.5 ac. 500 (canal)
0.3 ac. 530
0.4 ac. 618
0.1 ac. 619
0.6 ac. 641
0.2 ac. 641x
TOTAL 2.1 acres

TOTALS – 12.1 Acres

* The freshwater marsh and ditch impacts associated with these projects will be mitigated with activities proposed at Cockroach Bay – Freshwater (SW 56).

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) with buffers of upland forested habitat (21.4 acres), and ponds (1 acre) by removal of the extensive cover of exotic and nuisance species. Enhancement activities are part of an overall plan of eradication and maintenance control of 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 proposed 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 cover shade from B. pepper, elderberry and grapevine, but there are various fern species present.

C. **Brief description of proposed work:** Commencing in 2004, the City is using private environmental contractors to eradicate the extensive cover of nuisance and exotic vegetation. The dominant species to be removed from all the areas is Brazilian pepper, which has moderate to very dense cover within the wetland and upland habitats (refer to site photos). Secondary species control will include herbicide control and long-term maintenance of primrose willow, elderberry, and grapevine. Pepper eradication will include 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 will minimize regeneration of exotic & nuisance species. Areas of previous eradication in the Park have exhibited good regeneration of desirable tree and herb species. However, funds have been budgeted to provide supplemental tree and shrub planting. This minimizes the time lag of forested wetland regeneration. Where practical and feasible, small ditches cut through the southeast wetland will be backfilled with adjacent spoil material. Historically, the City could only annually fund 5-10 acres of habitat enhancement at the park. At that rate, exotics eradication would take many years and would be a continuous problem with the available seed source recruiting back into previously enhanced areas. Therefore, the combination of mitigation and grant funding sources has allowed the City to hire private contractors to eradicate all the exotics over a short 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 majority occurring within the peninsular area of Pinellas County. 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 diminished by the nuisance & exotic species problem, which is extensive and will only worsen if not brought under control. The Park provides opportunities to mitigate the proposed impacts with large-scale and 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 Drainage Basin. However, construction had not commenced and credit sales were not available at the time mitigation had to be determined for the proposed FDOT 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 :** Several SWIM projects have been selected to provide FDOT mitigate 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

Restoration Project is hydraulically dredging sediments and that project 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, and the City has limited funding resources for this extensive and ecologically beneficial activity.

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: Fall, 2003 Complete: Initial Eradication – 2006, followed by minimum 3 years maintenance & monitoring

Project cost: $ 580,000 (total);
Exotic & Nuisance Species Eradication (Areas 1, 3, 4) - $200,000
Exotic & Nuisance Species Eradication (Area 4) - $60,000
Supplemental Tree & Shrub Plantings - $120,000
Minimum 3 years Maintenance & Monitoring - $100,000
One Time Fee for Perpetual Maintenance Assistance - $100,000

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, D, and E.

X 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).

X 4. Detailed schedule for work implementation, including any and all phases. Refer to Attachment B.

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 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 for aesthetic reasons. The Park staff has been diligent in it's efforts to eradicate exotic and nuisance species, but lack of funding sources has limited such opportunities to small segments. In order to minimize the continuous recruitment and generation of exotic seed sources within the Park, the ability 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 would minimize 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 will be 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 and shrubs may include laurel oak, red maple, cypress, and wax myrtle. 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 needed within the uplands to maintain appropriate vegetative coverage and density. Along with the pepper removal, grapevine is the most prolific nuisance species that will be initially controlled by hand and mechanical means. Afterward, the prescribed burning will help maintain the exotic and nuisance species under control. Supplemental plantings of longleaf pine, wax myrtle, and gallberry are proposed where necessary within the uplands.

Area 4 - The 57-acre hardwood swamp within the southeast section of the property will be partially utilized for DOT 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 being conducted during dry season periods, with temporary matting placed where necessary for stable footing of equipment. Erosion control measures (hay bales, silt screens) will be 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 commenced in 2004. The anticipated costs associated with this activity include $12 million, paid by the WMD and the City of St. Petersburg. As the Lake Maggiore hydraulic dredging of sediments is conducted, the control structure for the lake maintains a higher lake elevation so the hydraulic dredging can access more of the shallow water littoral areas. This dredging is anticipated to require a couple years, which has limited equipment access to remove vegetation within the southeast swamp. The combination of the lake dredging and wetland enhancement for mitigation purposes will provide a substantial ecological improvement and inter-relationship mosaic of wetland and surface water habitats. In addition, the City has recently received grants toward funding exotic and nuisance species removal within the remaining areas of the Park; which is primarily upland habitats. This will further minimize 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

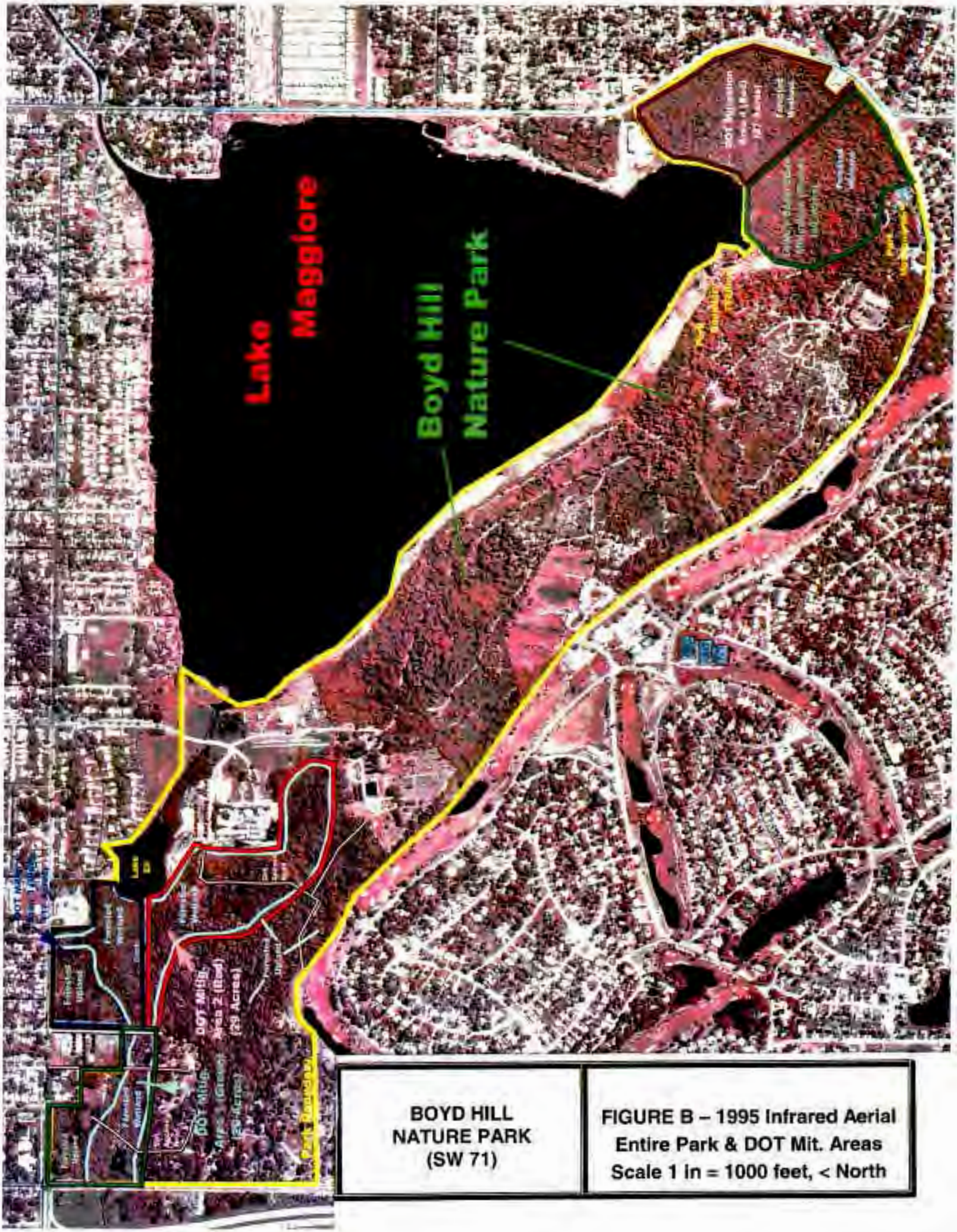
Through 2005, eradication activities were conducted for Areas 1, 3 and a portion of 4. For Area 2, construction equipment and pipeline placement is necessary for access to the lake for hydraulic restoration. So access in this area will be limited until the lake dredging is complete. Total access into Area 4 will also be dependent on lake elevations for the dredging activities. Each area will receive 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 expected 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. The Park will provide annual updates of habitat functions and current conditions of the wetland, and associated maintenance activities for an additional 7 years after the initial 3-year monitoring period, to document the efforts to maintain the same level of success. 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.

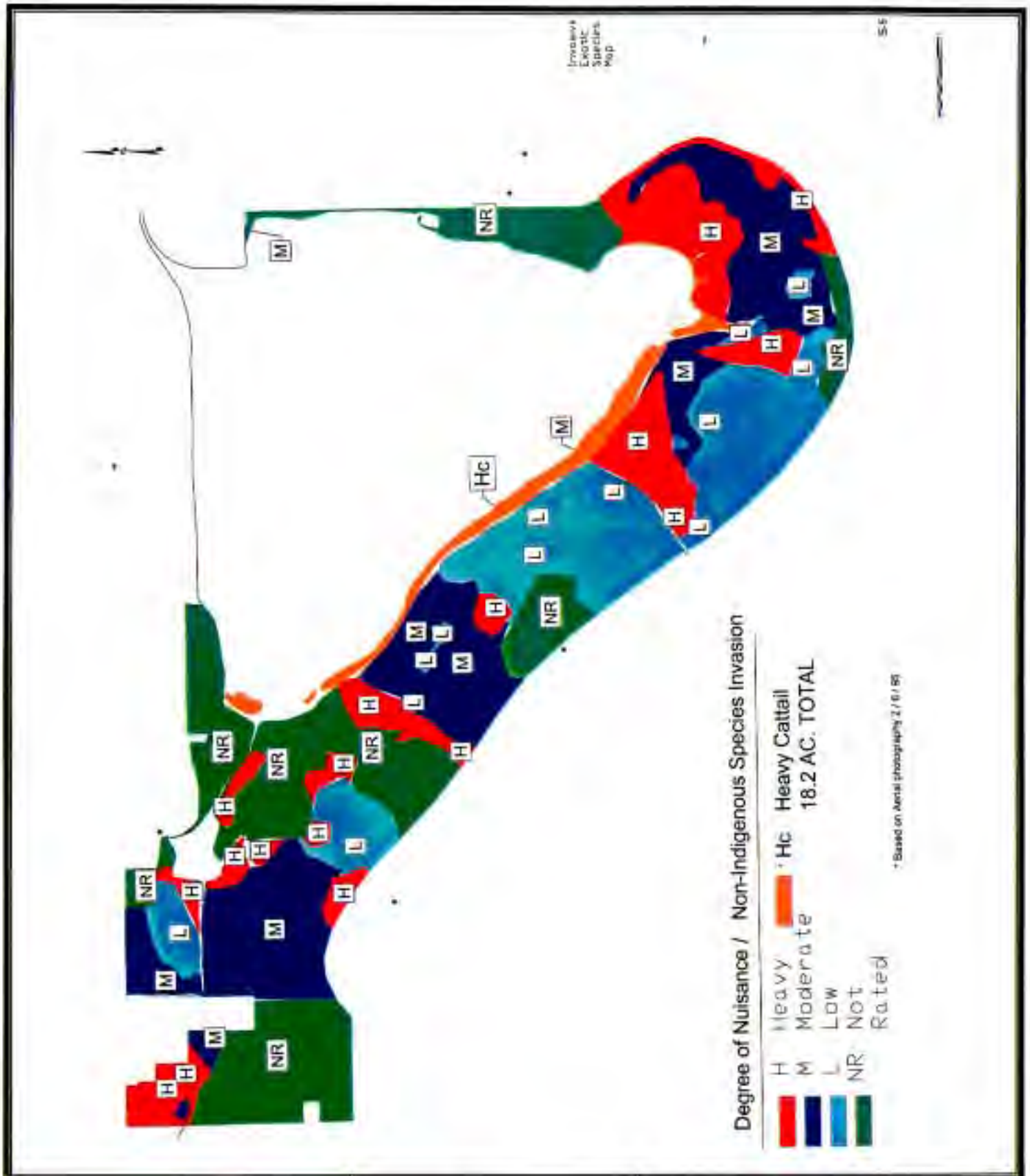
Boyd Hill
Nature Park

FDOT - District 7 **MITIGATION SITE** **(Tampa Bay Drainage Basin)**	**BOYD HILL** **NATURE PARK** **(SW 71)**	**FIGURE A** **Location Map**



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: **Greer Tract - Cypress Creek Preserve, West (ELAPP)** Project Number: **SW 72**
Project Manager: Forest Turbiville, Resource Manager Phone: 813-672-7876
Hillsborough County Parks & Recreation
10940 McMullen Road County: Hillsborough
Riverview, FL 33569 -6226 Location: Sections 4, 5, T27S, R19E

IMPACT INFORMATION

(1) FM: 2555851, SR 39 (Alexander St.), I-4 to Knights Griffin* ERP #: _____ COE #:_____
(2) FM: 2557931, US 301, Tampa Bypass to Fowler Avenue** ERP #: _____ COE #:_____
(3) FM: 4113371, US 92, Eureka Springs to Thonotasassa Road** ERP#: _____ COE #:_____

Drainage Basin: Hillsborough River Water Body(s): Westside Canal, Bayou Branch SWIM water body? (Y/N) N
Impact Acres/ Wetland Types:

(1) FM 2555851	4.9 ac.	617 (Fluccs)	(3) FM 4113371	1.60 ac.	610
(2) FM 2557931	0.2 ac.	618		0.33 ac.	618
	0.3 ac.	641		0.48 ac.	640
TOTAL 0.5 acre				0.28 ac.	641
			TOTAL 2.69 acres		

TOTAL 8.09 acres

* This SR 39 project proposes a total wetland impact of 14.2 acres, the majority of the forested wetland impacts are designated for mitigation at the Greer Tract. The remaining wetland impacts are proposed for mitigation separate from the FDOT Mitigation program on property owned by FDOT (tract referred to as "Vicker's Swamp") and/or on-site wetland creation within floodplain compensation areas.
** These two projects propose minor additional impacts in the Tampa Bay Drainage Basin. The designated area for these impacts is the Ekker Tract (SW 82).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation ___ Restoration _X_ Enhancement _X_ Preservation Mitigation Area: **99.5 acres**
SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? Y Mitigation Bank? N
Drainage Basin(s): Hillsborough River Water Body(s): Cypress Creek SWIM water body? N

Project Description

A. Overall project goal: The acquisition, preservation, enhancement, and management of a 99.5-acre tract that includes a high quality mosaic of native upland (38 acres) & forested wetland (61.5 acres) habitat within the Cypress Creek floodplain. The property was a high priority for acquisition by the Hillsborough County Parks Department (ELAPP - Environmental Lands Acquisition and Protection Program). The tract was purchased, nominated and designated for FDOT mitigation credit in 2002 for the proposed wetland impacts. The County also owns the adjacent 298-acre parcel (referred to as the "Jennings Tract") that also provides mitigation for 25 impact acres associated with 10 FDOT projects (Refer to Figure B and SW 61 in the FDOT mitigation plan). The Jennings and Greer Tracts form an area referred to as "Cypress Creek Preserve West," which is bisected by I-275 from the County's "Cypress Creek Preserve East" tract. The Greer Tract acquisition is part of a Cypress Creek corridor evaluation and pursuit by Hillsborough County and the SWFWMD for future acquisition (Save Our Rivers / Florida Forever). This acquisition aids in connecting other property owned by the SWFWMD (Cypress Creek) in Pasco Co., the Hillsborough County Parks - Cypress Creek Preserve tracts, the SWFWMD Lower Hillsborough property, and FDEP's Hillsborough River State Park. Both the Jennings and Greer Tracts were proposed for residential development before public acquisition and protection.

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-site and off-site preserved native habitat conditions. These habitats include mixed forested wetlands surrounding the upland hardwood hammocks. A discussion of species and habitat conditions are provided within Attachment A.

C. Brief description of proposed work: The proposed activity includes land acquisition with preservation and enhancement of the wetlands and upland hardwood hammocks. Enhancement activities include land management and maintenance activities such as prescribed burning and herbicide control of exotic and nuisance vegetation that is primarily limited to skunk vine. Direct construction activities are not necessary due to the high quality of existing habitat conditions. Hillsborough County Parks will expand the adjacent Jennings Tract management plan to include necessary activities for the Greer Tract.

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 be to forested wetlands (6.5 of the 8.09 impact acres). The proposed mitigation protects high quality mixed forested wetlands and upland hardwood hammock buffers from possible silviculture and residential development and appropriately compensates for the impacts to the forested and non-forested freshwater wetland habitat. This acquisition & enhancement will result in an overall mitigation ratio of 12 acres of compensation for every 1 acre of wetland impact. Other than the three referenced FDOT projects, there are no additional FDOT projects proposed for mitigation at the Greer Tract. The non-forested wetland habitat impacts anticipated for the SR 39 will be appropriately and adequately mitigated by FDOT separate from the mitigation program.

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 within the Hillsborough River basin at the time 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 : The only SWIM project in the Hillsborough Basin is the Lake Thonotasassa Restoration Project. The habitat restoration associated with that project was designated to provide mitigation for another FDOT project.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: No proposed construction, management by Hillsborough County Parks & Recreation
Contact Name: Forest Turbiville, 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: Land acquisition and nomination to the FDOT mitigation program occurred in 2002, reimbursement to Hillsborough County will occur after SR 39 project is permitted, expected in 2006.

Complete: Payment of acquisition and providing funds to the County for anticipated maintenance & management activities; annual monitoring will be conducted by the WMD for a minimum of three years post-reimbursement as an extension of monitoring for the adjacent Jennings Tract.

Project cost: $130,000 (total)
$100,000 – Acquisition
$20,000 - Maintenance & Management
$10,000 – Monitoring

Attachments

__X__1. Detailed description of existing site and proposed work. Refer to Attachment A - Existing Site & Plan, Figure B - habitat units plotted on the 1995 infrared aerial.

__X_ 2. Recent aerial photograph with date and scale. Figure B - Infrared aerial (1995).

__X__3. Location map and design drawings of existing and proposed conditions. Figure A - Location Map, Figure B.

__X_4. Detailed schedule for work implementation, including any and all phases. Acquisition was completed in 2002, reimbursement ($100K) to Hillsborough County will be conducted after the SR 39 project receives permits. Long-term maintenance & management conducted by the Hills. Co. Parks & Recreation Department with anticipated reimbursement of $20,000. Annual monitoring reports will be provided for a minimum three years post reimbursement.

__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 - Existing Site Conditions & Proposed Plan

The mixed forested wetlands (61.5 acres) have dominant tree cover provided by a diverse assemblage of laurel oak, sweet gum, red maple, American elm, sweet bay, cabbage palm, and ironwood; with additional cover of bald cypress and tupelo within the lower elevations. Due to less obligate wetland functions and conditions compared to the adjacent Jennings Tract, cypress and tupelo are not as prevalent. Subcanopy species include a dominance of the same tree species along with *Viburnum* spp., wax myrtle, and Virginia willow; and ground coverage of various sedges and ferns. The wetlands are high quality habitats that provide excellent buffers for the interior upland hammocks.

The upland hardwood hammocks have dominant cover of live oak, Southern magnolia, sweet gum, cabbage palm, and water oak; a sub-canopy of saw palmetto, cabbage palm, beautyberry, salt-bush, and buckthorn; and ground cover dominated by sedges and small panicums *(Dicanthelium spp)*. There are fewer live oaks and more cabbage palm in the hammocks of the Greer Tract compared to the adjacent Jennings Tract. This more open canopy has allowed more understory vegetation, as well as the invasion of skunkvine. The habitat conditions of the upland hammocks include a diverse assemblage of vegetative cover and species. The cover and landscape position of upland hammock islands that buffer wetlands allow substantial use by wildlife for foraging, nesting, and denning. In addition to the upland and wetland habitat designated for mitigation credit, a portion of a bahia pasture (0.5-acre) borders County Line Road. This area may eventually be designated for future parking to allow the public to have northern access point to the Greer Tract, and is not included for mitigation credit.

The proposed plan concentrates on herbicide control of any undesirable, exotic, and nuisance vegetation, which is primarily limited to skunkvine. The plan also includes implementing a prescribed burn management plan for the upland habitat. By implementing a burn plan, understory growth will be maintained at appropriate density to allow wildlife movement, generate appropriate foraging ground cover vegetation, minimize generation of undesirable vegetation, and minimize the potential of habitat damage from wildfires. The implementation of the prescribed burn plan will be dependent on the growth and percent cover of understory vegetation, but expected to be every 5-10 years that is typical for mesic hammock habitat. Management activities are conducted

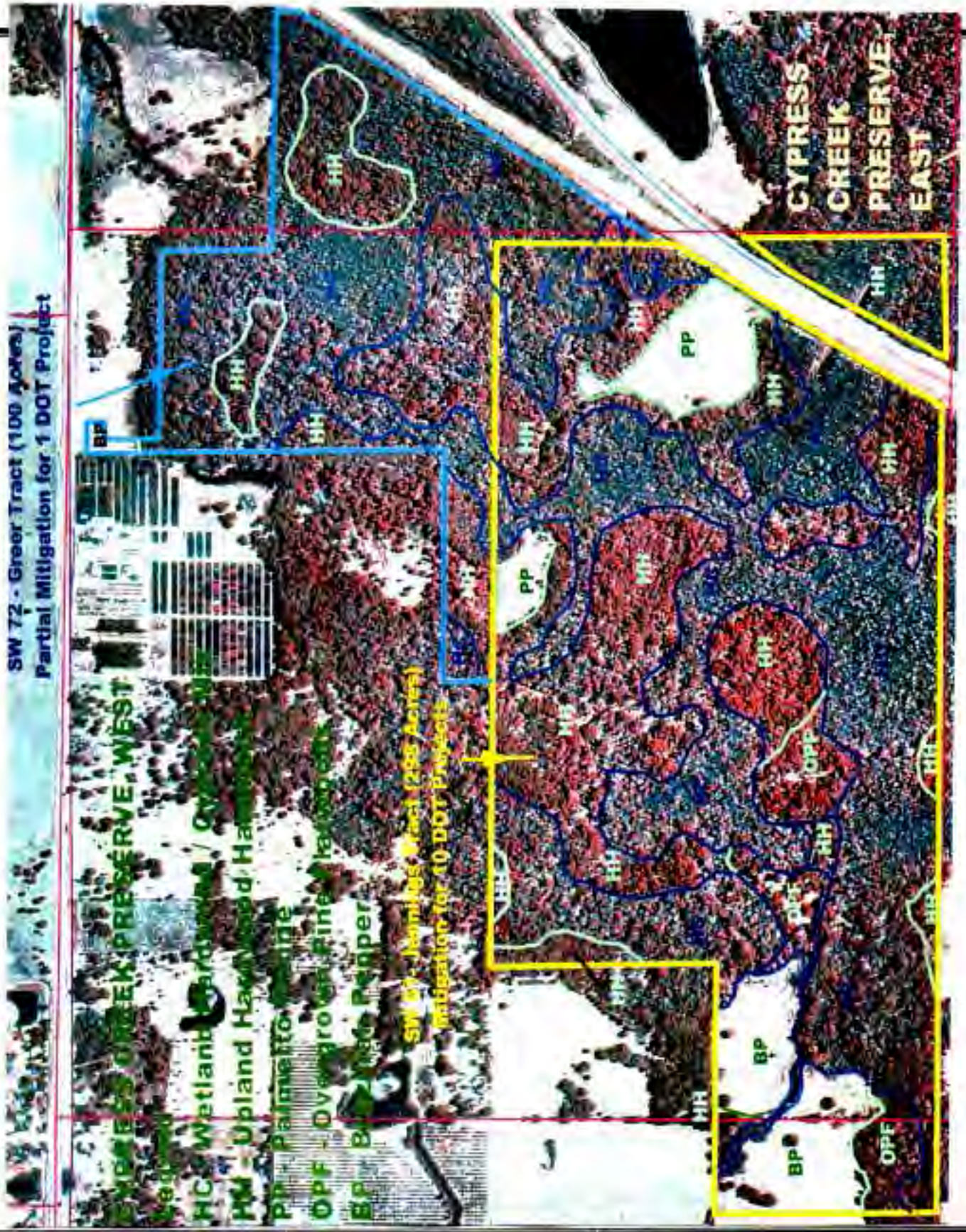
concurrent with the adjacent Jennings Tract. Security of the Cypress Creek Preserve property is conducted through a Parks staff person who lives adjacent to the Preserve.

ATTACHMENT B – Maintenance & Monitoring Plan, Success Criteria

Maintenance and management activities will be conducted concurrent with similar activities on the adjacent Jennings Tract. Maintenance activities will primarily concentrate on herbicide treatment of skunkvine and periodic prescribed burns when necessary to enhance the upland hammocks. As with the Jennings Tract, maintenance activities will also include herbicide control of any other exotic, nuisance, and undesirable species that invade the site. No supplemental planting is necessary or proposed for the Greer Tract.

Monitoring includes an annual report of activities conducted at the Greer Tract as a part of the monitoring activities and associated reporting for the adjacent Jennings Tract. Qualitative assessment of the habitat conditions will be conducted and assessment of necessary management and maintenance activities to maintain success criteria will be documented. This annual update will be prepared for a minimum 3 years after reimbursement for the acquisition. Success criteria includes implementing periodic prescribed burns and a herbicide management program to maintain less than 5% vegetative cover of exotic, nuisance, and undesirable species.

FDOT – District 7 **MITIGATION SITE** **(Hillsborough Basin)**	**GREER TRACT** **CYPRESS CREEK** **PRESERVE WEST** **(SW 72)**	**FIGURE A** **Location Map** **Scale 1 in = 1 mile, ^ North**



FDOT – District 7 **MITIGATION SITE** **(Hillsborough Basin)**	**GREER TRACT** **CYPRESS CREEK** **PRESERVE WEST** **(SW 72)**	**FIGURE B – 1995 Infrared Aerial** **HABITAT MAP** **Scale 1 in = 910 feet, <North**

Upland Hardwood Hammock – These hammocks have diverse canopy species such as live oak, laurel oak, Southern magnolia, sweet gum, cabbage palm, over saw palmetto, small cabbage palm, beautyberry, and buckthorn. These hammocks have fewer live oaks and more cabbage palm than the hammocks on the adjacent Jennings Tract, providing more open canopy.

Mixed Forested Wetland – The wetlands have a dominance of laurel oak, maple, sweet gum, American elm, and elm. Understory vegetation includes various sedges, ferns, with lizard's-tail and golden club (above) within the drainageways. There are fewer obligate areas of tupelo and cypress compared to the adjacent Jennings Tract.

FDOT – District 7 **MITIGATION SITE** **(Hillsborough River Basin)**	**CYPRESS CREEK PRESERVE WEST (SW 72)** **(Greer Tract, Hills. Co. ELAPP)**

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management Distict

Mitigation Project Name: **Hillsborough River State Park – Bulkhead Removal** Project Number: **SW 73**

Project Manager: Manny Lopez, WMD Environmental Scientist Phone No: (352) 796-7211, ext. 4270

County: Hillsborough Location: Sect. 7, T27S, R21E

IMPACT INFORMATION

DOT FM: 4037601, US 301 (SR 41) at McIntosh Road ERP #: 44020875.001 COE #: _____
Drainage Basin: Hillsborough Water Body(s): None SWIM water body? NA

Impact Acres /Types : 0.5 ac. 617 (Fluccs)

Note: There is an additional 0.3 acre impact to non-forested wetland habitat in association with this project. These impacts will be mitigated by FDOT with wetland creation at the US 301 project.

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation X Restoration ___ Enhancement ___ Preservation Mitigation Area: **0.5 acre**
SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N
Mitigation Bank? N Drainage Basin: Hillsborough Water Body(s): Hillsborough River SWIM water body? Y

Project Description

A. Overall project goal: Removal of a bulkhead wall located along the shores of the river within Hillsborough River State Park. Once the wall is removed, grading will restore the sideslopes that will include a combination of natural and man-made materials and plantings. This is part of a joint project to provide FDEP- Parks with financial and technical assistance to enhance the river shoreline, as well as implement various options to provide water quality treatment of parking facilities. Only the bulkhead portion is proposed to compensate for the DOT wetland impacts.

B. Brief description of current condition: The concrete bulkhead (170 ft. long x 10 ft. high, refer to photos) was constructed over an original wall of sand-cement bags, to control erosion along the banks of the Hillsborough River where an extreme river oxbow is located (Figure B).

C. Brief description of proposed work: The wall will be removed, some rubble will be required below the waterline to control erosion and bank stabilization. The upper sideslopes will require a combination of man-made materials, potentially some terracing for stabilization, and extensive tree, shrub, and herb plantings for habitat restoration. The various alternatives of terracing and vegetation will be evaluated prior to construction.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The proposed minor wetland impact includes 0.5 acres of mixed hardwood forested, similar to the proposed habitat conditions proposed for this restoration project. The FDOT impacts will occur to wetlands located less than 2 miles from the restoration area. Considering the ecological improvement of restoring habitat along the Hillsborough River (OFW) and within a State Park, the activity appropriately and adequately compensates for this minor impact. No additional FDOT projects' wetland impacts will be mitigated with the bulkhead removal 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 mitigation banks currently available in 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: There are currently no SWIM designated restoration projects proposed for implementation within the Hillsborough Basin. With limited DEP funds necessary to implement various water quality and natural habitat improvements proposed for the Park, several funding sources such as SWIM, Basin Board, and the DOT mitigation program are being evaluated as potential opportunities.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Contractor selected by DEP and the WMD

Contact Name: Manny Lopez, WMD Environmental Scientist Phone Number: 352-796-7211, ext. 4270

Entity responsible for monitoring and maintenance: DEP – Hillsborough River State Park staff

Proposed timeframe for implementation: Commence: 2005 – project design Complete: 2006 - Construction

Project cost: $100,000; includes design, construction and planting costs, maintenance costs covered by DEP.

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 Figure B, 1995 infrared aerial.

X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A, Location Map, project evaluation and design will be complete in 2003.

X 4. Detailed schedule for work implementation, including any and all phases. Site evaluation and design (2004-2005), construction & planting (2006), followed by 2 years maintenance & monitoring.

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 – Site Conditions & Proposed Work

The grade elevations between the Hillsborough River and the adjacent floodplain are variable as the river meanders through the Park. For the bulkhead area, the natural scouring conditions of the river oxbow resulted in a naturally steep escarpment. The natural floodplain sideslopes adjacent to the bulkhead has a transition of vegetation; from cypress along the lower banks to elms, maple, and hickory along the upper slopes. Shrubs such as wax myrtle, sugarberry, and saltbush provide a subcanopy, and ground cover includes various fern and sedge species. The slope rises 10-12 feet over a limited horizontal distance of 70-100 feet.

The original cement bag wall was capped with the concrete wall bulkhead after major storm events started eroding the capacity of the cement bags to maintain the slopes. The Park facilities include a concrete block picnic shelter less than 100 feet from the bulkhead, somewhat limiting the capacity to maximize slope restoration to an angle that can be naturally maintained. As a result, the proposed restoration will require a combination of man-made and natural stabilization methods. Depending on the evaluation of river hydraulics, historical flood elevations, and slope gradient restrictions to the shelter, the most likely design will include a series of slightly sloped terraces, with small walls of reinforced fill, wood, cements bags, rubble, and/or other material. A staircase, not funded through the DOT program, will probably be constructed to keep visitors from walking down the restored slope to the river.

No matter what kind of man-made material may be used to stabilize the slope, an extensive planting plan of trees, shrubs, and herbs will be adopted after construction. The aforementioned tree and shrub species that are currently present along the sideslopes will be the dominant species proposed for planting. Depending on the final slope design, some form of temporary cover such as rye or millet will be required for quick stabilization. This will be followed by planting of permanent herb species such as wiregrass, broomsedge, ferns, or some other species deemed suitable for the soil, slope, and hydrologic conditions of the site. The desired outcome is to provide earthwork design and associated revegetation plan that over the course of 5-10 years, will be a blending of restoration and matching the natural habitat conditions that currently exist along the sideslopes adjacent to the wall.

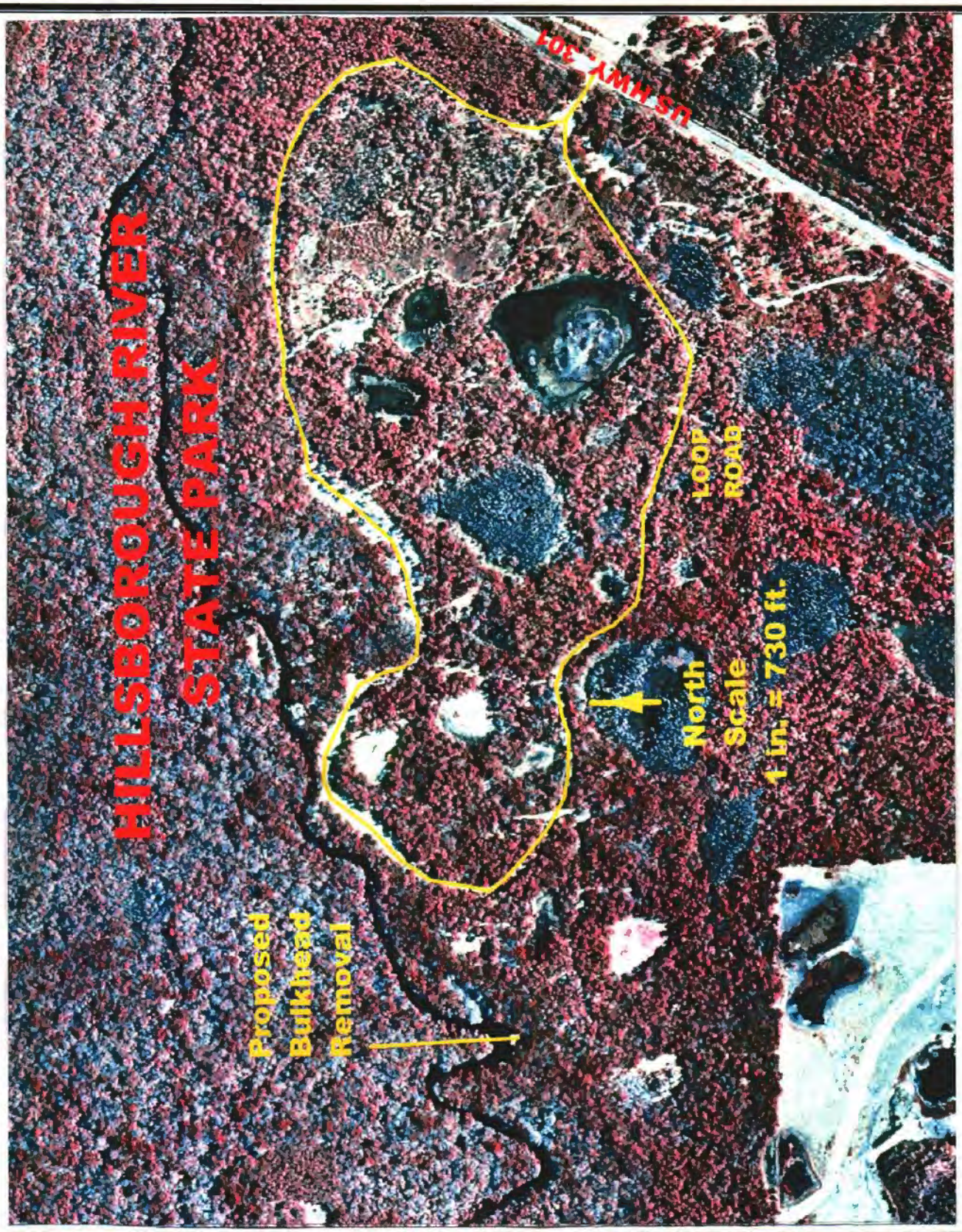
Attachment B – Maintenance & Monitoring, Success Criteria

Maintenance activities are expected to be minimal, and primarily within a couple years of the construction. Exotic and nuisance species are currently not a problem for the site. Even though not anticipated as part of the restoration effort, generation of such species will be eradicated by herbicide. Any terracing, rubble along the waterline, or other man-made conditions of the site will be periodically checked to ensure stabilization is being maintained while not interfering with the integrity or transition of the habitat restoration components or functions.

Qualitative monitoring will be conducted semi-annually, followed by an annual monitoring report conducted for a minimum 2 years post-construction. The initial monitoring report will include photo and narrative documentation of conditions pre-, during, and post- construction. The monitoring reports will document the health, functions, and values of the restoration effort; and the maintenance activities and events necessary to achieve and maintain success.

Success criteria shall include a minimum 90% survivorship of planted material, and any tree and shrub mortality will be replaced with similar species. Tree canopy cover for the restored slope shall exceed 30% closure. Ground cover vegetation shall exceed 70% for all areas not covered with unnatural material (e.g. rubble rip-rap, terraces, staircase, etc.). Exotic, nuisance, and undesirable species shall not exceed 10%.

FDOT – District 7 **MITIGATION SITE** **(Hillsborough River Basin)**	**HILLSBOROUGH RIVER** **STATE PARK** **(SW 73)**	**FIGURE A** **Location Map** **Scale 1 in = 2 Miles, ^ North**



FDOT - District 7 MITIGATION SITE (Hillsborough River Basin) Drainage Basin)	HILLSBOROUGH RIVER STATE PARK (SW 73)	FIGURE B 1995 Infrared Aerial Scale 1 in. = 730 ft.

View of the bulkhead wall along the Hillsborough River. The wall will be removed and the area graded to reflect a more sideslope gradient, with tie-in to the grade elevation of the existing tree line (right). Native tree, shrub, and herb species will be planted to restore habitat function and value.

View of the wall from the water elevation.

FDOT - District 7 **MITIGATION SITE** **(Hillsborough River Basin)**	**HILLSBOROUGH RIVER STATE PARK** **BULKHEAD REMOVAL (SW 73)**

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 : 1.6 ac. 617 (Fluccs)

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. Site 8 is a large outfall ditch of a cypress system, requiring a ditch 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 these two 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 (Figure B, Site 4, refer to site photos). Another berm crossing of the river is used for management access, and has three undersized 48" CMP's for the main channel flow, and only one 24" overflow pipe (Site 2). The Five Mile Creek crossing has such an undersized culvert, the supporting fill material has eroded and deposited downstream (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 will be conducted to determine the appropriate size replacement and supplemental culverts required for Site 2. Culvert expansions 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 at least two breaches installed to restore the floodplain flow patterns. These breaches will have gradual slopes, graded to match historic surface grade elevations, and installed to minimize impacts to the laurel oaks along the sideslopes. As the dilapidated bridge continues to decay and drop debris into the river channel, limbs and other debris are caught which restricts flow. Eventually the entire bridge will fall into the river so it will also be removed during construction of the berm breaches. The Five Mile Creek crossing will be evaluated to either have the undersized culvert replaced with appropriately sized culverts and associated berm stabilization, or an at-grade wet crossing stabilized with aggregate or another compatible material. 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 two ditch blocks installed to enhance hydrologic conditions of the cypress wetland, as well as create and maintain ephemeral marsh habitat within the ditch (Figure D).

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 has been constructed and the forested wetland impacts have occurred. But it was determined that even though the on-site wetland mitigation project constructed by DOT 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 – 2005
Complete: Construction - 2006, pending river hydrologic conditions to avoid turbidity.

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 will be completed in 2005. 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, anticipated in the spring of 2006.

_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 corrugated metal pipe with concrete pipe, 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 cannot be accessed by vehicles due to the 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 a wet crossing with rubble rock aggregate or other material will be installed in lieu of the culverts. Anticipated direct wetland enhancement (length 700 ft. x width 150 ft. = 2 acres).

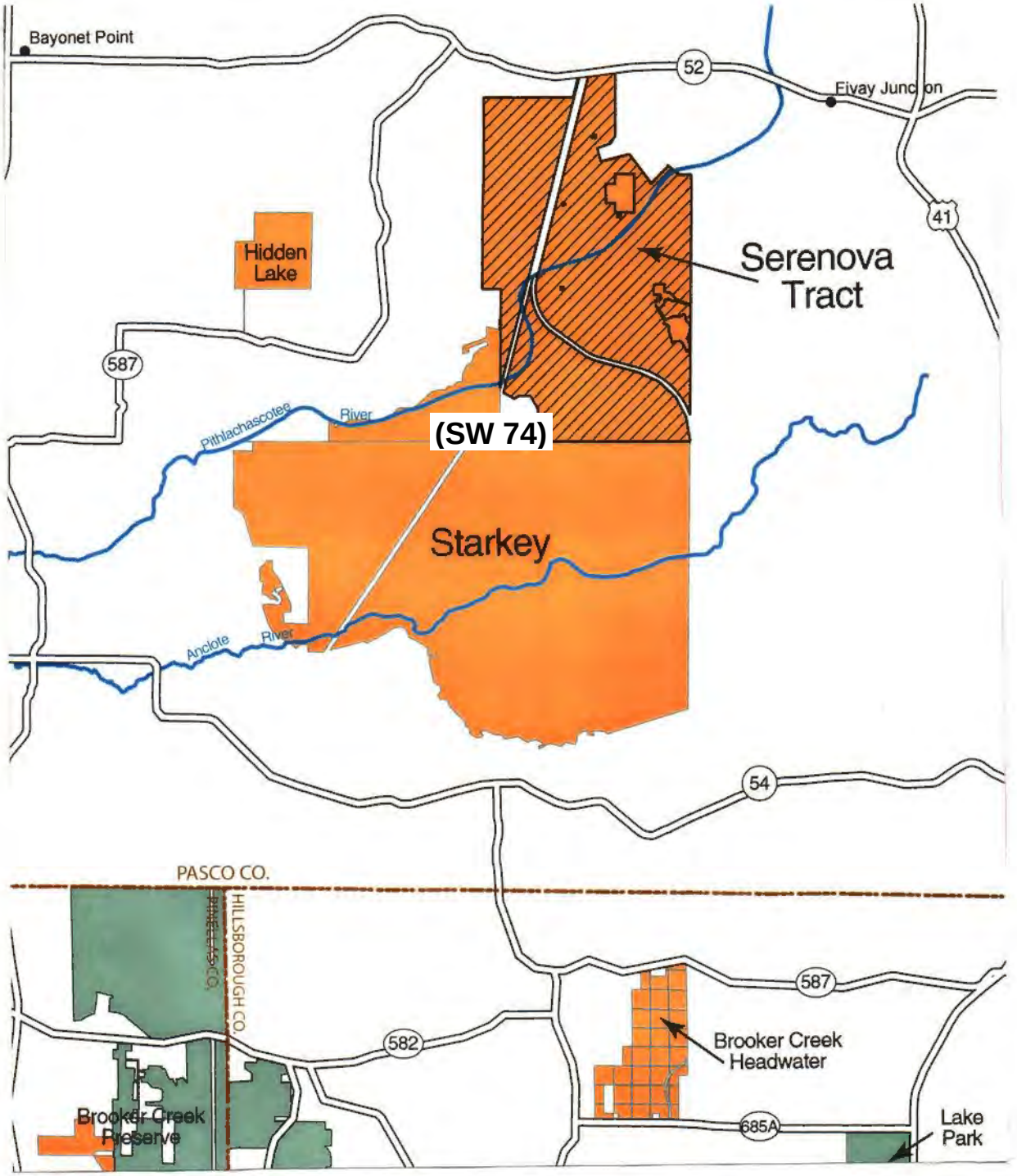
Site 4 – This remnant tram road has a dilapidated bridge and considering the accessibility of the other Pithlachascottee River crossing (Site 2), neither replacing the bridge nor placing culverts within the access berm are necessary. Since there are no existing culverts in the berm, like the other two crossings, flow conditions are detained upstream and more contained within the main channel within downstream areas. In order to restore normal floodplain flow patterns, a minimum of one wide breach cut is anticipated within each berm segment north and south of the main channel. 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 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. Along with a ditch block along the wetland / upland interface, another ditch block is anticipated to maintain the upland ground water conditions and create and maintain ephemeral marsh habitat within the wide ditch. Anticipated direct wetland enhancement (length 300 feet x width 350 length = 2 acres).

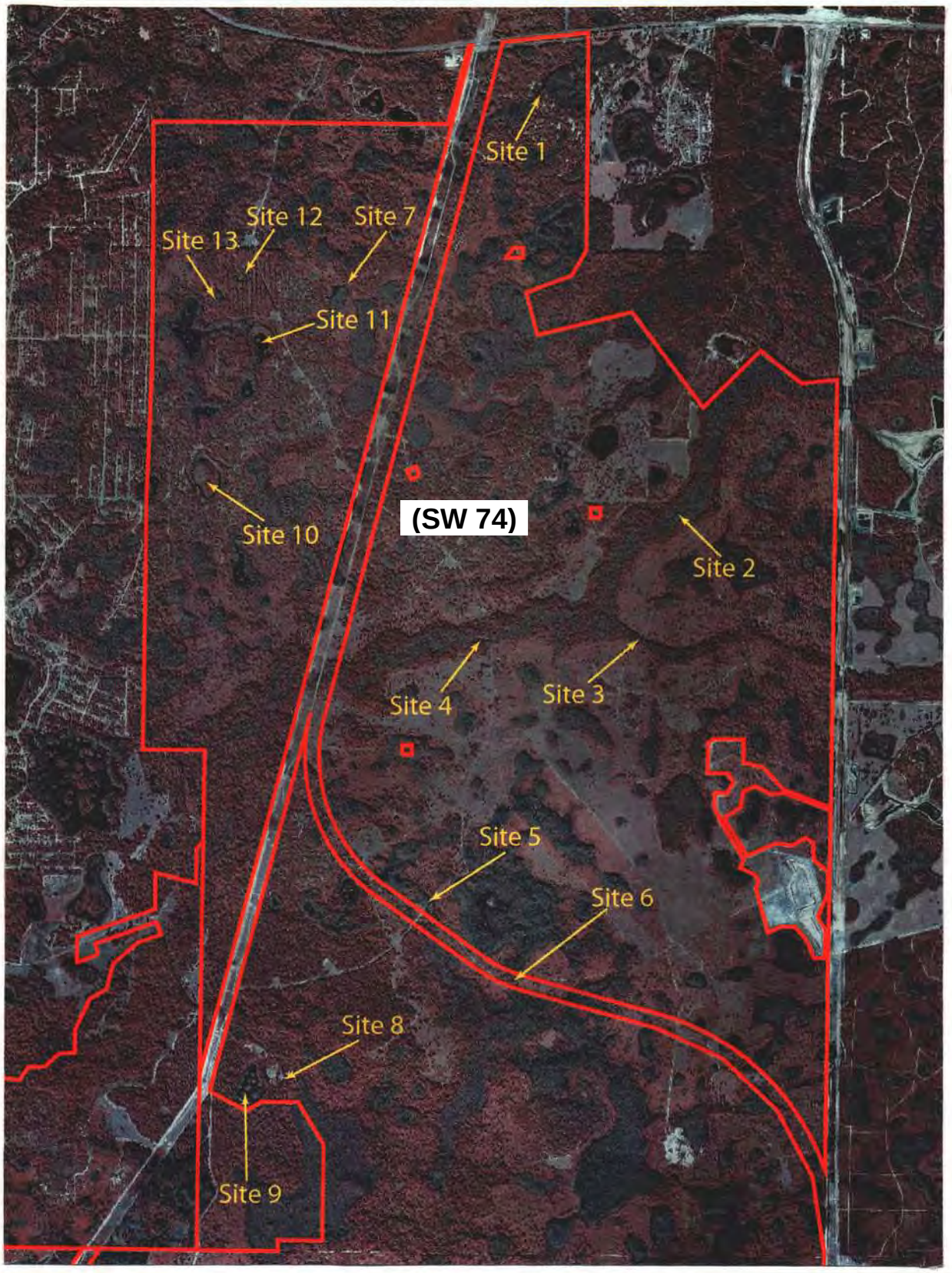
Summary

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.

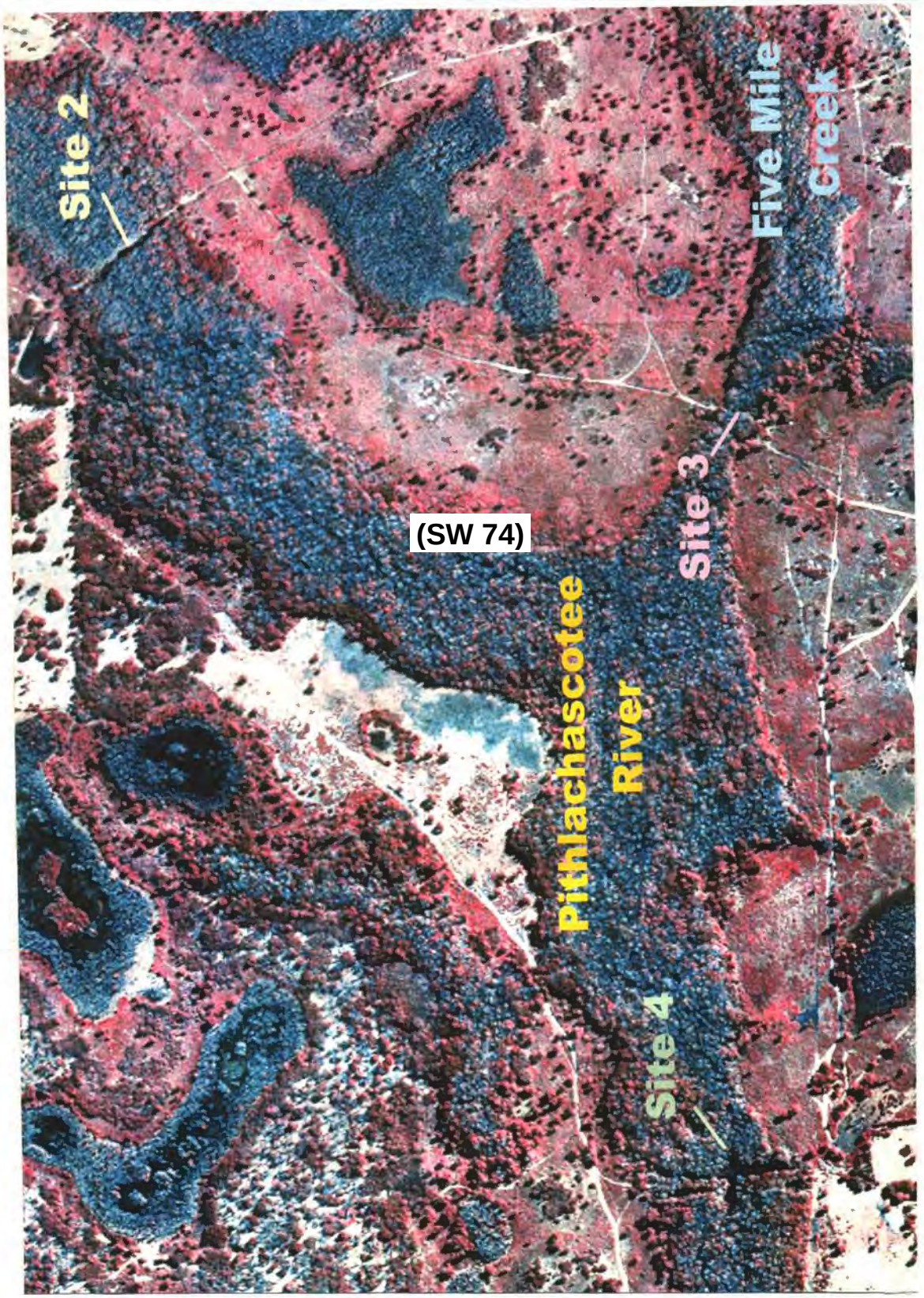
Additional evaluation was conducted to determine which of the proposed restoration sites 1-8 could be enhanced with the available Turnpike funds and which sites would be appropriate to mitigate for the SR 52 wetland impacts. There were adequate funds to conduct the enhancement activities associated with 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 nominated to provide the mitigation for the DOT impacts, and the DOT funds provide sufficient funds to also fulfill the budget requirements for activities necessary to enhance these four sites.



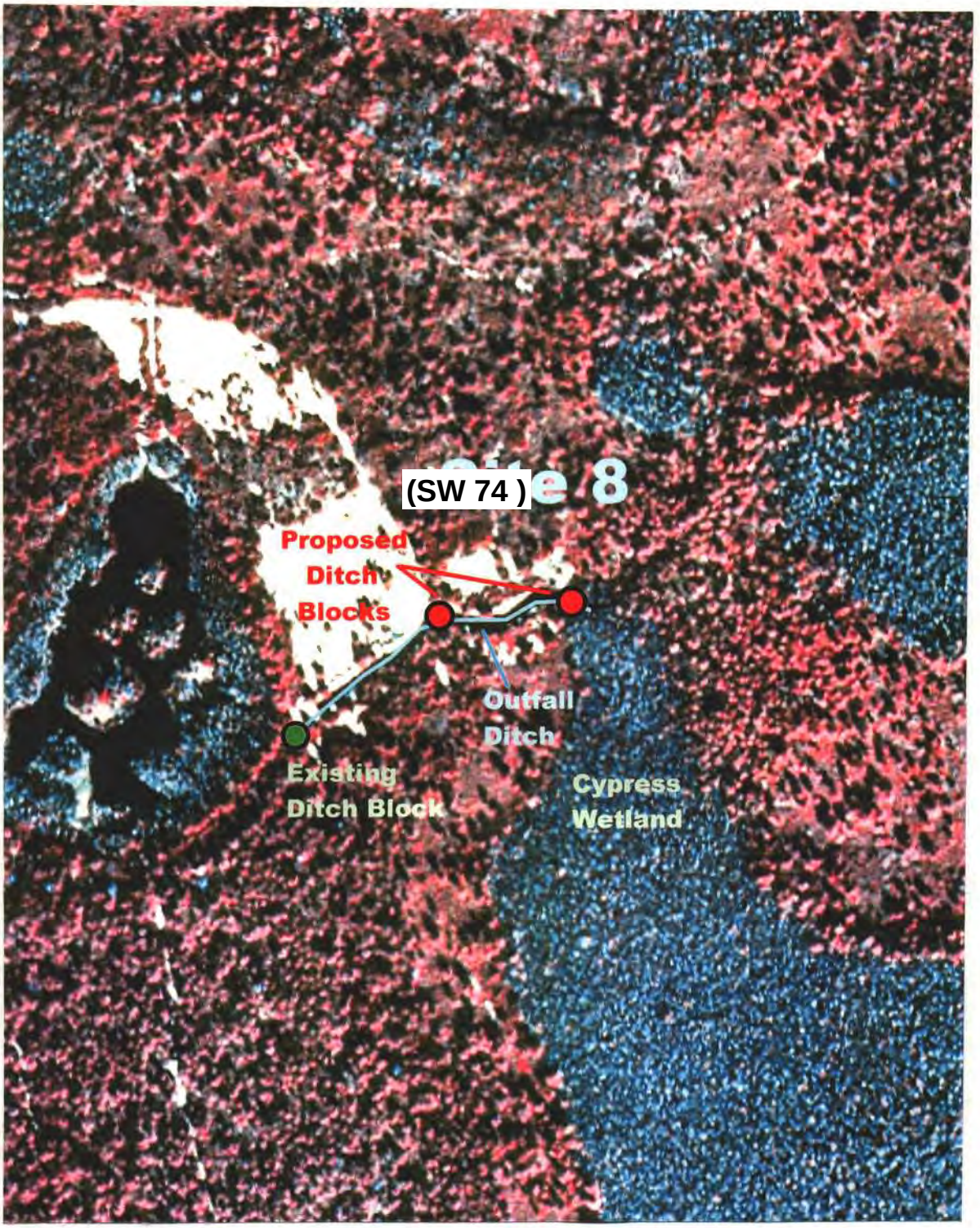
FDOT - District 7 **MITIGATION SITE** **(Upper Coastal Basin)**	**SERENOVA** **WETLAND** **ENHANCEMENT** **(SW 75)**	**FIGURE A** **Location Map** **Scale 1 in. = 2 miles** **North ^**



FDOT - District 7 **MITIGATION SITE** **(Upper Coastal Basin)**	**SERENOVA** **WETLAND** **ENHANCEMENT** **(SW 75)**	**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 75)	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 75)	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 75)**

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 75)**

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 75)**

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 75)**

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: (1) FM 2557031 - 5.4 acres 642 (Fluccs)*
(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 (total 651 acres) acquired by Hillsborough County. The SWFWMD is responsible for the initial wetland habitat creation & restoration activities, Hillsborough Co. Parks is responsible for the perpetual management of the site. 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 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 plan 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 alteniflora*), 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 (Fluccs #642) and a minor 0.1-acre of mangrove impact (Fluccs #612). 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 theTampa Bay Mitigation Bank, which is also within the Cockroach Bay area. The mitigation bank was not under construction nor had available credits when this restoration project was selected in 2002 for the FDOT mitigation program.

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: Southwest Florida Water Management District or designee

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

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

Proposed timeframe for implementation: Commence: Design, 2002 Complete: Construction in 2004, followed by minimum 3 years maintenance & monitoring

Project cost: $ 450,000 (total); $100,000 for design, $350,000 for construction, planting, and maint. & monitoring

Attachments

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

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, final design plans on Figures C,D,E.

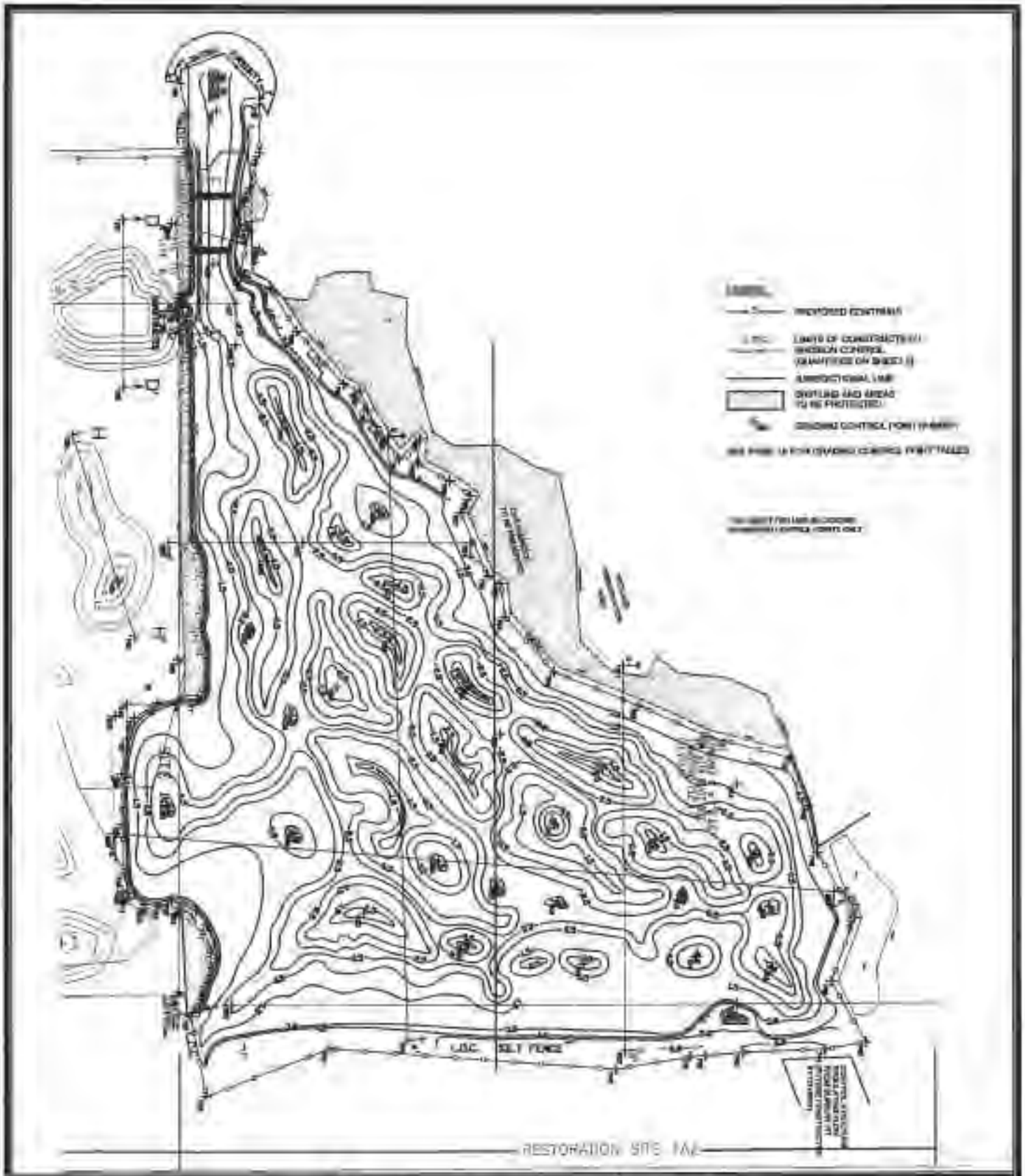
x	4. Detailed schedule for work implementation, including any and all phases. The final design for this portion of the Cockroach Bay plan was completed at the end of 2002, construction and planting was conducted in 2005, followed by a minimum 3 year monitoring period.
x	5. Proposed success criteria and 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 under Comment D.

Attachment A – Maintenance & Monitoring, Success Criteria

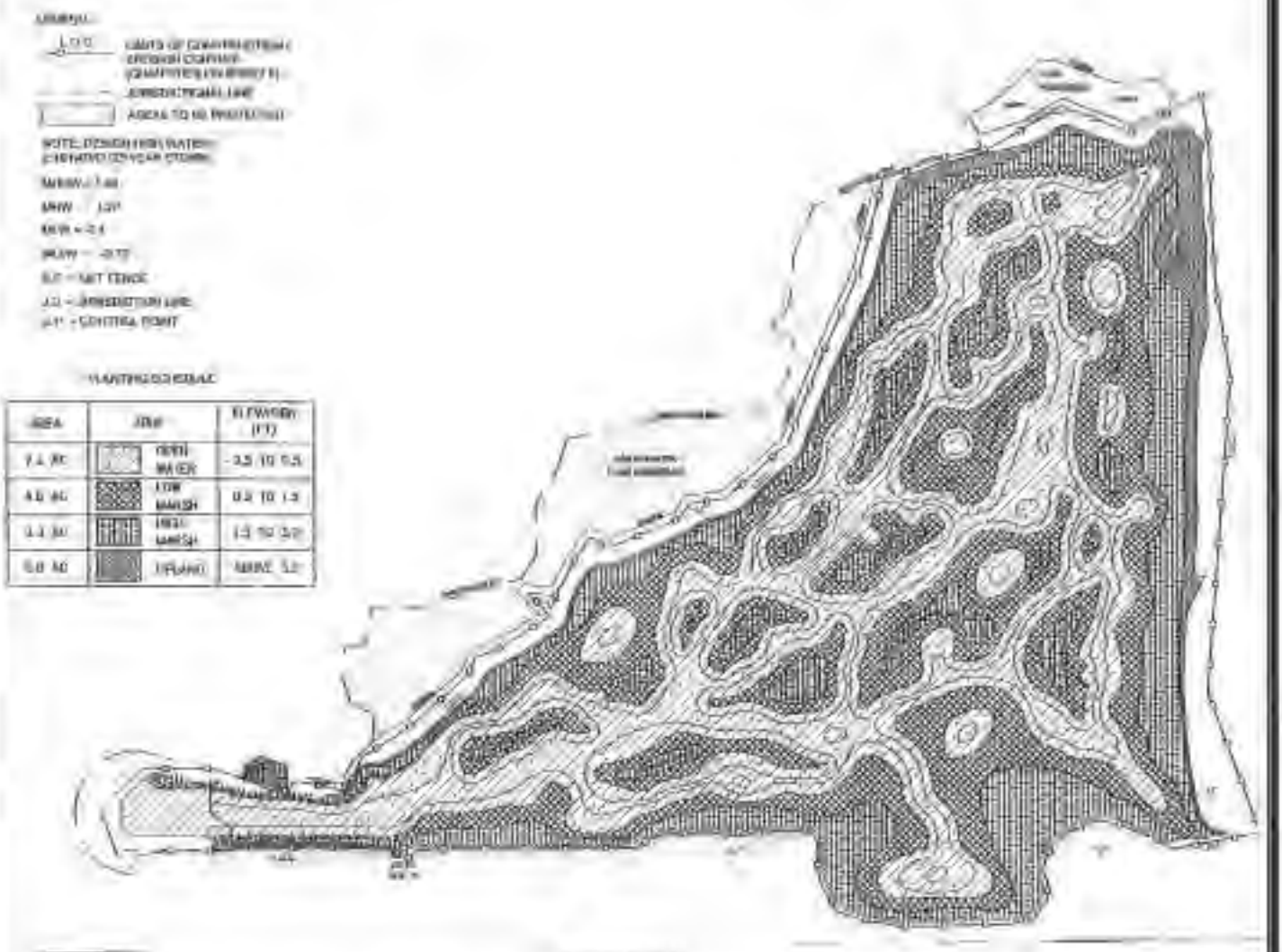
The maintenance activities are conducted by Hillsborough County staff with assistance from the SWFWMD, and primarily related to control of invasive exotic vegetation. Maintenance is a more intensive effort during the first couple years after planting to allow for establishment of desirable plant species, 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 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 by a SWFWMD consultant on a semi-annual basis, followed by annual reports conducted 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 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**



PLANTING SCHEDULE

AREA	ZONE	ELEVATION (FT)	SPECIES		SIZE	SPACING	QTY
7.3 AC	OPEN WATER	-2.5 TO 0.5	NA		NA	NA	NA
8.8 AC	LOW MARSH	-2.5 TO 1.5	SMOOTH CORDGRASS	Distrib. in substrates	4" pulled	2 o.c.	17,000
			HARSHHAY CORDGRASS**	Spartina patens	4" pulled		8,100
4.3 AC	HIGH MARSH	1.0 TO 3.0	CHOTTGRASS	Paspalum distichum	4" pulled	2 o.c.	12,000
			SAND CORDGRASS*	Spartina bakeri	4" pulled		2,000
6.0 AC	UPLAND	ABOVE 3.0	BAHIA GRANT	Paspalum notatum	Active	(HYDROSEED)	0.5

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 Phone No: (863) 534-7377

Polk County Environmental Lands Coordinator

County: Polk Location: Sec. 10 T27S, R26E

IMPACT INFORMATION

(1) FM: 1976791, US 27 - SR 544 to Blue Heron Bay * ERP#: 43023431.000 COE #: 200202574 (IP-JPF)
(2) FM: 4038901, US 27 - Blue Heron Bay to CR 547 ERP#: 43023431.001 COE #: 200205885 (IP-JPF)
(3) FM: 2012041, I-4, CR 557 to Osceola Co. Line (Seg. 6,7,9)** ERP#: 43011896.032 COE #: SAJ-1994-3591 (IP-MGH)

Drainage Basin: Ocklawaha Water Body(s): Tower Lake SWIM water body? N

Impact Acres / Types:

(1) FM 1976791 0.02 ac. 510 (Fluccs)
0.29 ac. 630
TOTAL 0.45 acres

(3) FM 2012041 0.59 ac. 621 (Fluccs)
3.76 ac. 640
TOTAL 4.35 acres

(2) FM 4038901 1.9 ac. 630 (Fluccs)

TOTAL: 6.7 acres

*Note – A portion of this US 27 segment is within the Peace Basin and the associated wetland impacts will be mitigated at the Lk. Hancock Reserve (SW 66).

** Note – A portion of this I-4 project is within the Withlacoochee Basin and the associated wetland impacts will be mitigated at the Hampton Tract (SW 59). Another portion of this project is within the Kissimmee Ridge Basin and the associated wetland impacts will be mitigated at the Reedy Creek Mitigation Bank (SW 49).

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation __ Restoration __ Enhancement _X_ Preservation Mitigation Area: 198 **ac.**
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 wetlands within the Lake Lowery floodplain. The 198 acres is part of a 397-acre parcel purchased in Feb., 2002 in a joint acquisition between the SJRWMD and Polk County. In addition to providing mitigation for FDOT wetland impacts, the site fulfills overall objectives of acquisition of 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 forested wetland and shrub wetland islands, 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 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 interest between the WMD 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 lands 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 proposed wetland impacts include cypress (0.6 acre), marsh (3.8 acres), and mixed forested (2.2 acres). The proposed mitigation includes the preservation of 198 acres of marsh, shrub, and mixed forested wetland habitat. Wetland functional assessment (WRAP) has been conducted for the site and the ratio of 30 acres of preservation to 1acre impact has been determined to be appropriate to compensate for these impacts.

E. **Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** The SJRWMD considered the use of a mitigation bank to compensate for the anticipated impacts. The only mitigation bank in the basin (Lk. Louisa/Green Swamp Mitigation Bank) includes a dominance of xeric habitat restoration and bayhead enhancement. The proposed wetland impacts and mitigation include a dominance of mixed forest and marsh habitat. Therefore, the Lake Lowery option was deemed by the SJRWMD and the multi-agency mitigation review group 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 – 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

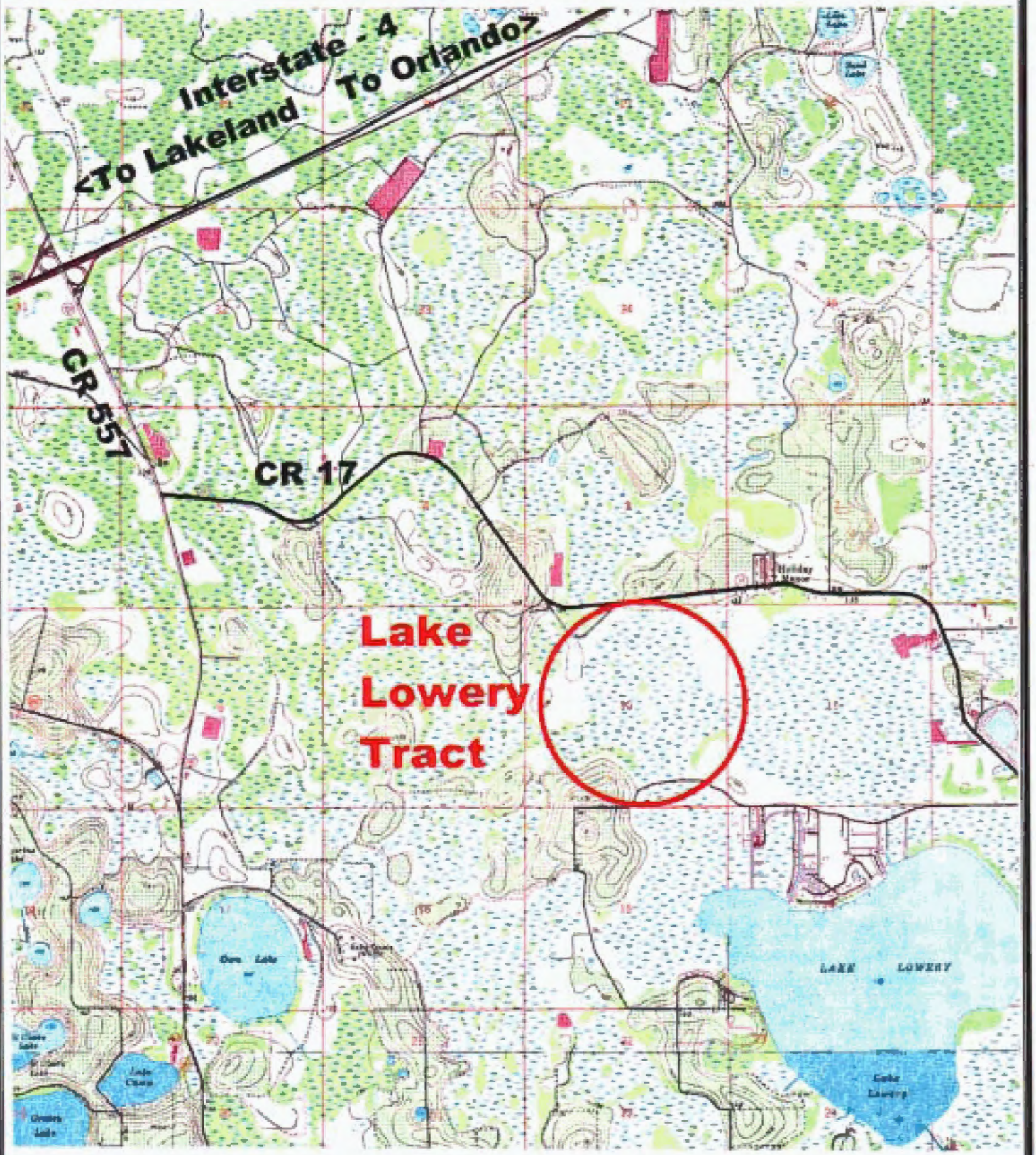
holly (*Ilex cassine*). Due in part to high water conditions and shading, the understory varies in coverage but generally averages 30-60%. The dominant coverage is provided by ferns (*Woodwardia virginica, Thelypteris palustris*), and lizard's-tail (*Saururus cernuus*); duckweed (*Lemna* spp.) is common 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 elliottii*). 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.

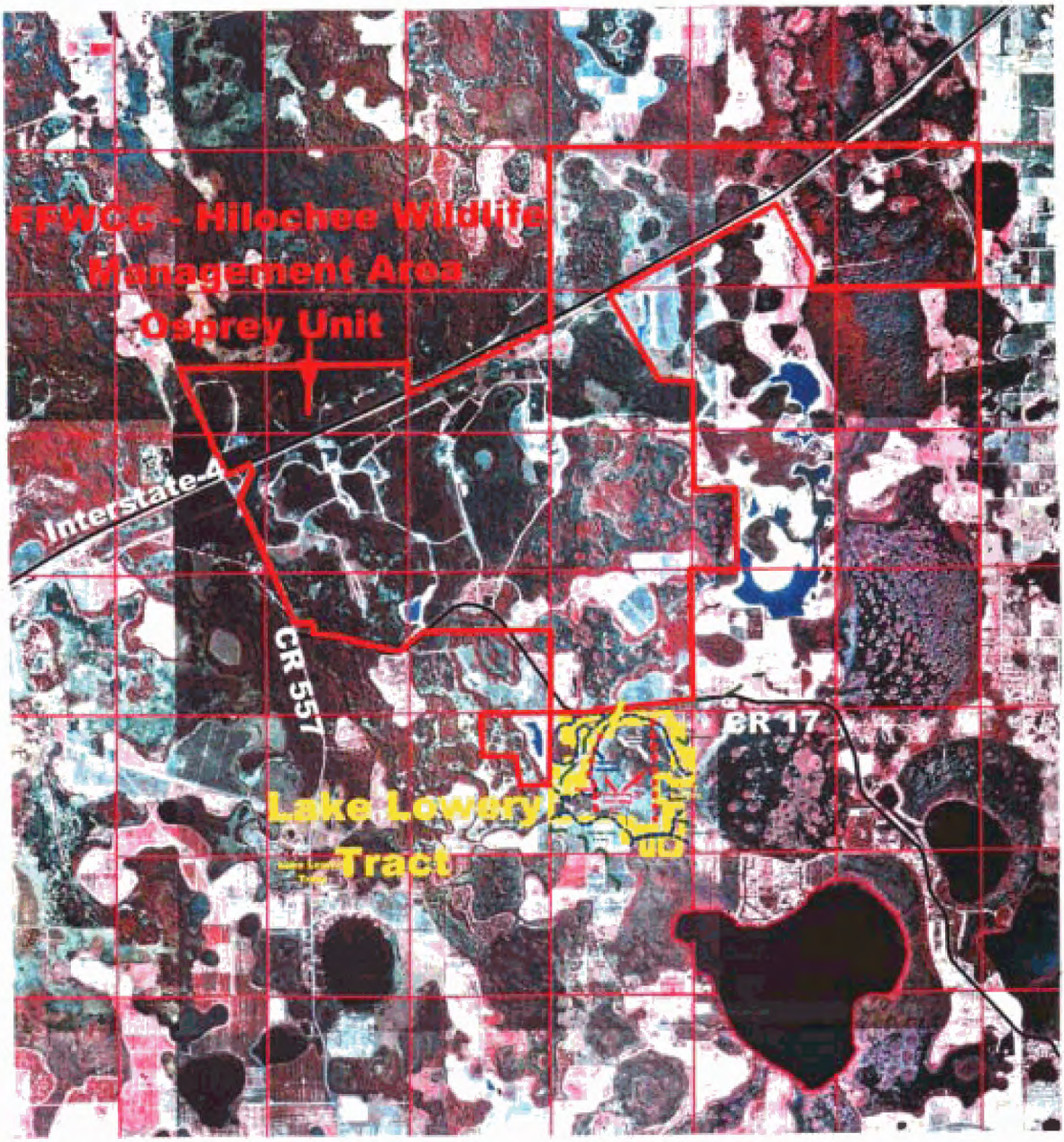
Beyond periodic inspections and the potential of prescribed burns in the uplands, there are no maintenance or management activities currently proposed or adopted for the site. There are still some outparcels between the western boundary of the property and the FWC Hilochee Wildlife Management Area (refer 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

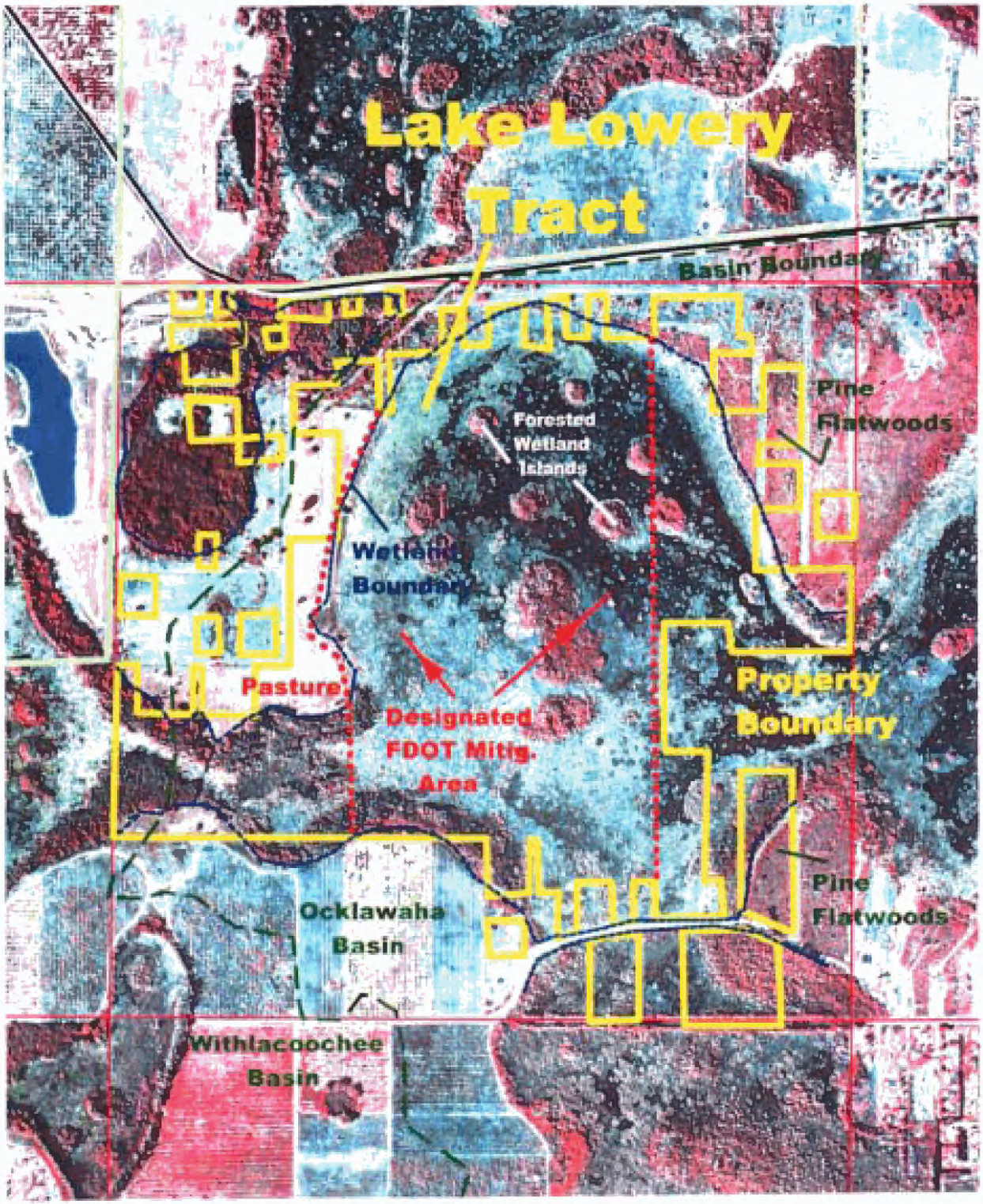
As noted, the Lake Lowery Tract was a joint acquisition pursuit (50/50 split) with the SJRWMD and Polk County. The site was an undivided interest, and the SJRWMD received approval from the regulatory and commenting agencies to designate their 50% interest to also mitigate for DOT wetland impacts. As of the 2003 Legislative session, the area of the Palatlakaha basin within Polk County was transferred to the SWFWMD. This transfer included a wide range of issues, including permitting and the transfer of property holdings 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)	FM: 4037711, US 19 – Republic Dr. to CR 816 (Alderman)	ERP #: 44022085.001	COE #: NW 14PCN
(2)	FM: 2571741, US 98 – Hernando Co. Line to US 19	ERP #: 4323430.000	COE #: 199803481 (IP-KF)
(3)	FM: 2570501, SR 688 (Ulmerton) – Oakhurst to 119th St.	ERP #: 44012347.010	COE #: 200204931 (NW 14)
(4)	FM: 2563221, SR 52 – Moon Lake to Suncoast Parkway	ERP #: 43007396.001	COE #: SAJ-2002-6047 (IP-MN)
(5)	FM: 2563321, SR 54 – Rowan Rd. to Mitchell Bypass	MSW #: 4011641.004	COE #: 199302010 (IP-ML)
(6)	FM: 2568151, SR 586 (Curlew Rd.) – CR 1 to Fisher Rd.	ERP #: 44009837.008	COE #: 200205245 (NW)
(7)	FM: 2563371, SR 54 – Gunn Hwy. to Suncoast Parkway	ERP #: 4316251.000	COE #: 199905203 (IP-ES)
(8)	FM: 2571931, US 19 – CR 490 (Yulee) to CR 44	ERP #:	COE #:
(9)	FM: 2563241, US 41 (SR 45) – Tower Rd. to Ridge Road	ERP #:	COE #:
(10)	FM: 2572983, CR 578 (County L.R.) – East Rd. to Mariner	ERP #:	COE #:
(11)	FM: 4050172, US 98 – CR 485 (Cobb) to CR 491 (Citrus)	ERP #:	COE #:
(12)	FM: 2572992, CR 485 (Cobb) – SR 50 to US 98	ERP #:	COE #:
(13)	FM: 2572985, CR 578 (County L.R.) – Suncoast to US 41	ERP #:	COE #:
(14)	FM: 2563231, SR 52 – Suncoast Parkway to US 41	ERP #:	COE #:
(15)	FM: 4113341, US 41 (SR 45) - Gowers Corner to CR 578	ERP #:	COE #:
(16)	FM: 4058222, US 19 – Green Acres to Jump Court	ERP #:	COE #:
(17)	FM: 2572982, CR 578 (County L.R.) – US 19 to East Rd.	ERP #:	COE #:
(18)	FM: 4188601, US 19, Sunray Drive to Marine Parkway	ERP #:	COE #:

Drainage Basin: Upper Coastal, Hillsborough River Water Body(s): None SWIM water body?N

Impact Acres /Types :

(1) FM 4037711 0.1 ac. 618 (Fluccs)

(2) FM 2571741 1.4 ac. 621 (Fluccs)

(3) FM 2570501 0.2 ac. 630 (Fluccs)

(4) FM 2563221 3.2 ac. 617 (Fluccs)
0.9 ac. 618
2.1 ac. 621
0.1 ac. 641x
TOTAL 6.3 acres

(5) FM 2563321 0.1 ac, 671 (Fluccs)
0.2 ac. 618
3.3 ac. 641
TOTAL 3.6 acres

(6) FM 2568151 0.1 ac. 618 (Fluccs)

(7) FM 2563371 6.0 ac. 621 (Fluccs)

(8) FM 2571931 0.05 ac. 615 (Fluccs)
0.02 ac. 630
0.02 ac. 641
TOTAL 0.09 acre

(13) FM 2572985 0.2 ac. 617 (Fluccs)

(14) FM 2563231 2.0 ac. 610 (Fluccs)
0.5 ac. 618
1.0 ac. 621
0.7 ac. 641
TOTAL 4.2 acres

(15) FM 4113341 0.5 ac. 641x (Fluccs)

(16) FM 4058222 0.2 ac. 617 (Fluccs)
0.01 ac. 621
0.03 ac. 641
TOTAL 0.24 acre

(17) FM 2572982 0.5 ac. 641 (Fluccs)

(18) FM 4188601 0.2 ac. 641 (Fluccs)

(9) FM 2563241 2.01 ac. 610 (Fluccs)
0.20 ac. 617
5.96 ac. 630
0.42 ac. 641
0.59 ac. 643
TOTAL 11.48 acres

(10) FM 2572983 0.4 ac. 641 (Fluccs)

(11) FM 4050172 0.1 ac. 610 (Fluccs)

(12) FM 2572992 8.0 ac. 630 (Fluccs)
4.0 ac. 643
TOTAL 12.0 acres

TOTAL – 47.61 acres

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ___ Creation _X_ Restoration _X_ Enhancement ___ Preservation Mitigation Area: **2,980 Acres**
SWIM project? _N_ Aquatic Plant Control project? _N_ Exotic Plant Control Project? _Y_
Mitigation Bank? _N_ Drainage Basin: Upper Coastal, Hillsborough River Water Body(s): _None_ SWIM water body? N

Project Description

A. Overall project goal: The Conner Preserve (2,980 acres) was acquired by the SWFWMD for public ownership at the end of 2003. The property represents diverse habitat conditions within a high priority public lands acquisition area since it's within a habitat 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 that will also be restored into appropriate upland habitat communities. Implementation of the enhancement and restoration plan (attachment) will provide inter-related ecosystem habitat improvements that will result in more 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 are predominantly mixed cypress & hardwood communities. Many of the forested components are 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 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 will be achieved through eradication of exotic and nuisance species, some mechanical thinning and control of dense vegetative within the outer wetland fringes and upland buffers, and implementation of a prescribed burn program. Most of the exotic and nuisance species will be eradicated via herbicide control. The inappropriate density of hardwoods and myrtles within the wetland fringes and upland buffers will 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 will 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 will be 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), some mechanical and 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 enhancement will be 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) that will be 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 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 maintained 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 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 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 2006 mitigation plan, there are 18 roadway projects with a conservative estimate of 48-acres of wetland impacts within the Upper Coastal basin designated for mitigation at the Preserve. These are very conservative impacts that are anticipated to decrease to 30-35 acres 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, 11.5 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 closely 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 review 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: As of 2006, there are 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: There no SWIM projects in the Upper Coastal or Hillsborough Basins that are either not already constructed or 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 Dept. or designee
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 is scheduled to commence 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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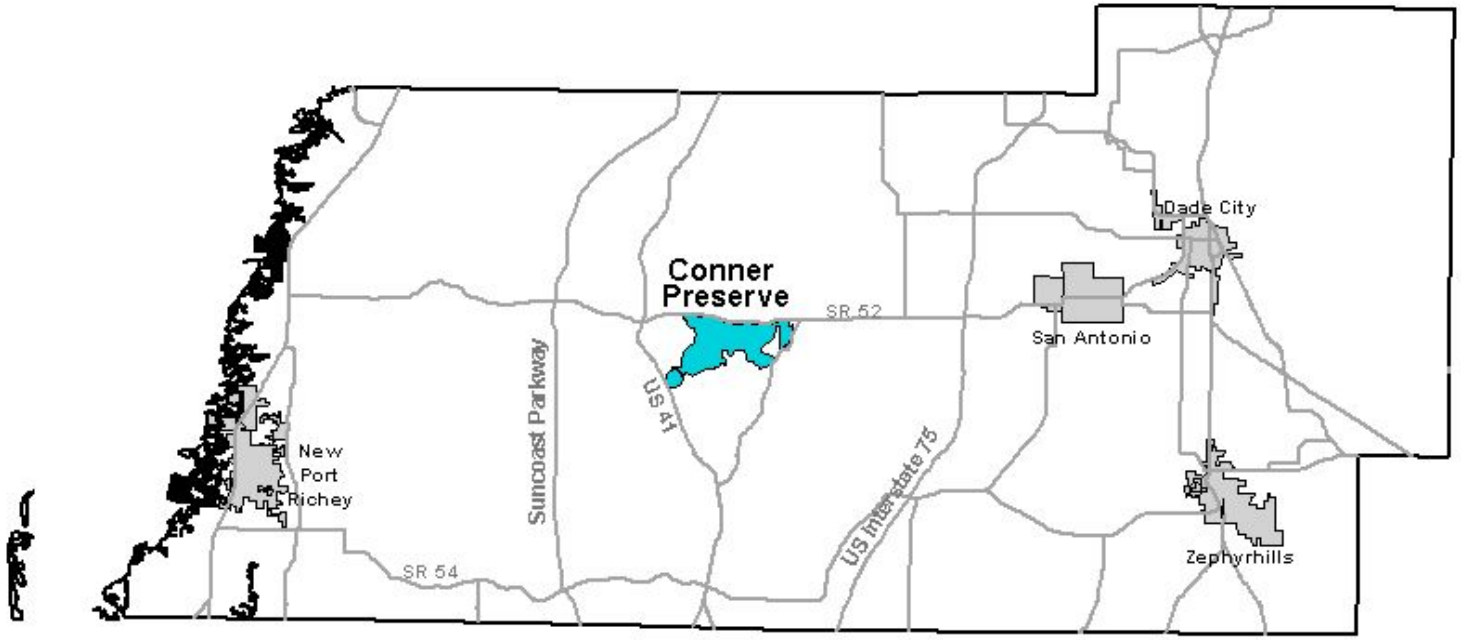
INTRODUCTION

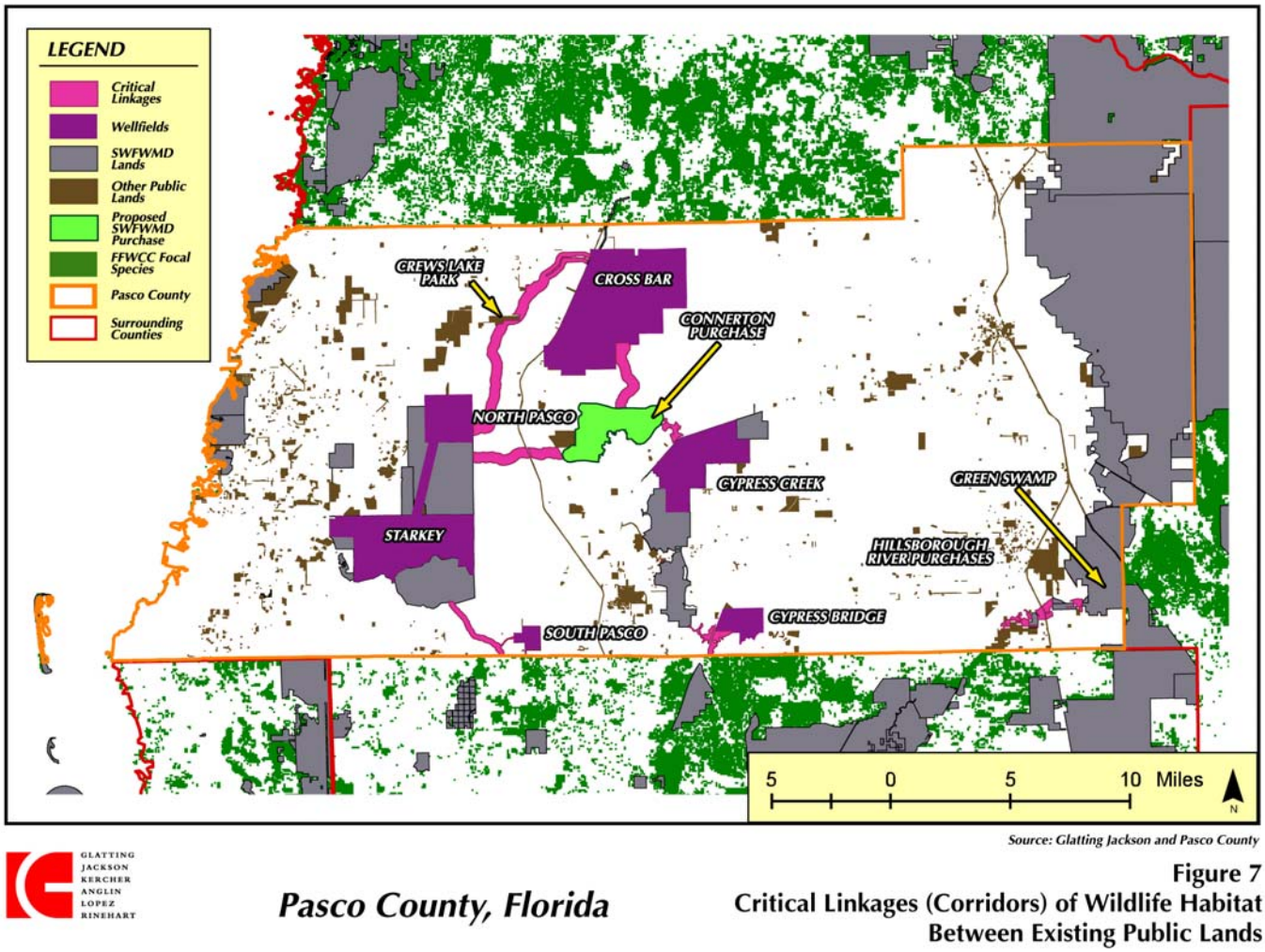
The District purchased the 2,980 Conner Preserve (Preserve), a key parcel in the Pasco I Save Our Rivers/Forever Florida project, in 2003. It is located in central Pasco County approximately 7 miles north of Land O' Lakes, Florida, and is bordered by U.S. Highway 41 to the west, and State Road 52 to 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

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

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.

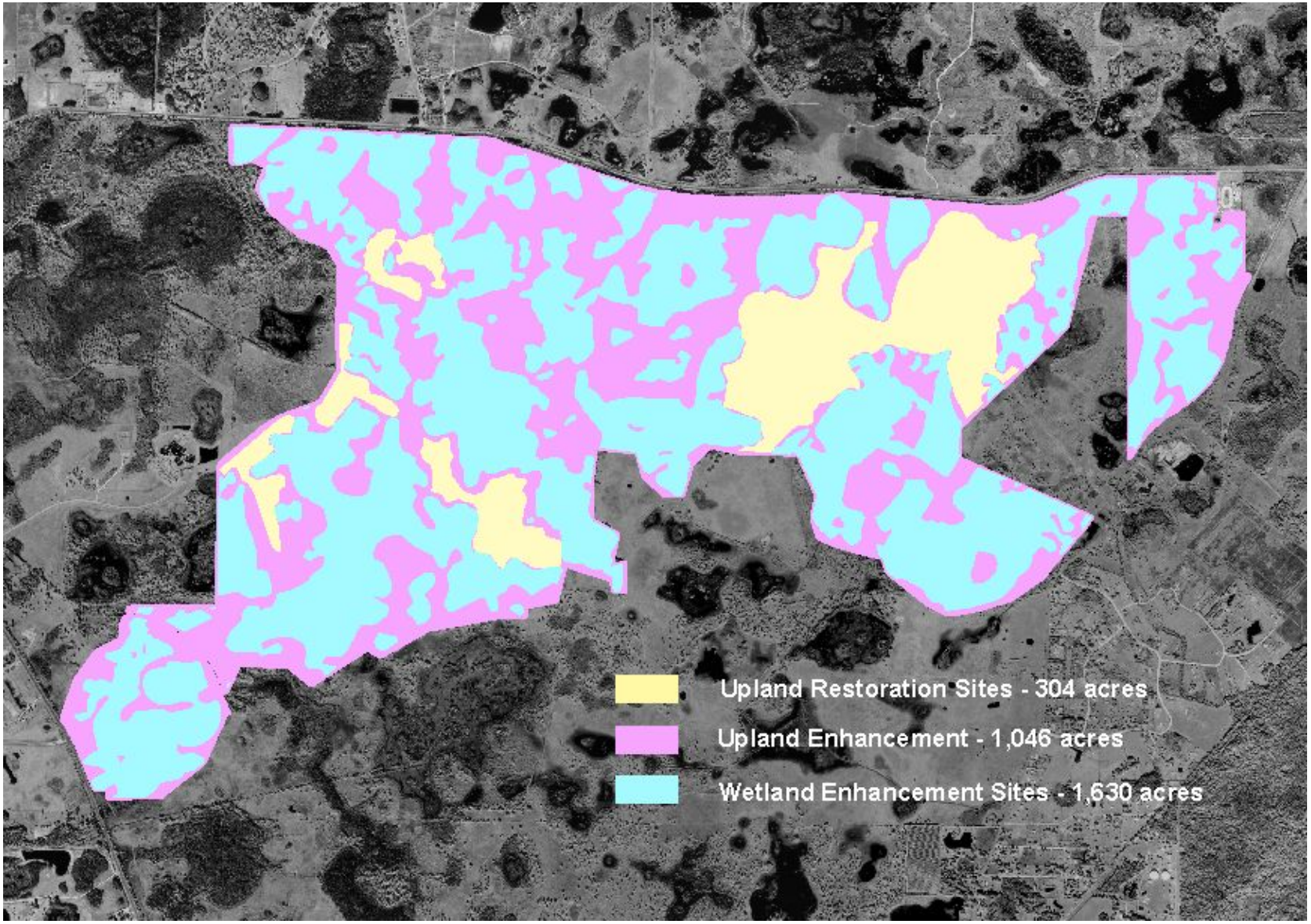


Figure 3. Conner Preserve. Upland restoration and enhancement sites.

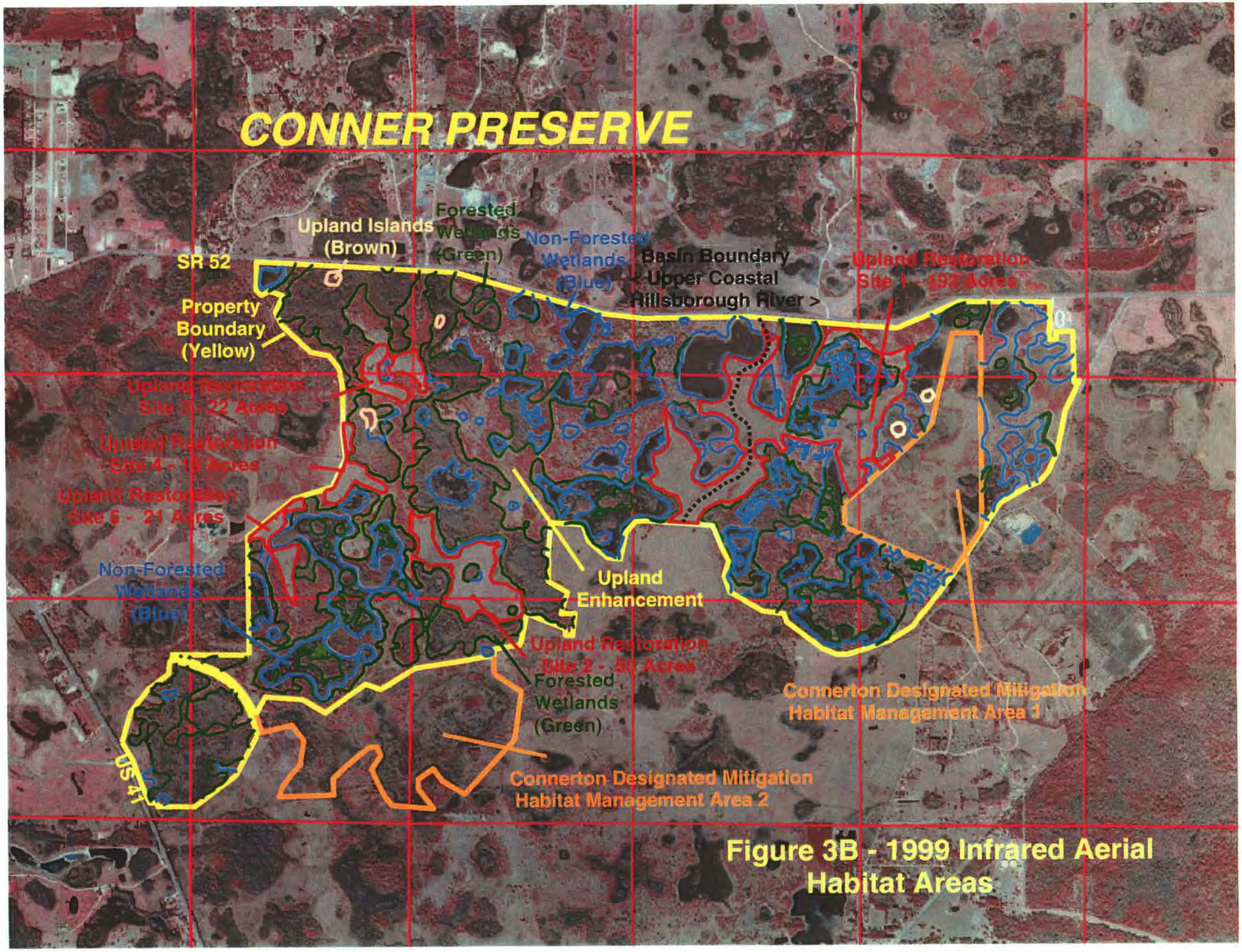


Figure 3B - 1999 Infrared Aerial Habitat Areas

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 herodius*), 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 (*Sporobulus 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 segrei segrei*).

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 (*Muhelenbergia 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 (*Digiteria* 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 palustrus*) 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.

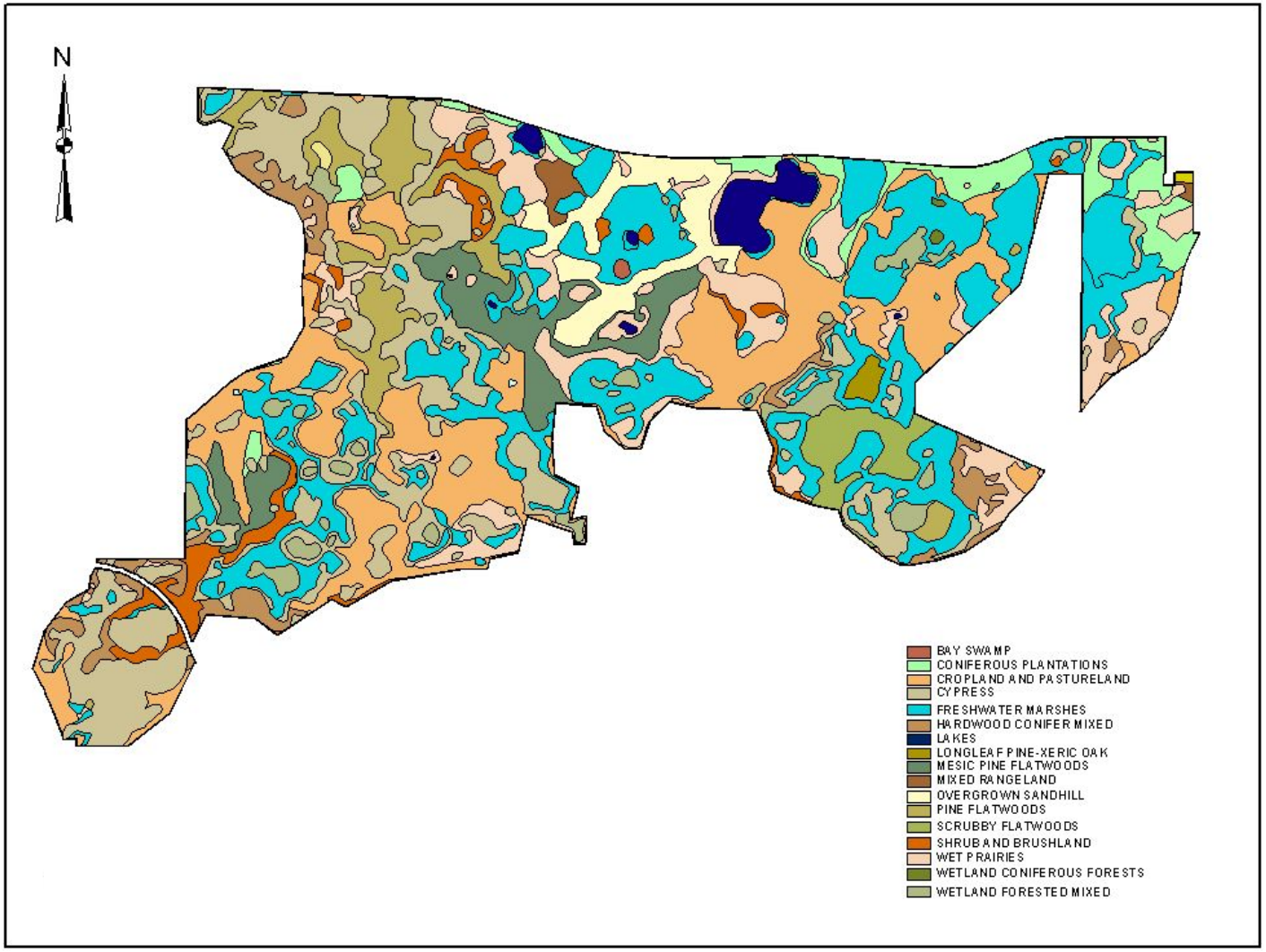


Figure 4. Conner Preserve Land Cover Map.

Figure 4 (Cont.). Conner Preserve Land Cover Classification Acreage By ERP Watershed Basin			
DRNBASIN	**FLUCCSCODE**	**FLUCSDESC**	**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	CONIFEROUOS 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	CONIFEROUOS 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

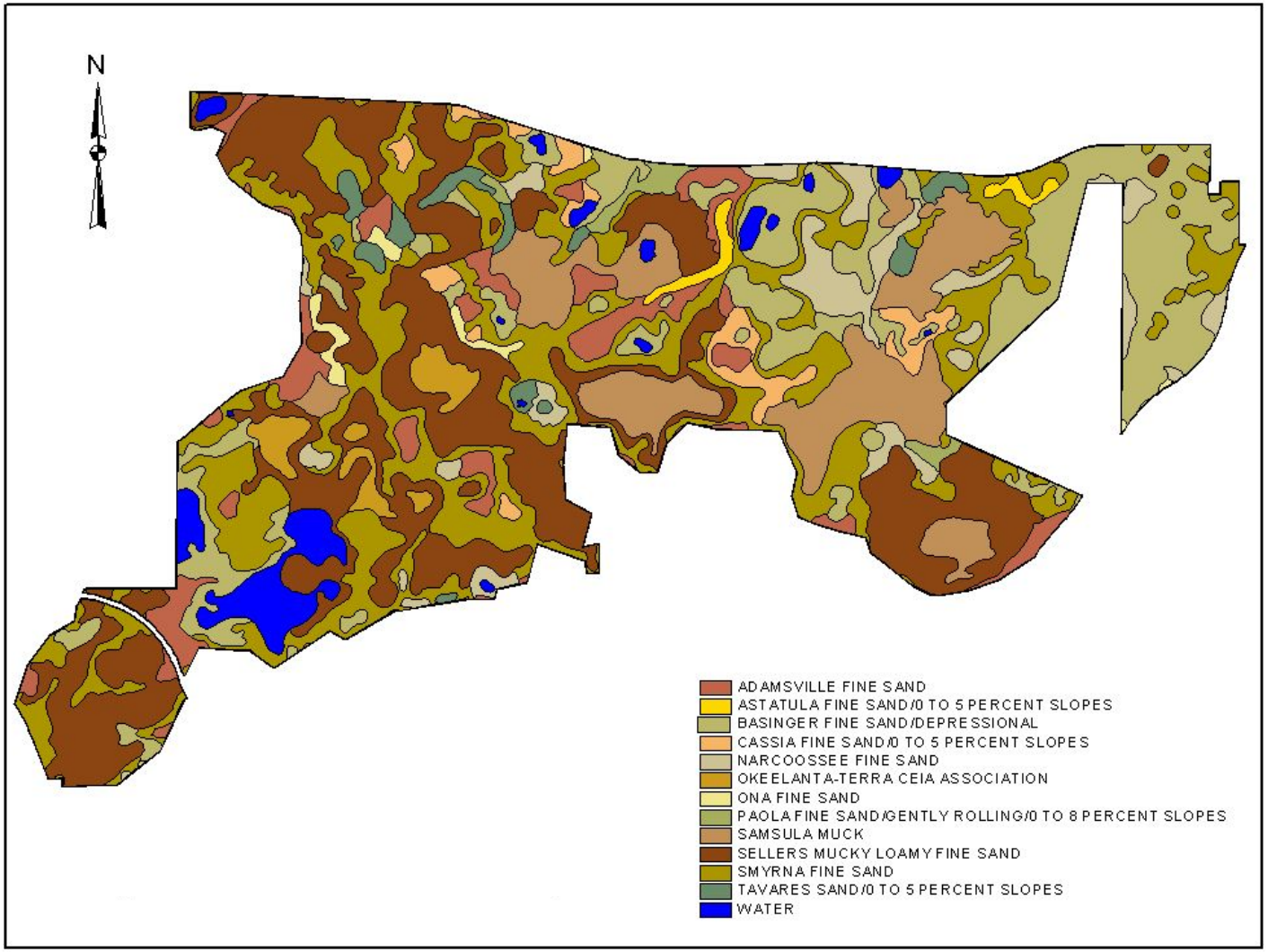


Figure 5. Conner Preserve Soils Map.

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 palustrus*), oaks (*Quercus* spp.), tarflower (*Beferia racemosa*), rusty lyonia (*Lyonia ferruginea*), staggerbush (*Lyonia fruiticosa*), and ericaceous shrubs (Family Ericicae - 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 implentation plans are outlined below. Appendix C includes a more detailed discussion of upland restoration methodologies that will be utilized on the sites.

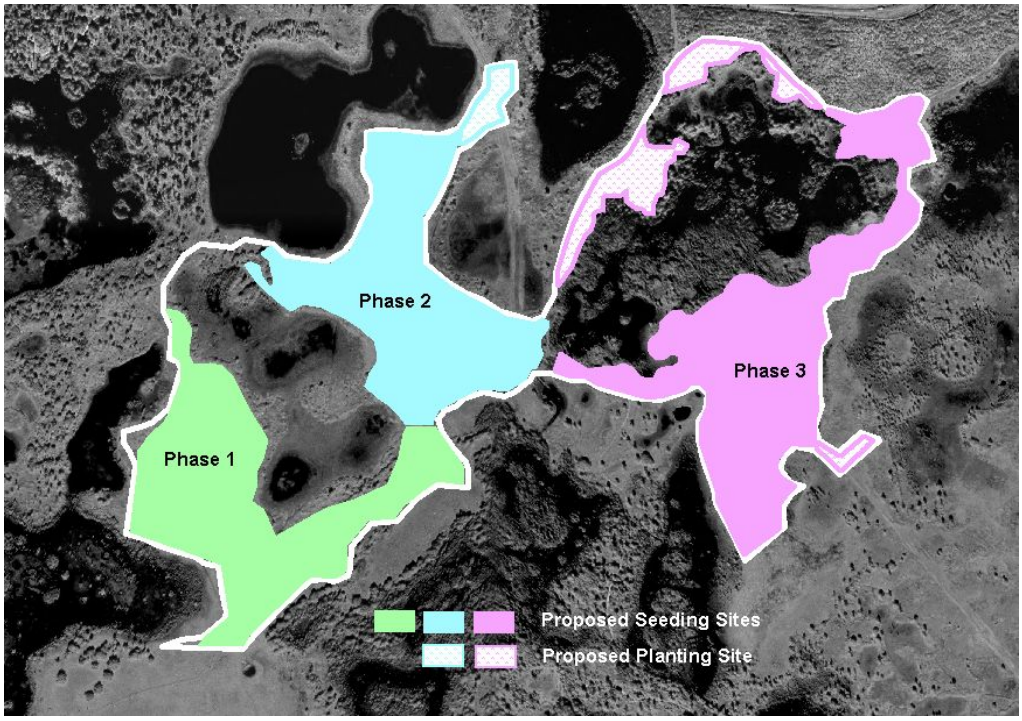


Figure 6. Conner Preserve Upland Restoration Site 1.

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 interspersion of several 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.

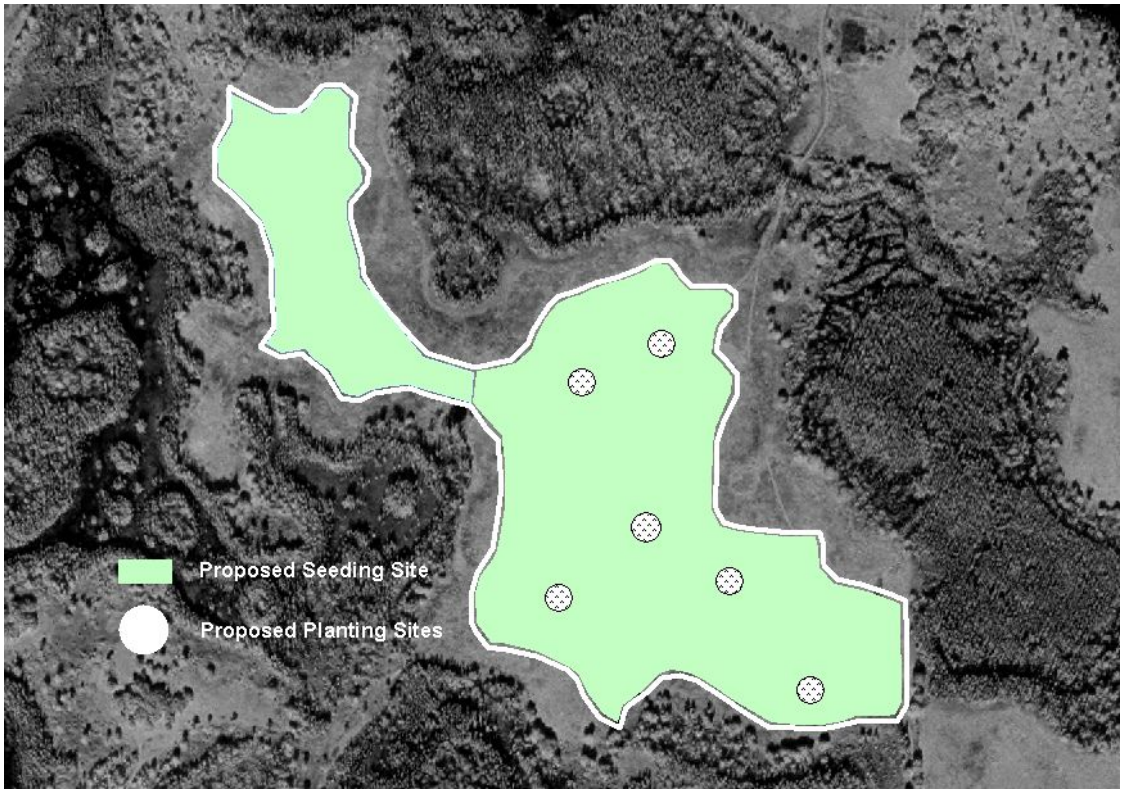


Figure 7. Conner Preserve Upland Restoration Site 2.

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.

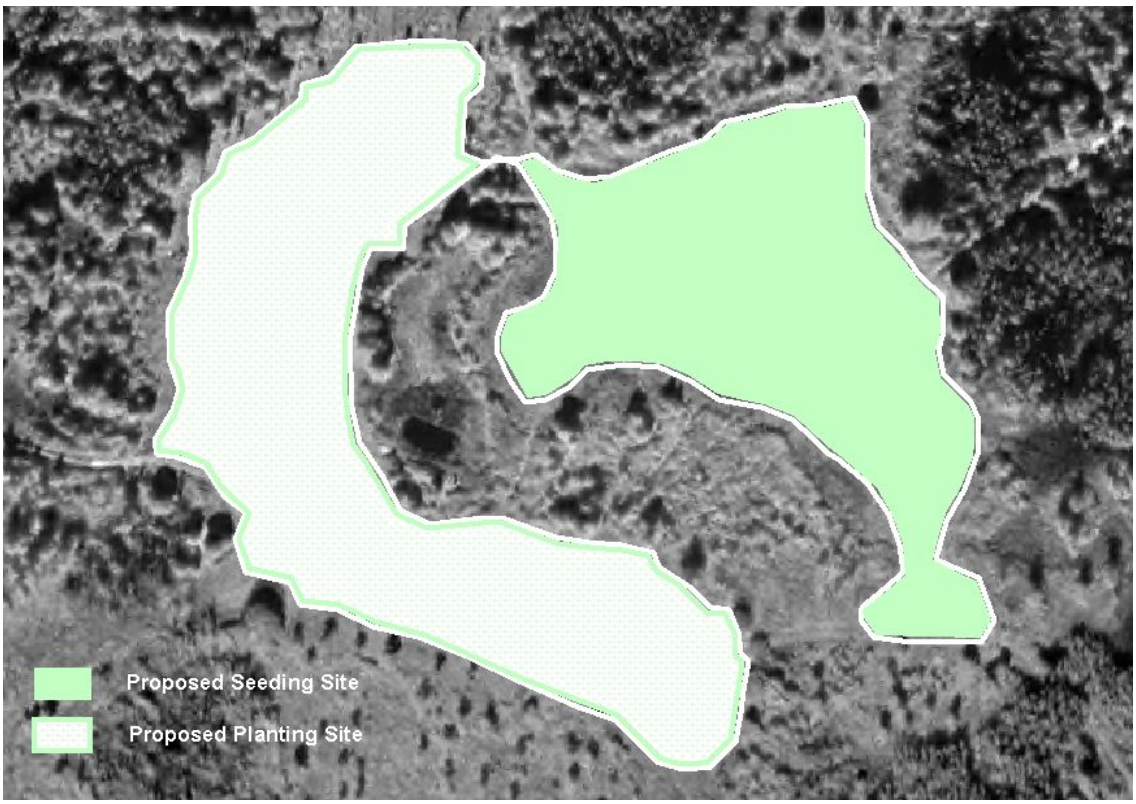


Figure 8. Conner Preserve Upland Restoration Site 3.

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.

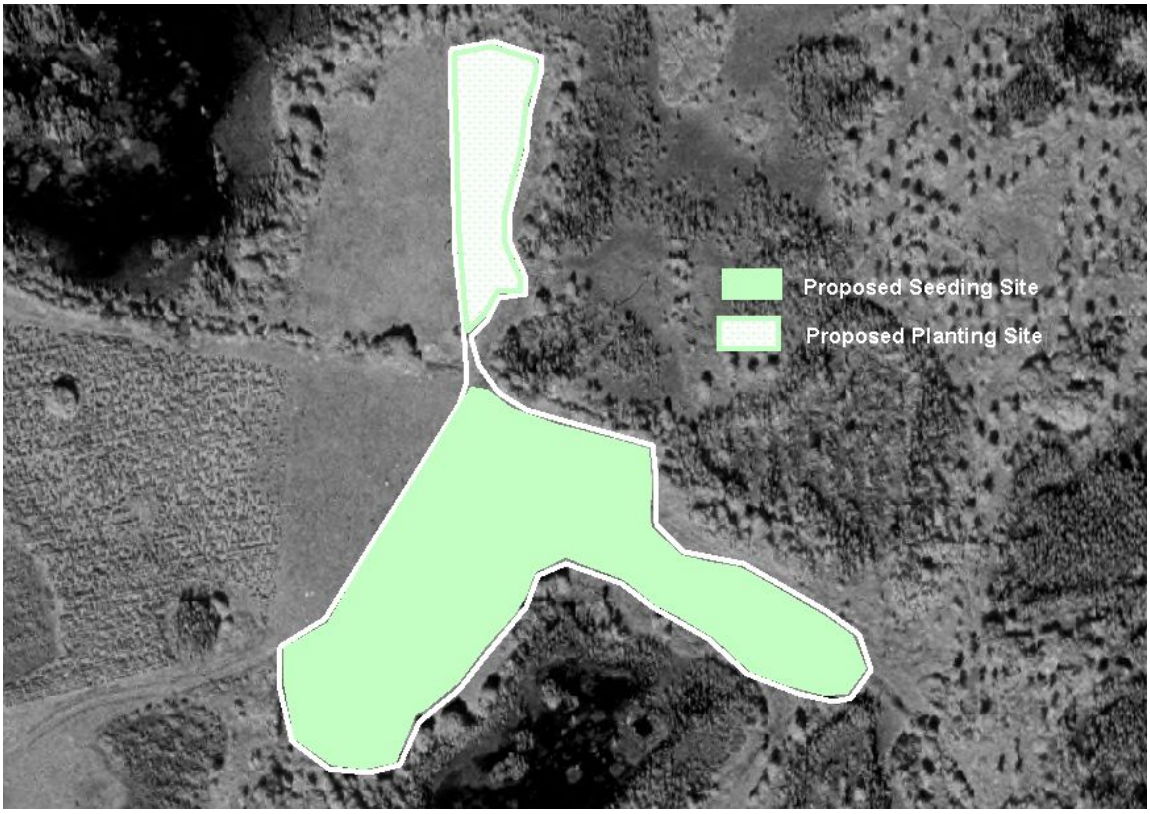


Figure 9. Conner Preserve Upland Restoration Site 4.

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 palustrus*).

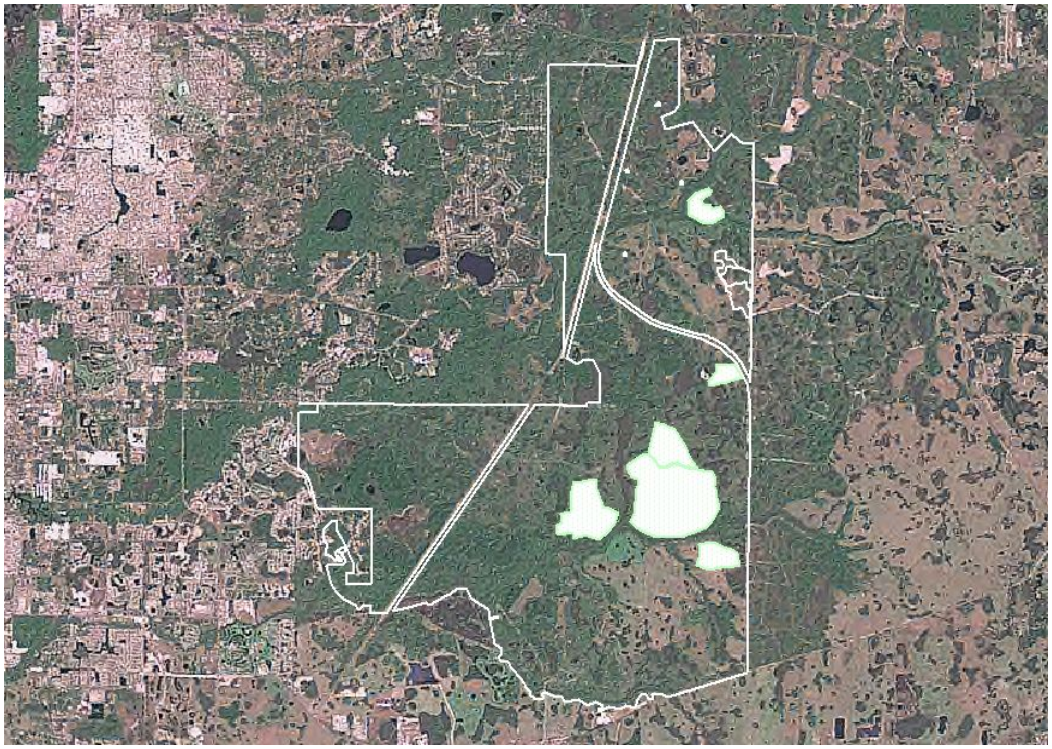


Figure 11. Starkey Wilderness Park. Five seed donor sites are available.

JB Starkey Wilderness Park seed donor site.

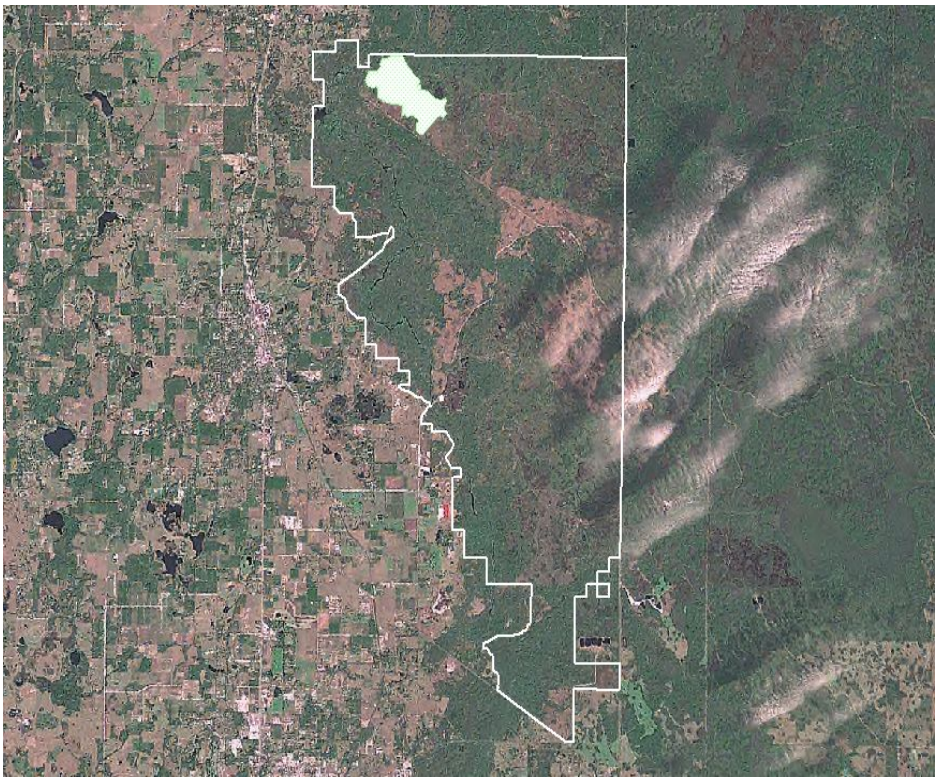


Figure 12. Green Swamp West seed donor site.

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 the1,630 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, volitilize 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**

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Appendix A – Wildlife Observations and Protected Species Checklist

Table A. Wildlife Species Documented Occurrence List.

Cottonmouth Mocassin (*Agkistodon piscivorus*)
American Alligator (*Alligator mississippiensis*)
Green Anole (*Anolis carolinensis*)
Six-lined Racerunner (*Cnemidophorus sexlineatus*)
Southern Black Racer (C*oluber 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 (*Terrepene 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 squirrela*)
Southern Chorus Frog (*Pseudacris nigrita)*
Gopher Frog (*Rana aerolata*)
Pig Frog (*Rana grylio)*
Southern Leopard Frog (*Rana sphenocephala)*
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 herodius*)
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 (*Dasypus 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	*Falco sparverius paulus*	*T*		*X*			
Bald Eagle	*Haliaeetus leucocephalus*	*T*	*T*	*X*			
Burrowing Owl	*Speotyto cunicularia*	*SSC*				*X*	
Florida Sandhill Crane	*Grus canadensis pratensis*	*T*		*X*			
Florida scrub-jay	*Aphelocoma coerulescens*	*T*	*T*	*X*			
Limpkin	*Aramus guarauna*	*SSC*			*X*		
Little Blue Heron	*Egreta caerulea*	*SSC*		*X*			
Red-Cockaded Woodpecker	*Picoides borealis*	*T*	*E*				*X*
Snowy Egret	*Egretta thula*	*SSC*			*X*		
Tricolored Heron	*Egretta tricolor*	*SSC*		*X*			
White Ibis	*Eudocimus albus*	*SSC*		*X*			
Wood Stork	*Mycteria americana*	*E*	*E*	*X*			
Roseate Spoonbill	*Ajaia ajaja*	*SSC*					
REPTILES/AMPHIBIANS							
American Alligator	*Alligator mississippiensis*	*SSC*	*T (S/A)*		*X*		
Eastern Indigo Snake	*Drymarchon corais couperi*	*T*	*T*		*X*		
Florida Pine Snake	*Pituophis melanoleucus mugitus*	*SSC*			*X*		
Gopher Frog	*Rana capito*	*SSC*		*X*			
Gopher Tortoise	*Gopherus polyphemus*	*SSC*		*X*			
Short-tailed Snake	*Stilosoma extenuatum*	*T*				*X*	
MAMMALS							
Florida Black Bear	*Ursus americanus floridanus*	*T*					*X*
Florida Mouse	*Podomys floridanus*	*SSC*				*X*	
Sherman's Fox Squirrel	*Sciurus niger shermani*	*SSC*	*X*				
Round-tailed muskrat	*Neofiber allenii*			*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).

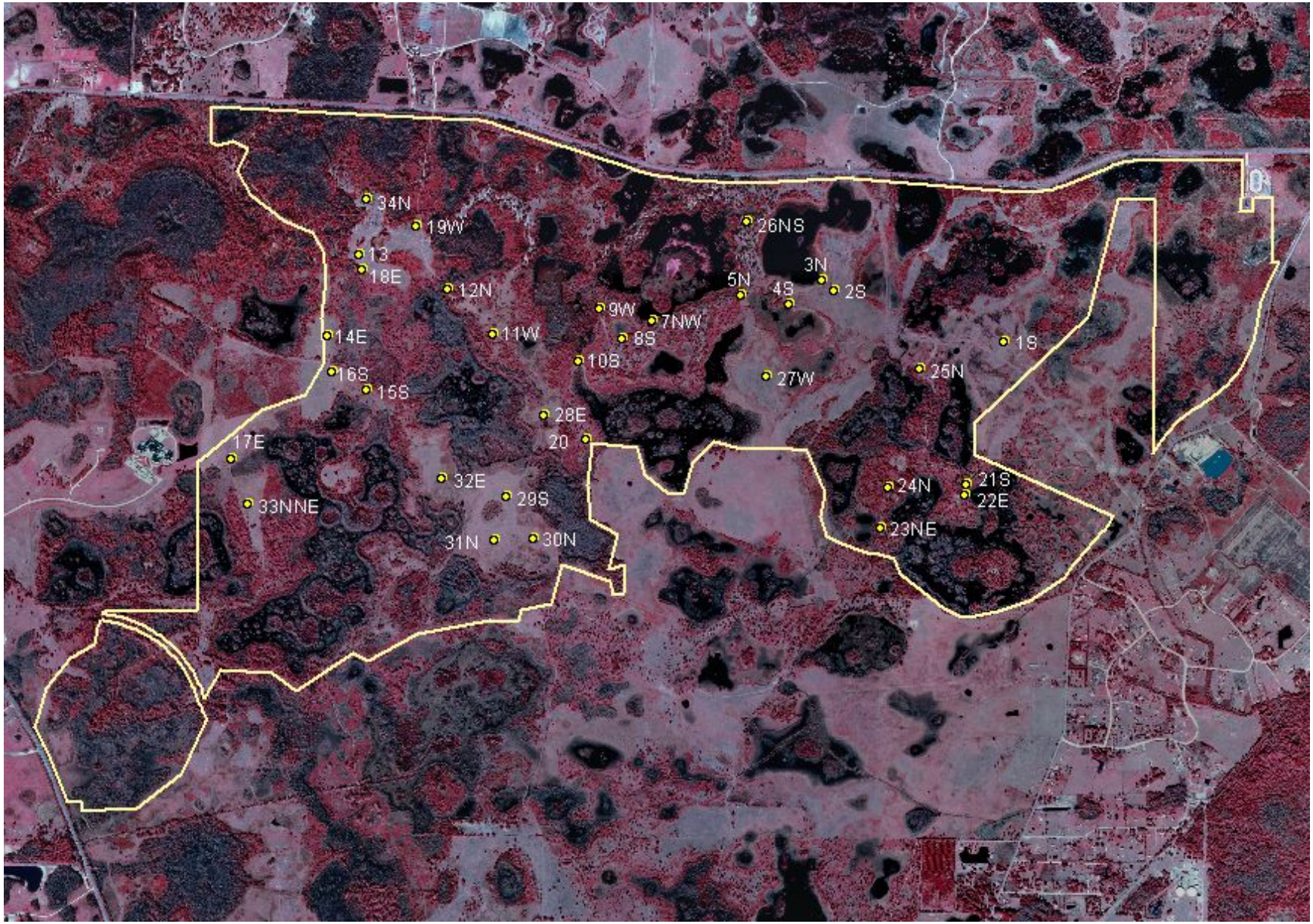
APPENDIX B – PROPOSED RESTORATION TECHNIQUES

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 (*Cyondon dactylon*), natal grass (*Rhynchelytrum repens*), purple nutsedge (*Cyperus rotundus*), cogongrass (*Imperata cylindrica*), tropical soda apple (*Solanum viarum*), smutgrass (*Sporobulus 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 scritical. 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 (*Sporobulis junceus*), beaked panicum (*Panicum anceps*), lop-sided Indiangrass (*Sorghastrum secundum*), gopher apple (*Licania michauxii*), winged sumac (*Rhus copallinum*), blue curls (*Trichostoma dichotomum*), green eyes (*Berlandiera subacaulis*), beard tongue (*Penstemon multiflorus*), butterfly pea (*Centrosema virgianum*), 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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9W
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8S
10S
5N
4S
3N
2S
26NS
27W
1S
25N
24N
21S
22E
23NE

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

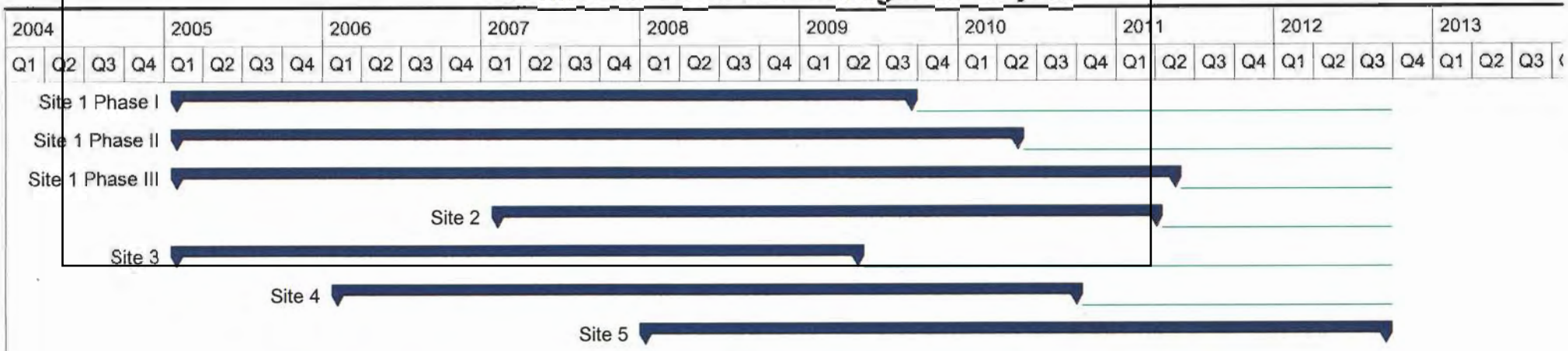
Photograph 31

Photograph 32

Photograph 33

APPENDIX E – FLORISTIC QUALITY INDEX (EXAMPLE)

Conner Preserve FDOT Mitigation Project



APPENDIX F - PROJECT CONSTRUCTION TASK SCHEDULE & TIMELINE

Floristic Quality Assessment

- Coefficient of Conservatism ranks each plant from 0 to 10 or weedy to rare and specific to habitat conditions
- Mean C = sum of C's of C / number of species
- Floristic Quality Index = Mean C x square root of number of species

REGIONAL MITIGATION PLAN

BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District
Mitigation Project Name: **Bahia Beach** Project Number: **SW 78**
Project Manager: Hillsborough County (EPC) Phone No: (813) 985-7481
County: Hillsborough Location: Sec. 1, T32S, R18E

IMPACT INFORMATION

(1) FM 4143481: Tampa Inter. Airport, Master Plan, Runway 17-35	ERP #: 49008387.01	COE #: 200101521 (IP-MN)
Tampa Inter. Airport, 36R Runway Protection Zone	ERP #: 43008387.026	COE #: SAJ-2004-12399
(2) FM 2568811: US 19 (SR 55), Whitney Rd. to Seville Dr.	ERP #: _____	COE #: _____
(3) FM 2584151: I-4 (SR 400) @ Selmon Expressway	ERP #: _____	COE #: _____

Drainage Basin: Tampa Bay Water Body(s):Sweetwater Creek, Tampa Bay, Fish Creek SWIM water body? Yes
Impact Acres /Types :

(1) FM 4143481
3.40 ac. 510 (Fluccs)
0.10 ac. 610
0.40 ac. 612
8.50 ac. 617
2.80 ac. 619
0.30 ac. 621
1.50 ac. 630
3.40 ac. 640
0.40 ac. 641
6.30 ac. 641x
0.80 ac. 651
TOTAL 27.90 acres

(2) FM 2568811 0.80 ac. 612 (Fluccs)

(3) FM 2584151 0.90 ac. 612 (Fluccs)
3.10 ac. 500 (OSW – may not require mitigation)
TOTAL 4.0 acres

TOTAL: 32.7 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) will manage 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 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 grove and the uplands are presently 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 mosiac 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 several 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.

D. **Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** Almost all the proposed wetland impacts proposed for mitigation at the Bahia Beach project include wetlands associated with expansion activities at Tampa International Airport (TIA). Due to the close proximity to Tampa Bay and high quantity of ditched wetland and surface waters, the proposed wetland impact areas at TIA are very low quality systems with a variety of salinity levels; with a third of the proposed impacts including ditches and canals. The combination of various wetland creation, restoration, and enhancement; in addition to buffers of upland habitat restoration activities can be conducted 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 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:** The only existing or proposed mitigation bank within the Tampa Bay Drainage Basin at this time is the Tampa Bay Mitigation Bank (TBMB). TBMB credits were not available during the period of mitigation selection for the referenced FDOT 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 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 3 years post construction maintenance & monitoring under contract with Hills.County or SWFWMD, perpetual management conducted by Hills. County Parks.

Proposed timeframe for implementation: Commence: Design and Permitting 2005-2006, Construction 2007-2008, followed by minimum 3 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. As part of the final design and permitting process, a functional wetland assessment will be conducted, and a mitigation credit/debit table will be established to properly designate the appropriate mitigation for each of the proposed DOT impacts.

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 will be contracted to prepare a plan to include creation, restoration, and enhancement of habitat conditions on the site. FDOT mitigation funds will be utilized to reimburse costs incurred for design, construction, planting, and short-term maintenance & monitoring activities. The following information describes the site conditions and possible scenarios of habitat improvements that will be further evaluated with various alternatives. This information will be 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 citrus groves. The groves were removed as part of the agreement of public acquisition. Subsequently, the former groves have 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 octavalis*), 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, on- and off-site contributing watershed conditions will be evaluated to determine the adequacy and appropriateness of hydroperiods and water budgets for the constructed wetlands. Piezometers have been installed to measure annual groundwater conditions in terms of both elevations and potential salinity levels. This information will be 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 community within such close proximity to Tampa Bay and the Bahia Beach area. 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. As of 2005, there is a residential community under construction east of the Bahia Beach tract. This residential development will have to treat and attenuate associated storm and surface water runoff. However, as an added freshwater source to Bahia Beach, there may be a hydraulic gradient of contributing surface and subsurface flow contributing to Bahia Beach. This information will be relayed in the potentiometric well data and incorporated into the design. The created wetlands will include a dominance of common species found within similar systems in the basin. As of late, 2005, a design consultant has been selected by Hillsborough County EPC.

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.

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 that current wildlife restriction for corridor connections.

Mangroves have recruited along the ditch sideslopes. Backfilling ditch segments will unfortunately result in unavoidable mangrove impacts. There will be a designated amount of on-site saltwater wetland enhancement that will be designated to mitigate for these impacts. This mitigation credit will be debited separate from any mitigation credit designated for FDOT wetland impacts. In addition to the hydrologic improvements, Brazilian pepper eradication will be another mitigation component of the hammock.

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, this area has so little coverage of other desirable species, supplemental planting of herbs and shrubs will 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 with minimal impact to existing mangrove habitat. For spoil material removal, 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 water pressure 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 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 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 includes contracting the services of a consulting firm in late 2005 to obtain additional site information and commence a design plan. A design and permitting plan is anticipated in 2006 and 2007. Pending permit approval, construction and planting should commence in 2007 and continue into 2008.

Attachment C – Maintenance & Monitoring, Success Criteria

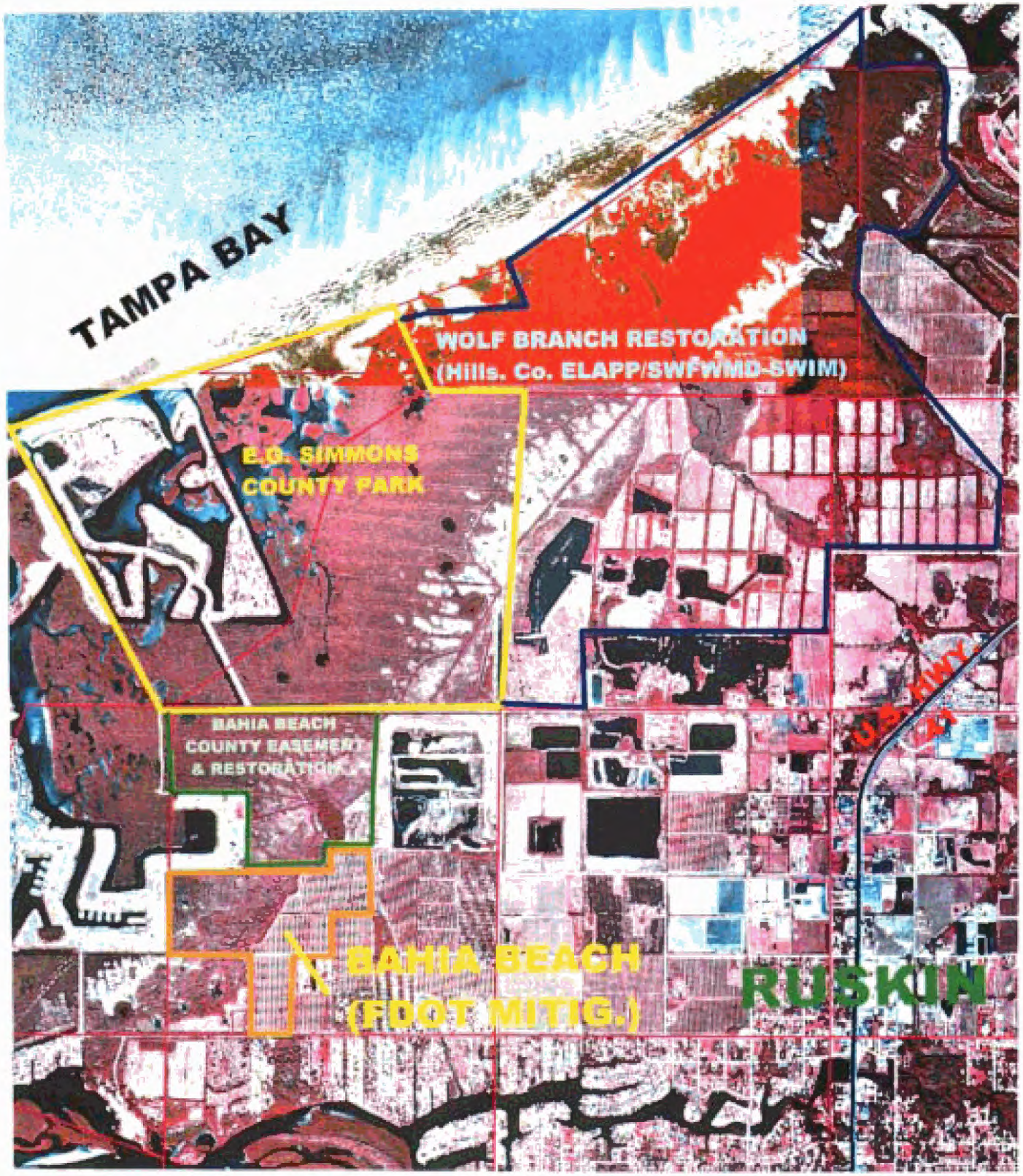
The following information relates to potential maintenance, monitoring, and success criteria that are anticipated to be implemented, this information will be updated with the design plans.

Post-construction and planting, there will be a minimum three 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 three 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 Hills. Co. and/or the WMD, semi-annually for a minimum of three 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.

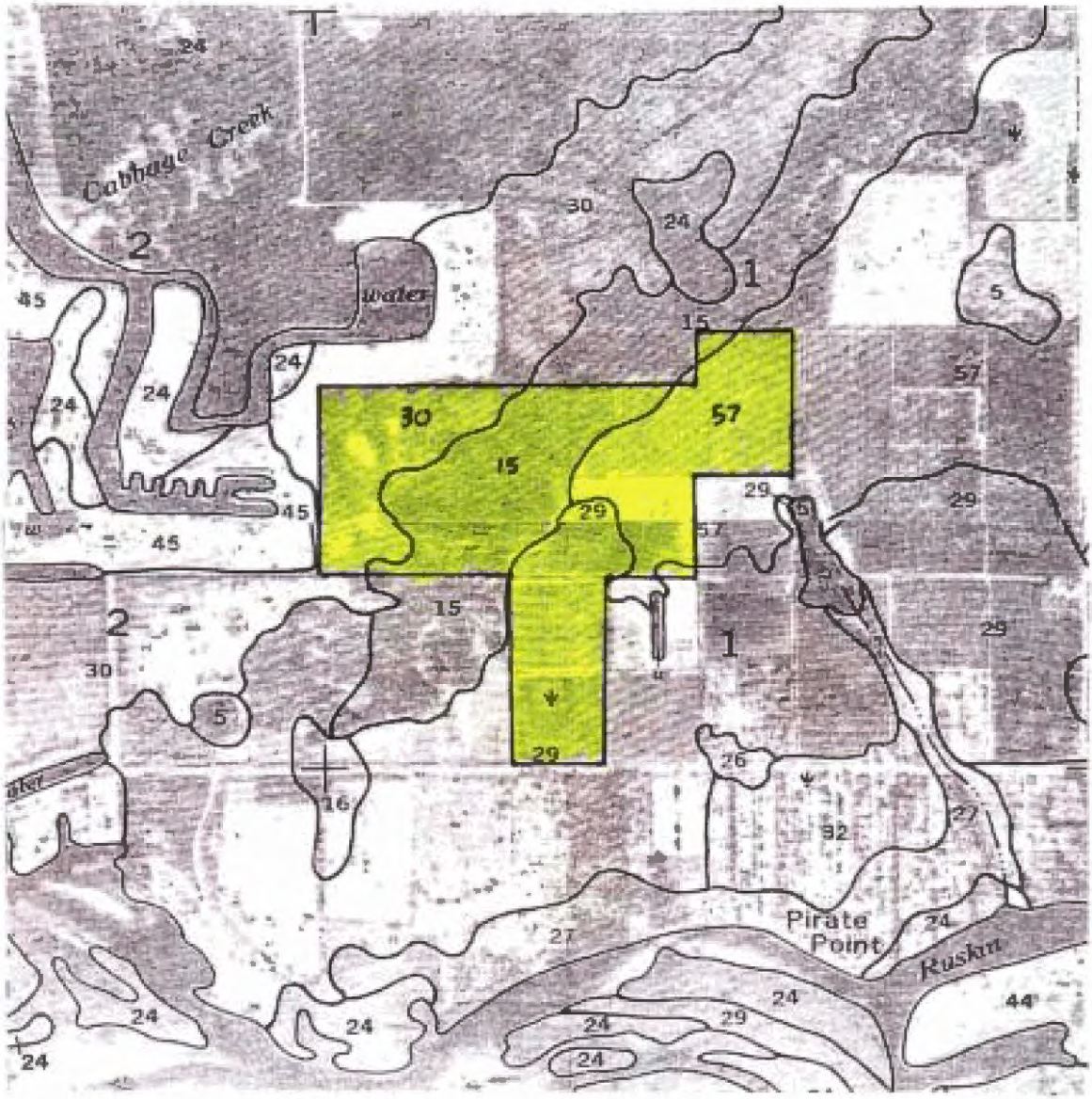
Success criteria will be determined as part of the design process but is expected to include a minimum 90% survivorship of planted material for a minimum of one year from the selected nursery contractor. Any plant mortality will be replaced with appropriate species to be agreed upon with the WMD and 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, saltwalt, 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 Project** Project Number: **SW 79**

Project Manager: Sherri Swanson, Project Scientist Phone No: 941-861-0767
Sarasota County Natural Resources

County: Sarasota County Location: Sec. 20, 29, T38S, R19E

IMPACT INFORMATION

(1) FM: 4063143, I-75 – North River Rd. (CR 577) to SR 681 ERP #: _____ COE #: _____
(2) FM: 1980101, US 301 – Wood St. to University Parkway 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 :

(1) FM 4063143	(2) FM 1980101
0.1 ac. 530 (Fluccs)	0.03 ac. 510 (Fluccs)
4.0 ac. 630	0.01 ac. 610
13.3 ac. 641	0.03 ac. 630
0.8 ac. 643	0.05 ac. 641
TOTAL 18.2 acres	TOTAL 0.12 acre

TOTAL 15.02 acres

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: x Creation x Restoration x Enhancement x Preservation Mitigation Area: **30-40 acres***

* Note – the total parcel covers 140-acres, the area and credits designated for FDOT mitigation will be determined based on the final acreage and habitat value of the proposed wetland impacts.

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? Y Mitigation Bank? N
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 future 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, 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). Additional 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 marshes and improvements to other habitats at Fox Creek. Additional FDOT mitigation 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: 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: The only current and proposed SWIM projects in the Lower Coastal basin include saltwater wetland habitat activities. The proposed FDOT impacts are freshwater wetland habitats, which will be appropriately and adequately compensated with similar habitat improvements proposed for Fox Creek.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Sarasota County has contracted for construction activities

Contact Name: Sherri Swanson, Project Scientist, Sarasota County Natural Resources

Phone Number: 941 – 861 - 0767

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: $1,000,000 – 1,300,000 **

** The entire anticipated cost of land acquisition, construction, planting, M&M for the Fox Creek tract is $10-15 million. The partial costs reimbursed by FDOT mitigation funds will be determined by the final impact acreage, habitat value of the impacts and proposed mitigation, and the roadway permit schedule.

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 and was actively pursued and acquired in 2004 to serve as a regional mitigation site 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 and with anticipated 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 site 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, 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 (*Fraximus 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 halmifolia*), buttonwood (*Conocarpus erectus*), and Atlantic white cedar (*Chamaecyparis thyoides*).

Attachment B – Maintenance & Monitoring Plan

Sarasota County proposes to develop 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:

<u>Herbaceous Wetland Monitoring Plan</u>
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.

<u>Forested Wetland Monitoring Plan</u>
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.

<u>Upland Monitoring Plan (for enhanced sites)</u>

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 widening improvements of the I-75 segment located adjacent to the tract. This widening is not scheduled to commence until the summer, 2009. This will provide the opportunity for the habitat improvements proposed for Fox Creek to be implemented and approaching 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. It's possible that additional future FDOT projects in the basin with minor anticipated wetland impacts may also be proposed in the next few years. As these wetland impacts are proposed by FDOT, coordination with Sarasota County will be required 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.

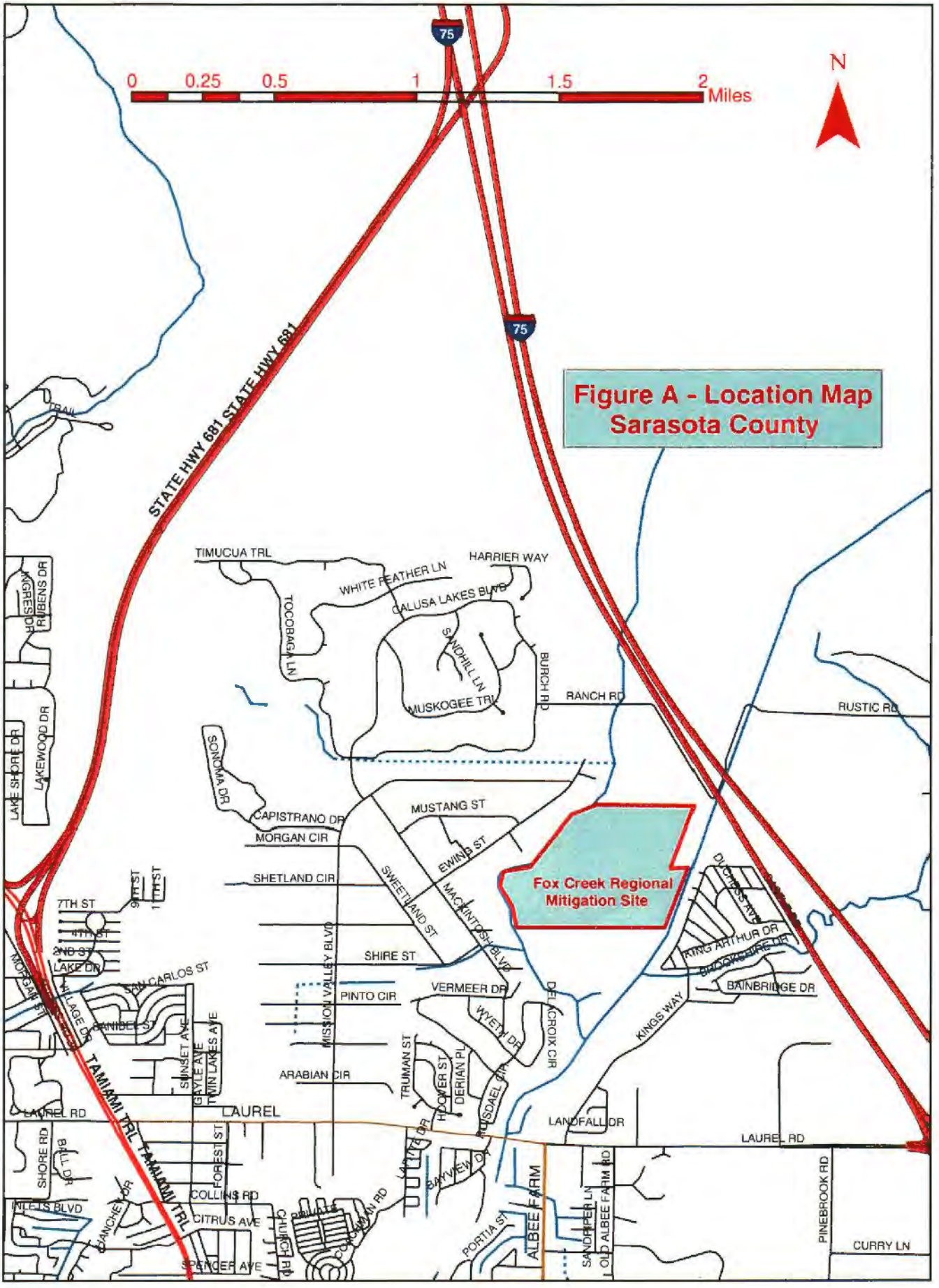


Figure A - Location Map
Sarasota County
0
0.25
0.5
1
1.5
2
Miles
N
75
STATE HWY 681 STATE HWY 681
TIMUCUA TRL
HARRIER WAY
WHITE FEATHER LN
CALUSA LAKES BLVD
TOCOBAGA LN
SANDHILL LN
BURCH RD
MUSKOGEE TRL
RANCH RD
RUSTIC RD
RUBENS DR
LAKEWOOD DR
LAKE SHORE DR
SONOMA DR
CAPISTRANO DR
MUSTANG ST
MORGAN CIR
EWING ST
SHETLAND CIR
SWEETLAND ST
MACKINTOSH BLVD
Fox Creek Regional Mitigation Site
7TH ST
9TH ST
11TH ST
4TH ST
2ND ST
LAKE DR
SHIRE ST
SAN CARLOS ST
VILLAGE DR
DANIEL ST
PINTO CIR
VERMEER DR
MISSION VALLEY BLVD
WYETH DR
DELACROIX CIR
DUCTUS AVE
KING ARTHUR DR
BROOKSHIRE DR
BAINBRIDGE DR
KINGS WAY
SUNSET AVE
GAYLE AVE
TWIN LAKES AVE
ARABIAN CIR
TRUMAN ST
HOOVER ST
DERIAN PL
DUSDAEL DR
TAMIAMI TRL
LAUREL RD
LAUREL
LANDFALL DR
SHORE RD
BALL DR
FOREST ST
COLLINS RD
INLETS BLVD
CANCHER DR
CITRUS AVE
CHURCH RD
POLLITZ DR
BAYVIEW DR
PORTIA ST
ALBEE FARM
SANDPIPER LN
OLD ALBEE FARM RD
PINEBROOK RD
CURRY LN
SPENCER AVE

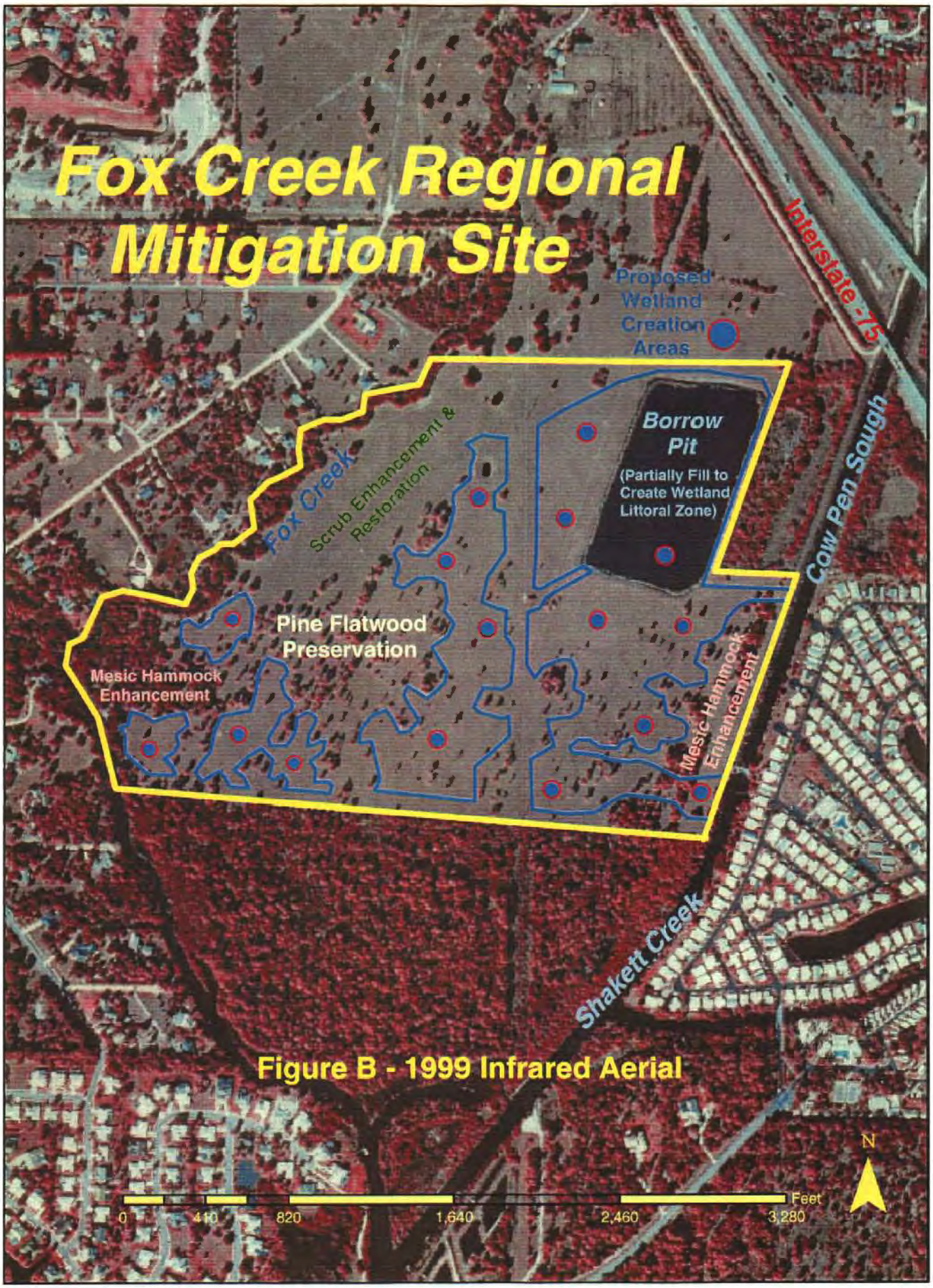


Figure B - 1999 Infrared Aerial

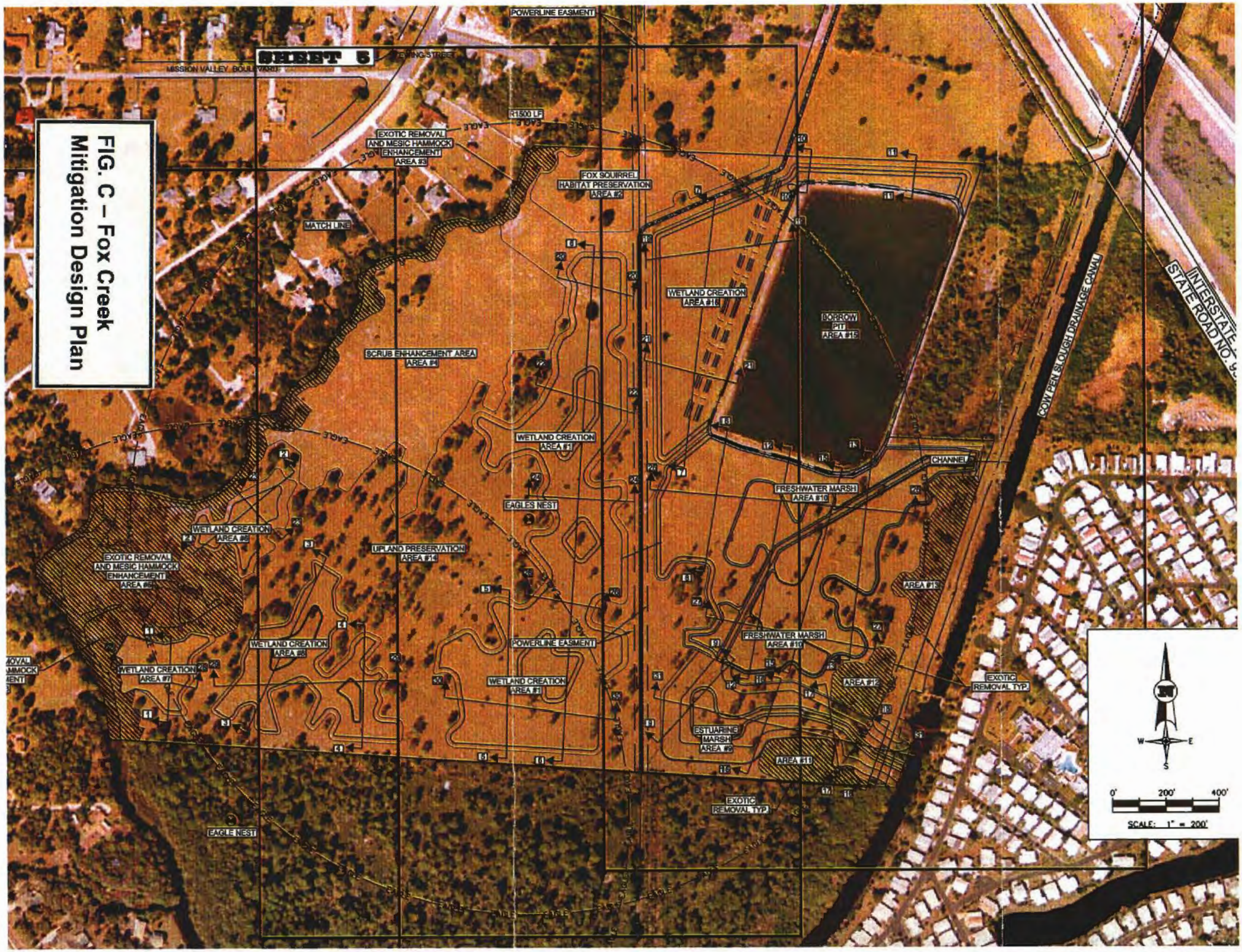


FIG. C – Fox Creek Mitigation Design Plan

WETLAND SPECIES	FORESTED COMPONENT	HERBACEOUS MARSH	HERBACEOUS SEEP MARSH	WETLAND SHRUB COMPONENT	ESTUARINE HIGH MARSH	ESTUARINE LOW MARSH	OPEN WATER	BANK STABILIZATION	CLASS	Zone*
American elm (*Ulmus americana*)	7								FACW	EX
arrowhead (*Sagittaria lancifolia*)		1,10,15,16							OBL	TR
Atlantic white cedar (*Chamaecyparis thyoides*)					9				OBL	EX
beakrush (*Rynchospora sp.*)			6						OBL	RM
buttonbush (*Cephalanthus occidentalis*)				10					OBL	TR
buttonwood (*Conocarpus erectus*)					9				FACW	EX
cinnamon fern (*Osmunda cinnamomea*)			6						OBL	RM
coastal spikerush (*Eleocharis cellulosa*)		1,15,16							OBL	IN
cahoon holly (*Ilex cassine*)	1							1	OBL	EX
giant bulrush (*Scirpus californicus*)		1,16							OBL	TR
golden canna (*Canna flaccida*)		1,15,16							OBL	RM
hairgrass (*Eleocharis baldwinii*)			6						OBL	RM
leatherfern (*Acrostichum danaeifolium*)					9				OBL	RM
loblolly bay (*Gordonia lasianthus*)	5,7								FACW	EX
maidencane (*Panicum hemitomon*)		7,8,10	6						OBL	RM
marsh St. John's wort (*Hypericum fasciculatum*)			6						OBL	RM
needle rush (*Juncus roemerianus*)						9			OBL	TR
pickerelweed (*Pontederia cordata*)		10,15,16					1,10		OBL	IN
pop ash (*Fraxinus caroliniana*)	8								OBL	IN
red maple (*Acer rubrum*)	1,8								FACW	IN
saltbush (*Baccharis halimifolia*)					9				FAC	RM
saltmarsh cord grass (*Spartina alterniflora*)						9			OBL	TR
sand cord grass (*Spartina bakeri*)								10,16	FACW	EX
sawgrass (*Cladium jamaicense*)		8,10							OBL	TR
smartweed (*Polygonum hydropiperoides*)									OBL	RM
soft rush (*Juncus effusus*)		7	6						OBL	RM
spatterdock (*Nuphar luteum*)		1,10,15					1		OBL	IN
sweetbay (*Magnolia virginiana*)	7								OBL	EX
variable panicum (*Dichanthelium commutatum*)								1,7,10,15	FAC	EX
wax myrtle (*Myrica cerifera*)		8		1,10				1,10,8	FAC	EX
wiregrass (*Aristida stricta*)								1		
SITE(S)	1,5,7,8	1,7,8,10,15,16	6	1,8,10	9	9	1,10	1,10,15		

*IN-Interior Zone, 12-36" below normal water level (BNWL), TR-transitional zone, 3-12" BNWL, RM-Rim Zone, 0-3" BNWL, EX-Exterior Zone, high to normal water

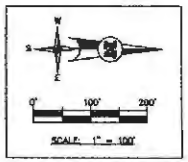
UPLAND SPECIES	SCRUB ENHANCEMENT	FOX SQUIRREL ENHANCEMENT	MESIC HAMMOCK ENHANCEMENT	CLASS	POSSIBLE ON SITE TRANSPLANT
blueJack oak (*Quercus incana*)	4			FACU	
Chapman's oak (*Quercus chapmani*	4			FACU	
coontie palm (*Zamia pumila*)	4			FACU	YES
laurel oak (*Quercus laurifolia*)		2	3	FACW	
live oak (*Quercus virginiana*)		2	3	FACU	
longleaf pine (*Pinus palustris*)	4	2		FACU	YES
paw paw (*Deeringothamnus sp.*)	4	2		FACU	YES
pignut hickory (*Carya glabra*)		2		FACU	
sand live oak (*Quercus germinata*)	4			FACU	
slash pine (*Pinus elliotii*)		2		FACW	YES
water oak (*Quercus nigra*)			3	FACW	
wiregrass (*Aristida stricta*)	4			FAC	YES
SITE(S)	4	2	3		

WETLAND:

- FORESTED COMPONENT
- HERBACEOUS MARSH
- HERBACEOUS SEEP MARSH
- WETLAND SHRUB COMPONENT
- ESTUARINE HIGH MARSH
- ESTUARINE LOW MARSH
- BANK STABILIZATION
- OPEN WATER

UPLAND:

- SCRUB ENHANCEMENT
- FOX SQUIRREL ENHANCEMENT
- MESIC HAMMOCK ENHANCEMENT



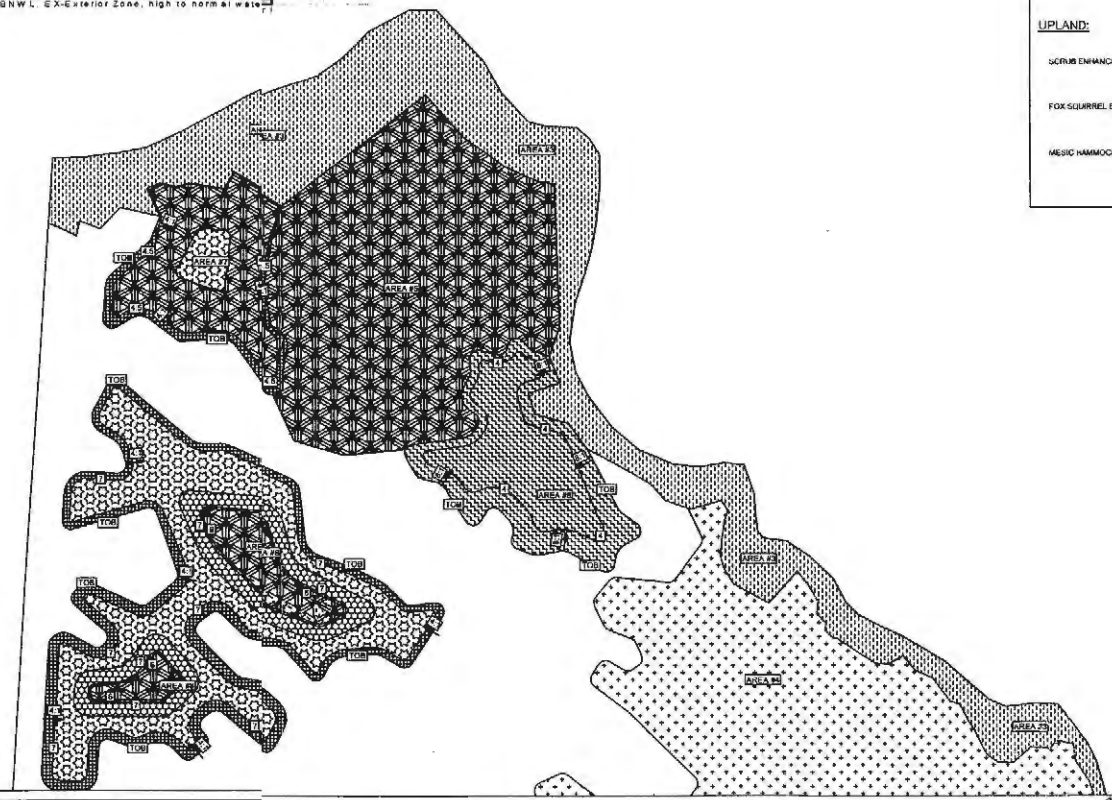


FIG. D – Fox Creek Mitigation Planting Plan (West)

CLIENT:
SARASOTA COUNTY
PERMITTING, MITIGATION, AND RESTORATION
1001 SARASOTA CENTER BOULEVARD
SARASOTA, FLORIDA 34240

PROJECT: FOX CREEK MITIGATION

TASK: PLANTING PLAN

ORIGINAL: 4/12/04
REVISIONS: 1 2 3 4 5 6 7 8 9 10 11 12

JOHN E. KERR, P.E.
FL REG. No. 46355
NOT VALID FOR CONSTRUCTION UNLESS SEALED IN THIS BLOCK
5/6/04

JOB NO. 120533.00
DRAWN BZ
DESIGNED BZ
CHECKED RK
QC JE

SHEET 7

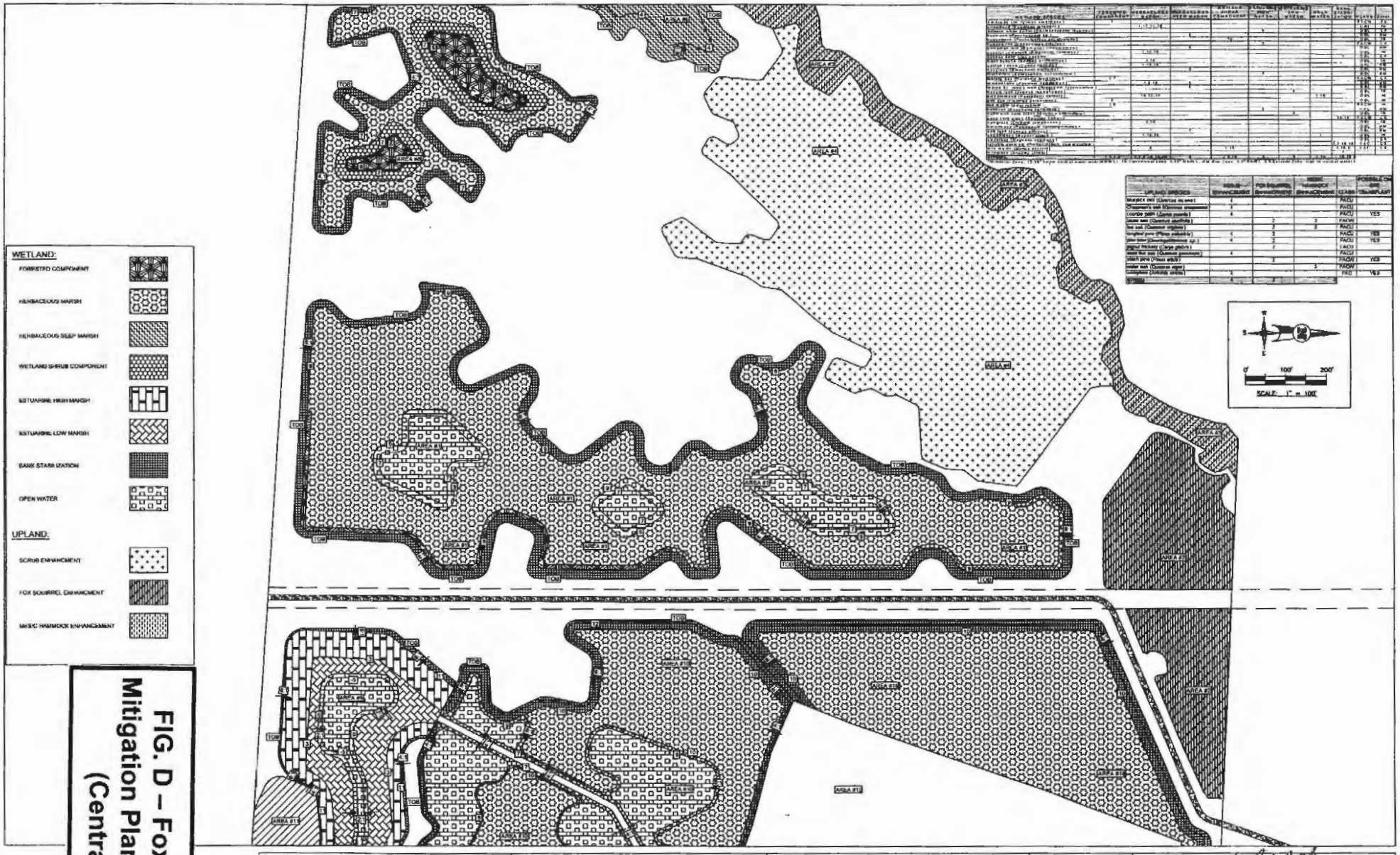


FIG. D – Fox Creek Mitigation Planting Plan (Central)

CLIENT:
SARASOTA COUNTY
PERMITTING, MITIGATION, AND RESTORATION
1001 SARASOTA CENTER BOULEVARD
SARASOTA, FLORIDA 34240

PROJECT: FOX CREEK MITIGATION

TASK: PLANTING PLAN

ORIGINAL: 4/12/04
REVISIONS:

JOB NO. 120533.00
DRAWN
DESIGNED
CHECKED
QC

SHEET 8

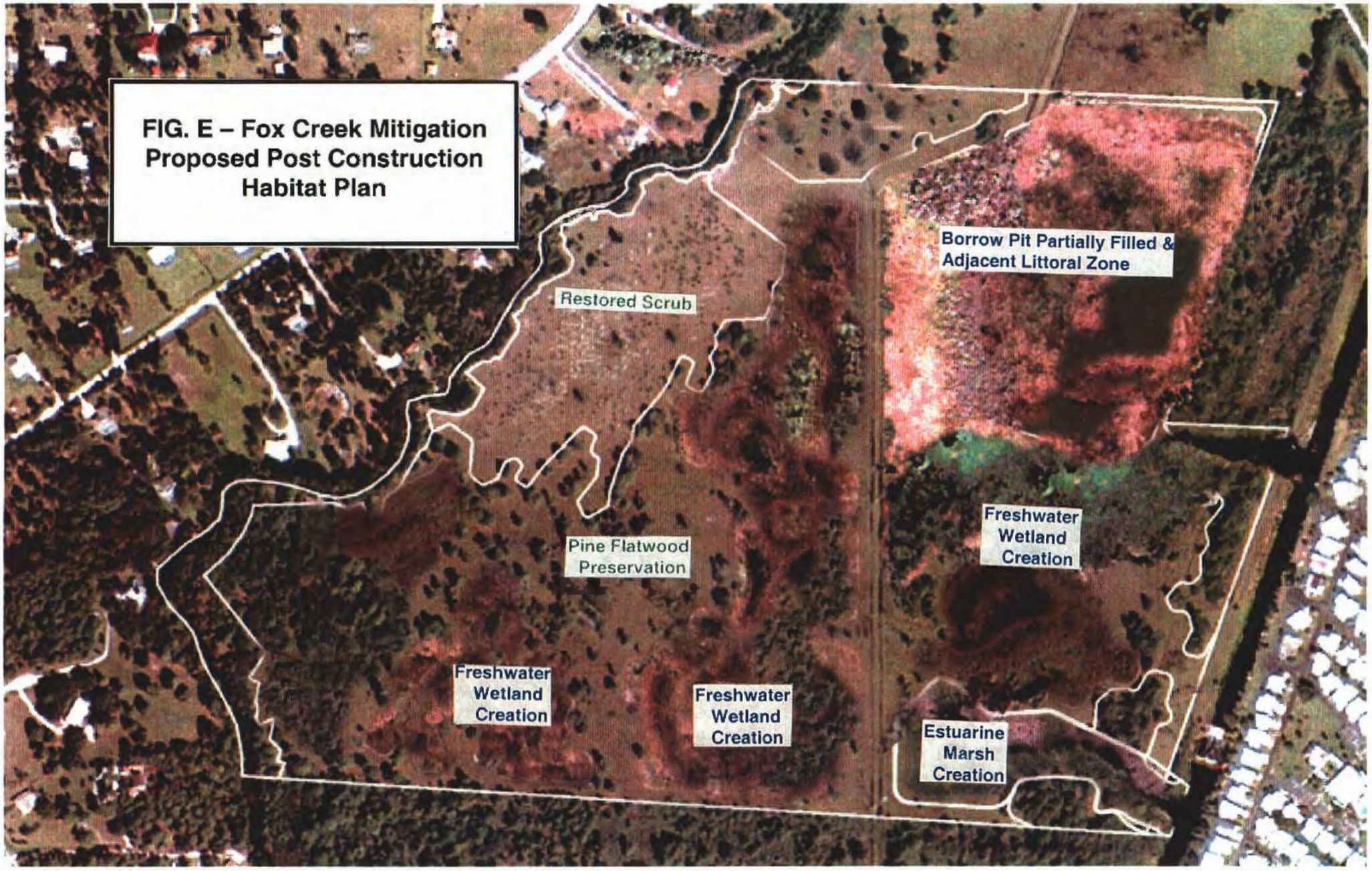


FIG. E – Fox Creek Mitigation
Proposed Post Construction
Habitat Plan
Restored Scrub
Borrow Pit Partially Filled &
Adjacent Littoral Zone
Pine Flatwood
Preservation
Freshwater
Wetland
Creation
Freshwater
Wetland
Creation
Freshwater
Wetland
Creation
Estuarine
Marsh
Creation

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 the 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: Mark Brown, SWFWMD Environmental Scientist 352-796-7211, ext. 4488
County: Manatee Location: Sec. 17, R19E, T34S

IMPACT INFORMATION

1 – FM 1960224, SR 64 – Lakewood Ranch to Lorraine Rd. (Seg. 3) ERP #:43025776.00 COE #: _____
2 – FM 1996682, Upper Manatee River Rd. – SR 64 to US 301 ERP #:_____ COE #: _____

Drainage Basin: Manatee Water Body(s): Manatee River SWIM water body? (Y/N) Yes

Impact Acres / Habitat Types (FLUCCS)

1 – FM 1960224	3.52 ac. 630	2 – FM 1996682*	3.80 ac. 630	**Impact Total: 10.32 Acres**
	0.50 ac. 641		2.20 ac. 641 / 642	
TOTAL	4.02 acres		0.30 ac. 911	
		TOTAL	6.30 acres	

* Note – The acreage and habitat types of this roadway project are preliminary estimates with anticipated revisions.

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: x Creation x Restoration x Enhancement ___ Preservation **Mitigation Area: 70.2 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): 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. 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 Manatee River (refer to Figure B). These deposits vegetatively formed into mesic oak hammocks that alternate with brackish marsh and inter-tidal creeks under state-owned sovereign submerged lands. The 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. The combination of these habitat improvement activities will provide wetland and riverine buffers necessary for water quality treatment, floodwater attenuation, and a wildlife habitat corridor adjacent to the Manatee River and Gamble Creek. This County-acquired tract is 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 47.5 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 includes 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, 1.1 acres) has shallow surface water seepage hydrology contributing

freshwater marsh (ME 1, 1.1 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 more recently proposed for residential development until acquired by the County. There is an upland area (UHR 2 – 13.5 acres) along the confluence of Gamble Creek and Manatee River that was previously flatwood habitat with scattered live oaks until it was cleared in preparation of development (Figure B, 1999 aerial depicts prior habitat conditions, site photographs depict current condition). After clearing, rather than this area being root-raked, the upland 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, transitioning from the fallow field to the adjacent river shoreline (refer to photos). In spite of the agricultural use within the majority of the tract, there are signs of wildlife use 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. Observations and signs include deer, raccoon, rabbit, bobcat, opossom, and several bird species. There are indicators that the wildlife 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). Details of site conditions are provided in Attachment A and depicted in the site photographs.

C. Brief description of proposed work: The mesic hammocks are in moderate habitat condition with the limitation associated with the presence of Brazilian pepper. The B. pepper particularly provides moderate to extensive coverage along the transition interface of the marsh and hammock habitat that hinders wildlife movement for foraging, and minimizes the coverage of desirable vegetation. An extensive initial herbicide eradication of the B. pepper will be conducted, followed by quarterly treatments for three years and semi-annual treatments for a minimum of seven years. There is adequate coverage of desirable species that will naturally recruit into these areas to minimize the regeneration of the B. pepper. However, evaluation and contingency funds will be budgeted to provide supplemental planting if necessary, and the herbicide treatments will continue on an annual basis for a minimum ten-year period. There are a few north-south ditches dredged within and along the perimeter of the forested wetland bordering the north property boundary (FWE 1 – 6.5 acres). In addition to the B. pepper eradication, the spoil material will be removed through backfilling ditches and/or complete 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 – 13.5 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 marsh (MC 1 – 4.5 acres) will be constructed within an isolated upland peninsula row crop area between forested wetland area (FWE 2 – 5.3 acres). The marsh will include herb species that can periodically endure oligohaline conditions when Gamble Creek and the Manatee River achieve flood stages. The marsh and adjacent forested wetland will have a minimum 50 ft. buffer of restored upland habitat (UHR 1 – 3.6 acres). The enhanced marsh, marsh creation, and upland habitat restoration areas will also have herbicide maintenance to eradicate exotic and nuisance species. 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 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 Harbor. The proposed wetland impacts for the SR 64 segment includes 3.52 acres of forested habitat and 0.5 acre of marsh habitat; with permitting expected to be complete in 2005 and a proposed construction commencement in September, 2006. The proposed 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 will result in a total of 25.5 acres of habitat enhancement and restoration to compensate for 4.02 acres of proposed impact. A second roadway (Upper Manatee River Road) is in the project development phase with proposed permitting in 2006 or 2007, and construction planned no sooner than 2008. This roadway facility is a FDOT funded, Manatee County roadway with a proposed alignment that will cross through the western limits of Hidden Harbour (Refer to Figure B). The conceptual roadway plan will include anticipated impacts to 3.8 acres of forested wetlands (the majority associated with wetlands within the Hidden Harbour property), 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. The proposed mitigation for the Upper Manatee River Road will include 29.3 acres of forested wetland enhancement, 10.9 acres of upland habitat restoration, and the 4.5 acres of marsh creation. This will result in a total of 44.7 acres of habitat improvements to compensate for the conservative impact estimate of 6.3 acres of similar wetland habitat. As a result of implementing this mitigation project, habitat enhancement will commence one year prior to the proposed wetland impacts associated with SR 64 and 3-4 years prior to the impacts associated with Upper Manatee River Road. A breakdown of the UMAM evaluation and associated mitigation 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: As of early, 2005, there is a proposed mitigation bank (Braden River Mitigation Bank) currently under state and federal permit review. Until if and when the mitigation bank permits are issued, bank credits are not available to compensate for the SR 64 project. The proposed Upper Manatee River Road project not only anticipates impacts to similar wetland habitats as the ecosystem improvements at Hidden Harbour, but the proposed roadway will be located within close proximity to the mitigation activities.

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 : From the Manatee Reservoir downstream to Tampa Bay, the Manatee River is a SWIM water body and this proposed habitat improvements will directly enhance the river and Tampa Bay.

MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Construction-related activities will be conducted under contract through Manatee County and/or the SWFWMD.
Contact Name: Mark Brown, SWFWMD Environmental Scientist Phone Number: 352-796-7211, ext. 4488
Entity responsible for monitoring and maintenance: Activities will be conducted by private contractors working under contract for the SWFWMD.

Proposed timeframe for implementation:

Fall, 2005 - Commence initial and quarterly herbicide treatments (Forested Wetland and Marsh Enhancement Areas).
Fall, 2005 – Commence semi-annual monitoring activities and annual monitor reports.
Spring, 2006 - Conduct upland habitat restoration planting (UHR 2).
Spring, 2007*- 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, with anticipated annual treatments thereafter.

*Note: The construction, planting, and maintenance activities of these habitats are dependent on the evaluation and permitting of Upper Manatee River Rd.

Anticipated Project Cost: **$900,000** (total);
Construction & Planting - $350,000
Herbicide Maintenance & Monitoring – $550,000

Project costs will vary based on any opportunities to expand marsh creation construction, and to adequately and appropriately compensate for wetland impacts associated with Upper Manatee River Road.

Attachments

_X_1. Detailed description of existing site and proposed work. Refer to previous description and Attachment A.

_X_2. Recent aerial photograph with date and scale. Refer to Figure B for the 1999 infrared aerial.

_X_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), 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 (expected late 2005-2006) and site conditions for the creation area. Depending on the floodplain compensation requirements for the proposed school 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.

_X_4. Detailed schedule for work implementation, including any and all phases. Refer to previous 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 discussion and Attachment C.

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 late, 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 will be evaluated and designed in 2005-2007. The County is planning school and recreational facilities for the upland row crop areas of the tract. The current plan is to construct the school and associated athletic fields in the western and central portions of the tract, with a regional park within the eastern portion. In collaboration with the SWFWMD, Manatee County agreed to allow some habitat enhancement and creation

to be conducted on the property to provide mitigation for wetland impacts associated with proposed roadway facilities that are a benefit to the vicinity (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 anticipated stormwater pond(s). Depending on the County's final design of the school and recreational facilities, additional acreage may become available to consider for habitat improvements. If this does occur, the potential for additional mitigation credit will be evaluated with the County. These additional activities could particularly include the potential to extend and restore additional upland habitat buffers, enhance additional forested wetland along the north bank of the river, and marsh creation within necessary floodplain compensation areas. The following information 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.

Forested Wetland Enhancement Area 1 (FWE 1) – 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 redirected 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. As of 2005, the upland row crop areas within property north of Hidden Harbour are 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, any 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, 3) – 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. If necessary, a contingency plan to provide supplemental planting of appropriate native species is included in the budget. An intensive initial effort to eradicate the B. pepper will be conducted, followed by quarterly maintenance for a minimum of three years, semi-annual maintenance for additional seven years, and annual maintenance for ten 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 crossing of the Hidden Harbour Tract.

Upland Habitat Restoration (UHR 1 & 2) – The UHR 1 area (3.6 acres) includes recent row crop operations that will be restored to minimum 50 ft. wide upland habitat buffers for the adjacent enhanced forested wetland (FWE 2) 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*). When the County has adopted a land use plan and design for the remaining portion of the upland row crop areas on the tract, opportunities to potentially include additional upland buffer restoration will be evaluated for possible inclusion into the mitigation plan.

Since the UHR 2 area (13.5 acres) 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 (*Eragrotis 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 be converted to residential communities, restoring this upland area will be of particular value for wildlife use.

Marsh Creation (MC 1) & Marsh Enhancement (ME 1)– The marsh creation area (4.5 acres) has been under row crop production and is currently being designated for mitigation of anticipated marsh impacts associated with the construction of Upper Manatee River Road. At this time, the proposed marsh creation will be a shallow oligohaline system with potentially 2-3 emergent pools to concentrate food resources for wading bird and wildlife foraging during dry periods. Herb species will be capable to endure periodic flushes of overflow during flood events for Gamble Creek. 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*). The final wetland impact acreage and anticipated permitting schedule for the Upper Manatee River Road is not proposed until 2006 or 2007. 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 until 2006 in order to further evaluate the impacts and mitigation conditions relative to this situation and potential opportunity. Assuming all the options are resolved, the marsh construction is currently anticipated for the spring, 2007; which would still be at least 1-2 years prior to construction of the Upper Manatee River Road.

The marsh enhancement area (ME 1 – 1.1 acres) is a surface water seepage system. Historic aerials indicate that the system probably was 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. As an alternative, a pedestrian trail will probably be formed north of ME 1 to provide access to conduct herbicide maintenance and recreational access for UHR 2 and into the adjacent county-owned portion of the forested wetlands. If installed, this will be a low impact trail that will be primarily used by wildlife to access areas for foraging and corridor connection to habitats further north. Protection and enhancement of this marsh is important as a water source for wildlife that utilize UHR 2.

Overall, the habitat plan incorporates and enhances the currently available upland and wetland habitat options of the property; as well as appropriately and adequately compensates for the anticipated wetland impacts associated with these two 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 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.

Attachment B – Maintenance & Monitoring Plan, Success Criteria

Maintenance is anticipated to commence in the fall, 2005 with an intensive, initial herbicide application; to provide pre-impact mitigation activities in association with the proposed 2006 construction of SR 64. 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, 2006. Herbicide maintenance for the removed ditch area within FWE 1 and the marsh creation will commence after anticipated earthwork in 2007. Herbicide maintenance will be conducted quarterly for a minimum of three years, followed by an anticipated seven years of semi-annual treatments. Additional treatments as necessary will be conducted during this 10-year period, with anticipated annual treatments thereafter to maintain minimal regeneration of B. pepper.

Monitoring will be conducted on a semi-annual basis upon the initial herbicide application in the fall, 2005. 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 semi-annual monitoring events will be compiled into annual monitoring reports, which will be conducted for a minimum of three years after the last construction associated activity is complete; and until success criteria is met. As a result of the phasing of mitigation activities, the monitoring is expected to last at least 7-8 years.

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 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 10% 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 10% coverage of exotics.

Attachment C – FDOT Mitigation

A Uniform Mitigation Assessment Method (UMAM) was conducted for the proposed mitigation areas and wetland impacts associated for the SR 64 project. UMAM provides a standardized procedure for assessing the functions provided by wetlands and other surface waters, the amount that the functions are reduced by a proposed impact, and the amount of mitigation necessary to offset that loss. It does not assess whether the adverse impact meets other criteria for issuance of a permit, nor the extent that such impacts may be approved by the regulatory agencies. The following table lists the proposed mitigation acreage at Hidden Harbor, the conservative relative functional gain (RFG) or ecological "lift" associated with the proposed activities, and the subsequent amount of "credits" to be applied toward mitigating the proposed wetland impacts for both roadway projects.

Habitat Area	Acres	RFG	Credits	Ratio
Forested Wetland Enhancement (1-3)	47.5	0.11	5.2	9:1
Upland Habitat Restoration (1 & 2)	17.1	0.16	2.8	6:1
Marsh Creation	4.5	0.30	1.35	3:1
Marsh Enhancement	1.1	0.10	0.1	11:1
TOTALS	**70.2**	**0.67**	**9.45**	**7.4 : 1**

A Wetland Rapid Assessment Procedure (WRAP) was conducted for the proposed SR 64 wetland impacts. The proposed forested wetland impacts have moderate to high quality ratings and the non-forested wetlands have moderate quality ratings. The same numeric value for the WRAP functional equivalent ratings were used to correlate with the UMAM evaluation for the mitigation activities. The functional equivalent for the 3.52 acres of proposed SR 64 forested wetland impacts is 2.68. The functional equivalent for the 0.54 acres of non-forested wetland impacts is 0.35. The proposed mitigation includes a combination of forested wetland enhancement, upland habitat restoration, and the marsh enhancement. The following information depicts the impacts and proposed mitigation acreage associated with SR 64:

SR 64 – Lakewood Ranch to Lorraine Wetland Impacts Type & Acreage	Wetland Impacts Functional Loss (FL)	Wetland Mitigation Type & Acreage	Wetland Mitigation Credits (RFG)
Forested - 3.52 ac.	2.68	Forested Wetland Enhancement - 18.2 ac.	2.0
Marsh - 0.52 ac.	0.35	Upland Restoration – 6.2 ac.	1.0
		Marsh Enhancement – 1.1 ac.	0.1
Total Impacts – 4.04 acres	**3.03**	**Total Mitigation – 25.5 acres**	**3.1**

The anticipated wetland impacts for the Upper Manatee River Road are preliminary acreages and habitat types. Functional assessments of these impacts will be conducted after further evaluation of the design parameters. So the functional loss ratings provided in the attached table are very high ratings. Preliminary evaluations of the wetlands indicate these ratings too conservative, but they're provided as an estimate to determine if and where additional mitigation would be required. Most roadway projects have a decrease in anticipated wetland impacts between the project development and final design phases. The location and design of stormwater pond and floodplain compensation areas for the road will be a major factor as to whether these impacts will increase or decrease. As noted, further evaluation of any potential seagrass impacts will also be a determining factor of appropriate mitigation activities. So based on the current 2004 evaluation of anticipated impacts and mitigation, it appears the proposed habitat activities at the Hidden Harbour project may be adequate and appropriate to compensate for the wetland impacts associated for the anticipated wetland impacts associated with both the SR 64 and Upper Manatee River Road projects.

Upper Manatee River Road – SR 64 to US 301 Wetland Impacts Type & Acreage (Prelim.)	**Wetland Impacts Functional Loss (FL)**	**Wetland Mitigation Type & Acreage**	**Wetland Mitigation Credits (RFG)**
Forested - 3.8 ac.	3.8	Forested Wetland – 29.3 ac.	3.2
Marsh (641) - 2.1 ac.	2.1	Upland Restoration – 10.9 ac.	1.74
Seagrass – 0.3 ac.	0.3	Marsh Creation – 4.5 ac.	1.35
Total Impacts – 6.3 acres	**6.3**	**Total Mitigation – 44.7 acres**	**6.3**

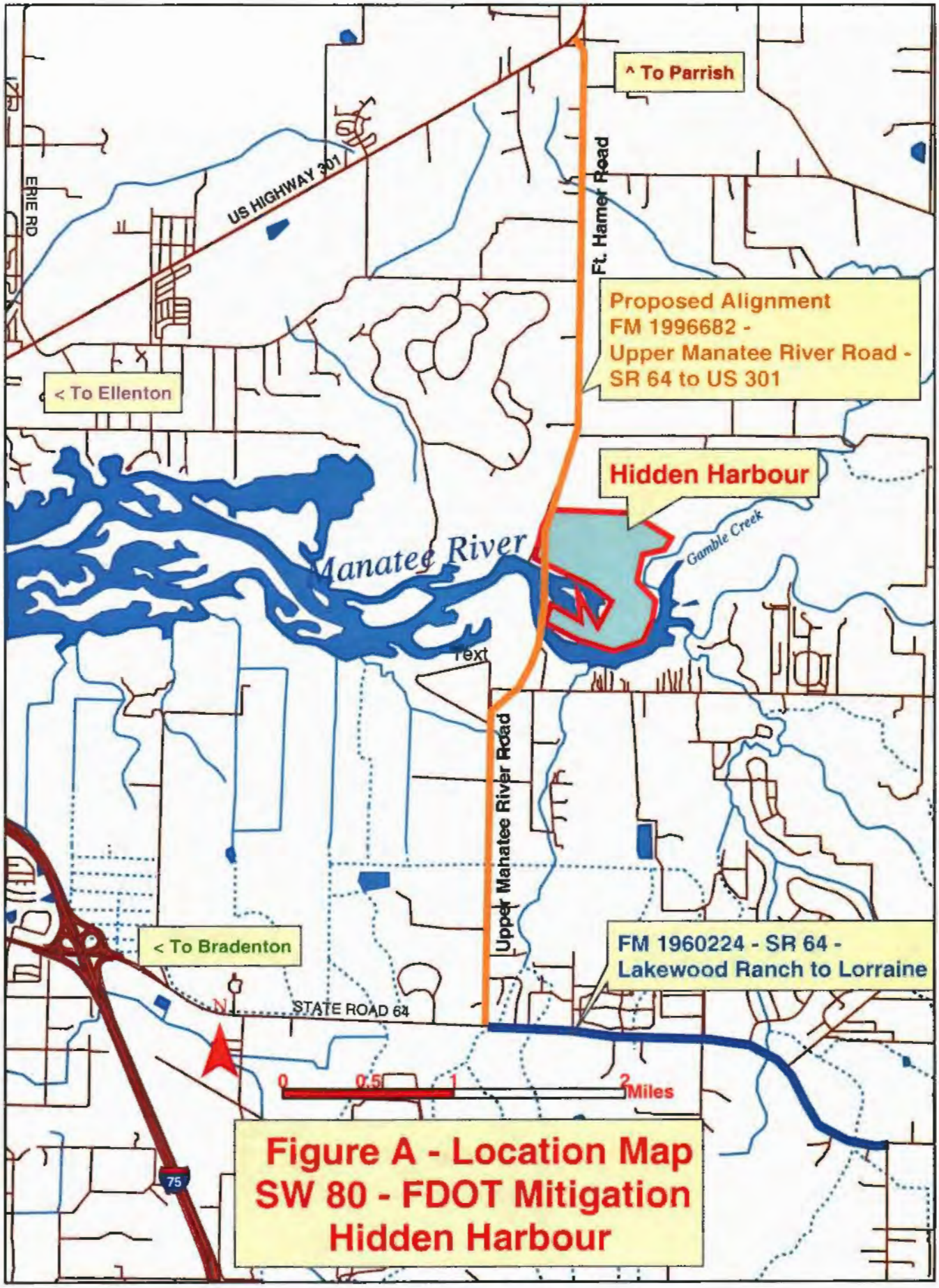


Figure A - Location Map
SW 80 - FDOT Mitigation
Hidden Harbour

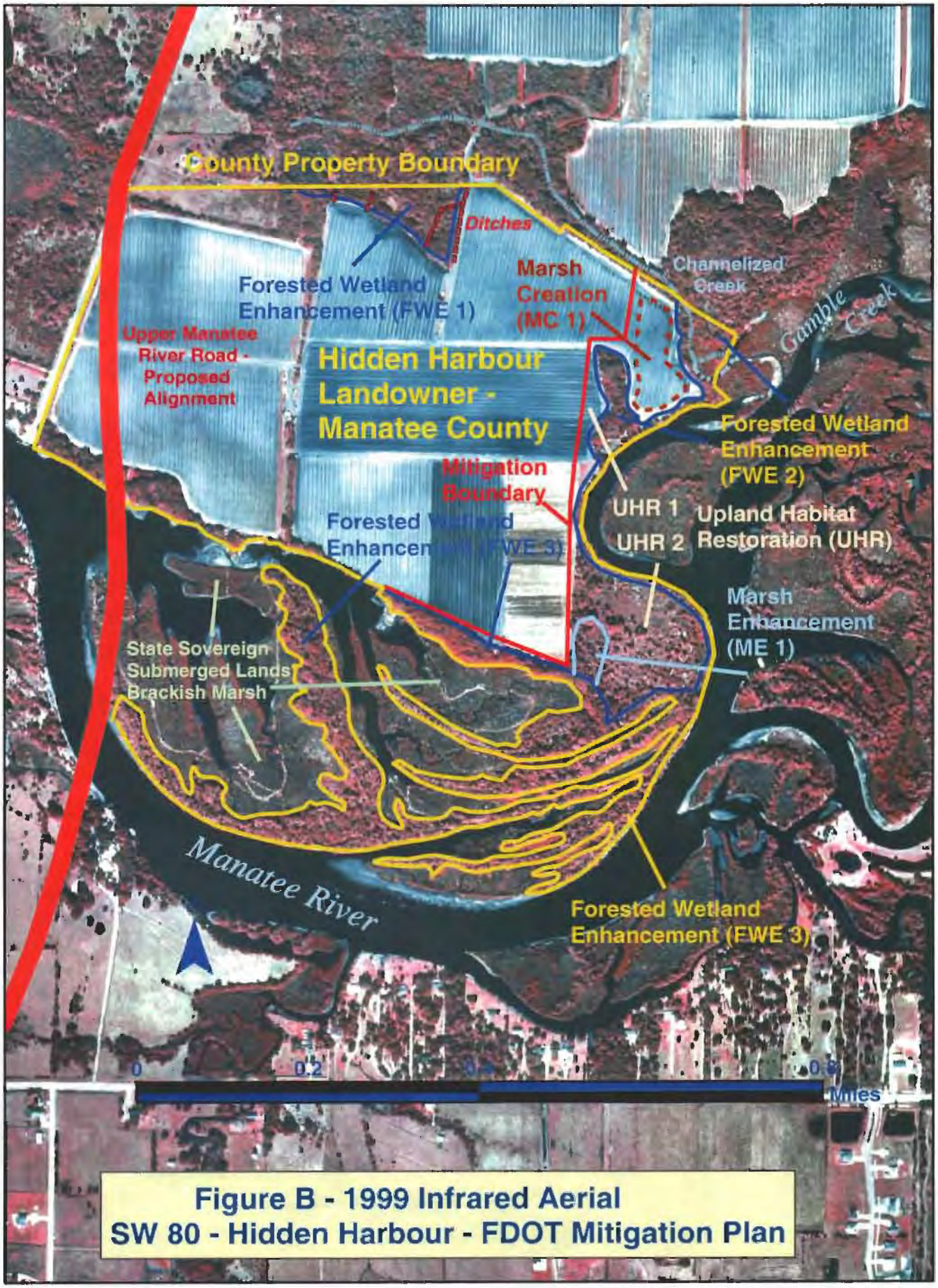
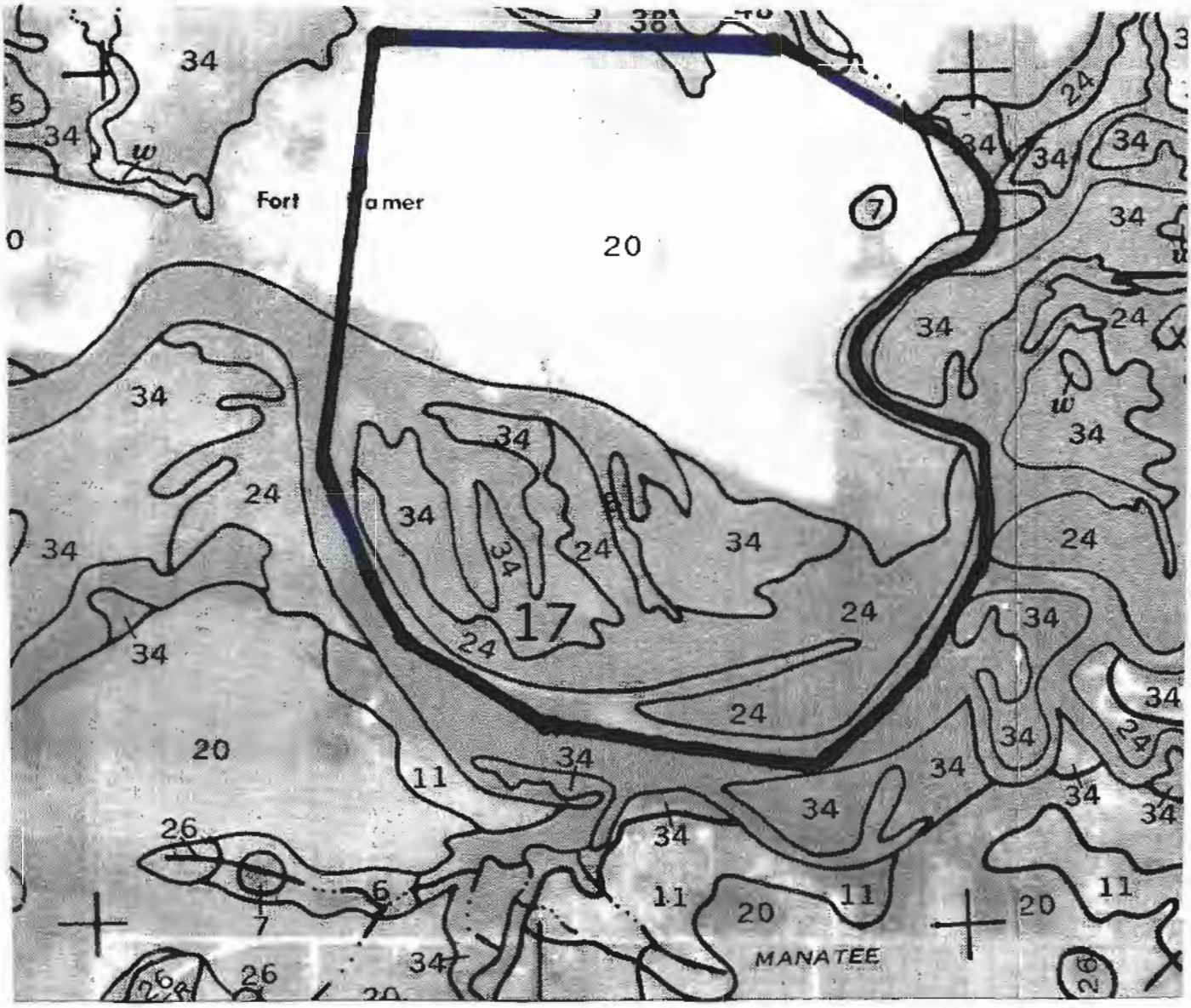


Figure B - 1999 Infrared Aerial
SW 80 - Hidden Harbour - FDOT Mitigation Plan



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**

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, mysine, grapevine, greenbriar, 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 desireable 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 rook 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: Hillsborough County EPC (Bob Stetler) Phone No: (813) 272-7104
Hillsborough County Parks, Recreation & Conservation (Forest Turbiville) (813) 272-5810

County: Hillsborough Location: Sec. 15, 16, 17, 20, 21, 22, T31E, R21E

IMPACT INFORMATION

(1) FM: 1973941 – SR 563, Pipkin Rd. to SR 572 (Drane Fd. Rd.) ERP #: _____ COE #: _____

Drainage Basin: Alafia Water Body: None SWIM water body? N

Impact Acres / Types:
(1) FM 1973941 5.3 acres 631 (Fluccs)

MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: __ Creation X Restoration X Enhancement ___ Preservation Mitigation Area: **20-30 ac.**

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

Mitigation Bank? N If yes, give DEP/WMD mit bank permit #: _____ COE # _____

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 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 will determine appropriate restoration of appropriate wetland grade elevations and associated hydrology and hydroperiods for the existing and restored portions of Stallion Hammock. 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). To aid in improving the inter-relationship of upland and wetland habitats for wildlife use, 265 acres of fallow uplands in the contributing sub-basin will be enhanced by planting appropriate tree species.

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. Stallion Hammock 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.

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 (approximately 60 acres) will not exactly match the historic dimensions of the east and central tributaries but will include more 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's 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 the mining activity and replaced with open fallow areas that provide minimal cover for wildlife. The proposed restoration plan includes the enhancement of upland habitat by planting tree species such as longleaf pine, sand pine, live oak, and xeric 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 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): As of 2005, the proposed SR 563 is the first roadway project with wetland impacts in the Alafia basin proposed for mitigation through the FDOT program. The proposed 5.3 acres of mixed forested wetland habitat impacts associated with this project will be adequately and appropriately compensated with the restoration of similar forested wetland habitat as well as enhancement of adjacent upland buffer habitat. 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. The permit application of the roadway project isn't scheduled until July, 2007 and roadway construction commences in October, 2008. Due to the extensive habitat improvements associated with this Balm Boyette project, additional mitigation credits are anticipated and will be evaluated for compensating other FDOT wetland impacts in the Alafia basin as the associated roadway projects are submitted for the mitigation program.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: As of 2005, there are no permitted or potential mitigation banks being proposed 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, SWFWMD Operations, and /or designated contractor

Contact Name: Bob Stetler (HCEPC), Forest Turbiville (Hills. Co. Parks) 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 Complete: Maintenance & Monitoring – 2018 (refer to schedule below)

Project cost: $4 – 5 million (total); Note – FDOT will only receive mitigation credit for that portion of habitat restoration activities that can be financially reimbursed to the WMD. Other funding sources include the FDEP and the WMD-SWIM program.

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 conducted in 2006 and 2007. As additional design details are conducted, this information 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 - 2007
Construction & Planting – 2008
Maintenance & Monitoring – 2008 – 2018
Maintenance & Management – 2018 – 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 and Attachment C.

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 50-70 + 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, Thelpyteris palustris*) (refer to photos). Mining activity effectively removed the majority of two headwater weltand 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. In addition, two fill access roads cross the hammock (Fig. F). The east-west road crossing is a converted railroad tram. These crossings have one culvert crossing each that restrict and alter the historic hydrology to the outer downstream portions of the floodplain; especially when Pringle Branch overflows the banks and surface water sheet flows through the swamp. 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 distributing 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 impacted the system. This not only includes the two mined tributaries but the access road crossings. These roads provide necessary access for land management activities so depending on the evaluation and modeling effort, there may be additional culverts installed in the access road and railroad tram to restore flow and hydroperiod regimes throughout the wetland floodplain. The tram also has active gopher tortoise burrows so if culvert installation is proposed, the location and construction methods will evaluate any potential impacts to the tortoises. 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 at least be 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 adjacent to the remaining Stallion Hammock. The majority of this area is located within the same location of where portions of Stallion Hammock was 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 is currently minimal littoral zones associated with these pits; primarily some coverage 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 elliottii*), 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. As a result, due to the substantial habitat restoration opportunities this project could provide to the Alafia River watershed, a multi-agency task force determined that restoring the Stallion Hammock habitat would be the most appropriate alternative to designate the $2.3 million in Pollution Recovery Funds received by FDEP by Mulberry Phosphate. However due to the magnitude of the earthwork and associated costs to restore the wetland habitat, additional funding sources like the FDOT mitigation program and the SWIM program have become necessary to proceed with implementing the restoration plan.

Prior to earthwork, 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 can 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.

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 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, 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 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, purple 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 to be filled. 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 o 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 (265 acres) – The habitat, landscape and topography at 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 often 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, conducting tree planting will accelerate the enhancement of the upland habitats.

Total restoration of upland habitat components would be an extensive process that isn't 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 forested native habitat 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 elliottii*) 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 ft. spacings to restore a more natural upland habitat.

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 and 2007. The permitting is anticipated in 2007 and construction is planned in 2008, which will be a year prior to the anticipated FDOT wetland impacts. As previously noted, the actual construction of the wetland restoration component may require implementing in two phases pending available funds. The most likely additional funding source will be the SWIM program, as well as the potential of additional FDOT mitigation funds.

Herbicide maintenance activities 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 year 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 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. 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.

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 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). This includes plantings within the upland enhancement area, wetland restoration of Stallion Hammock, and the hydrologic conveyance areas between the pits. 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.

Attachment C - FDOT Mitigation Issues

The proposed activities and associated habitat improvements associated with this Balm Boyette project are more than sufficient to appropriately mitigate for the anticipated FDOT wetland impacts associated with SR 563. Since the FDOT mitigation program commenced in 1996, the SR 563 project represents the first FDOT project in the Alafia River basin proposed for the mitigation program. This roadway project is scheduled for permit application in June, 2007 and construction in July, 2009. Since 2000, the SWFWMD has collaborated with FDEP, Hillsborough County, and Polk County in the evaluation and pursuit of land acquisition and habitat restoration opportunities in the Alafia River basin; including potential options that could be possibly proposed for FDOT wetland mitigation credit. The Balm Boyette project represented the best available opportunity for habitat restoration however the desired activities exceed the current mitigation need.

As previously noted, the Balm Boyette restoration activities have been on the desired list of both Hillsborough County Parks and SWFWMD SWIM program for several years. Unfortunately the costs associated with these habitat improvements have limited the opportunity to commence design and construction. However with the combination of the $2.3 million in DEP's Pollution Recovery Funds and the approximately $500,000 of available funds provided through the FDOT program, the project can commence further evaluation, surface water modeling, and design. Until such time those necessary activities are complete, the construction costs are unknown. However, an estimate of $4-5 million has been considered for planning purposes. If there is a funding shortage at the time of initial construction, the project will be phased to conduct at least portion of the proposed wetland restoration activities. The first phase construction will provide appropriate FDOT mitigation a year in advance of the planned SR 563 construction. As additional FDOT projects in the Alafia basin are proposed for the mitigation program, their associated wetland impacts will be evaluated with other available mitigation options to determine if they can be adequately and appropriately mitigated at Balm Boyette. At the same time, additional funding sources will be pursued with the most likely provider being through the WMD's SWIM program.

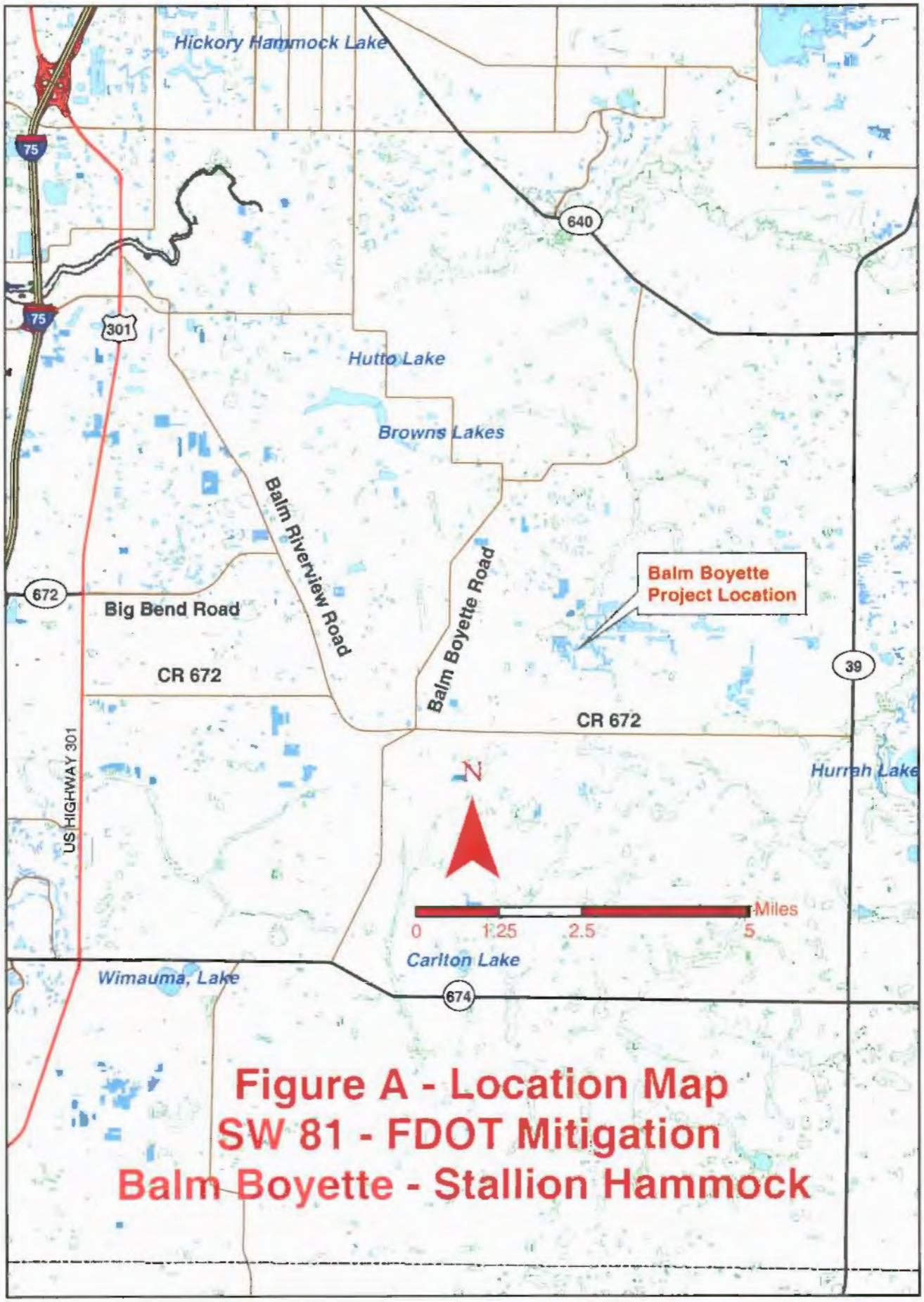


Figure A - Location Map
SW 81 - FDOT Mitigation
Balm Boyette - Stallion Hammock

Balm Boyette Scrub Preserve

Figure B - 2004 Aerial

Balm-Boyette Scrub Preserve
Stallion Hammock 1938

Figure C - Pre-Mining Aerial

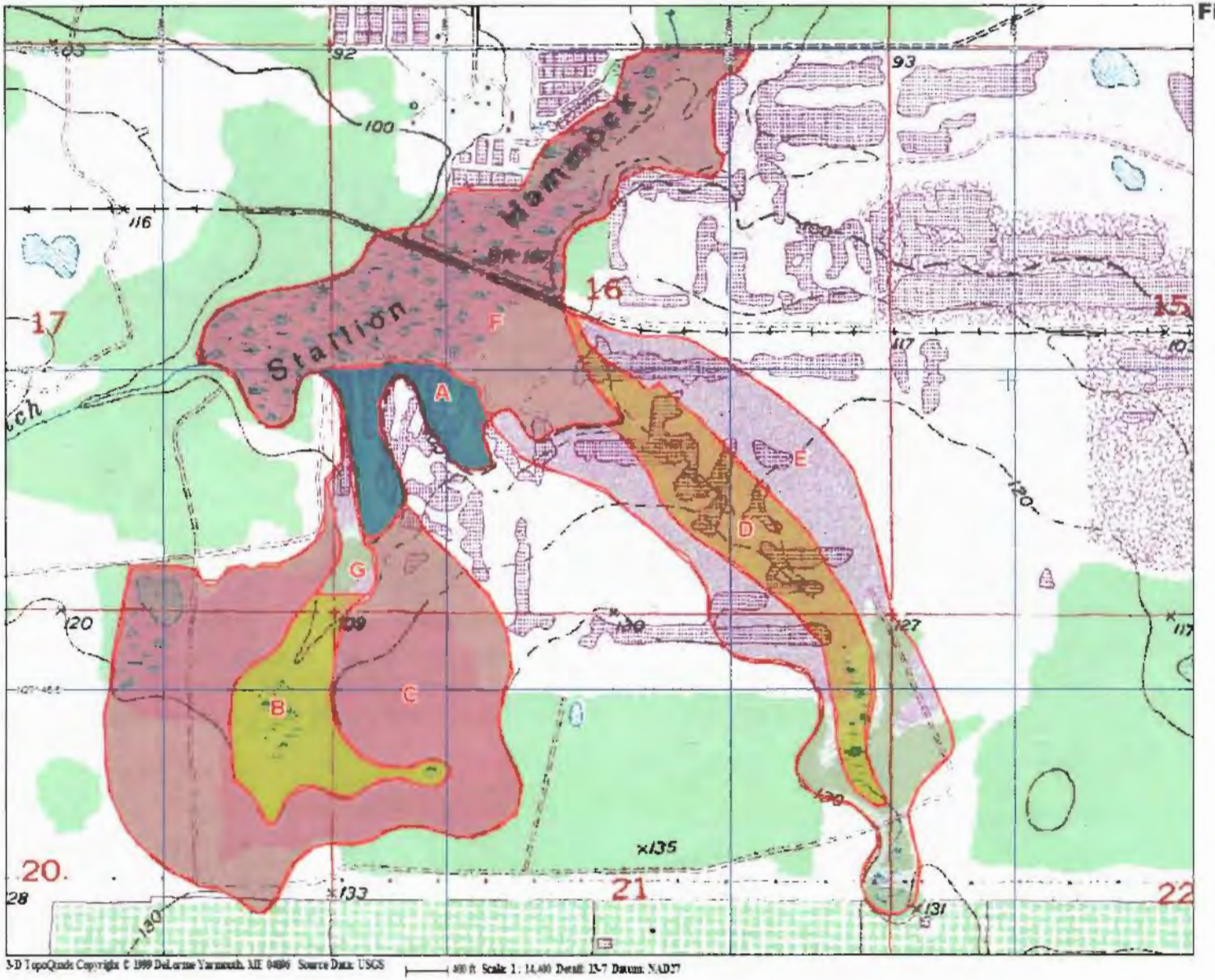


Figure D - Stallion Hammock Watershed

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)

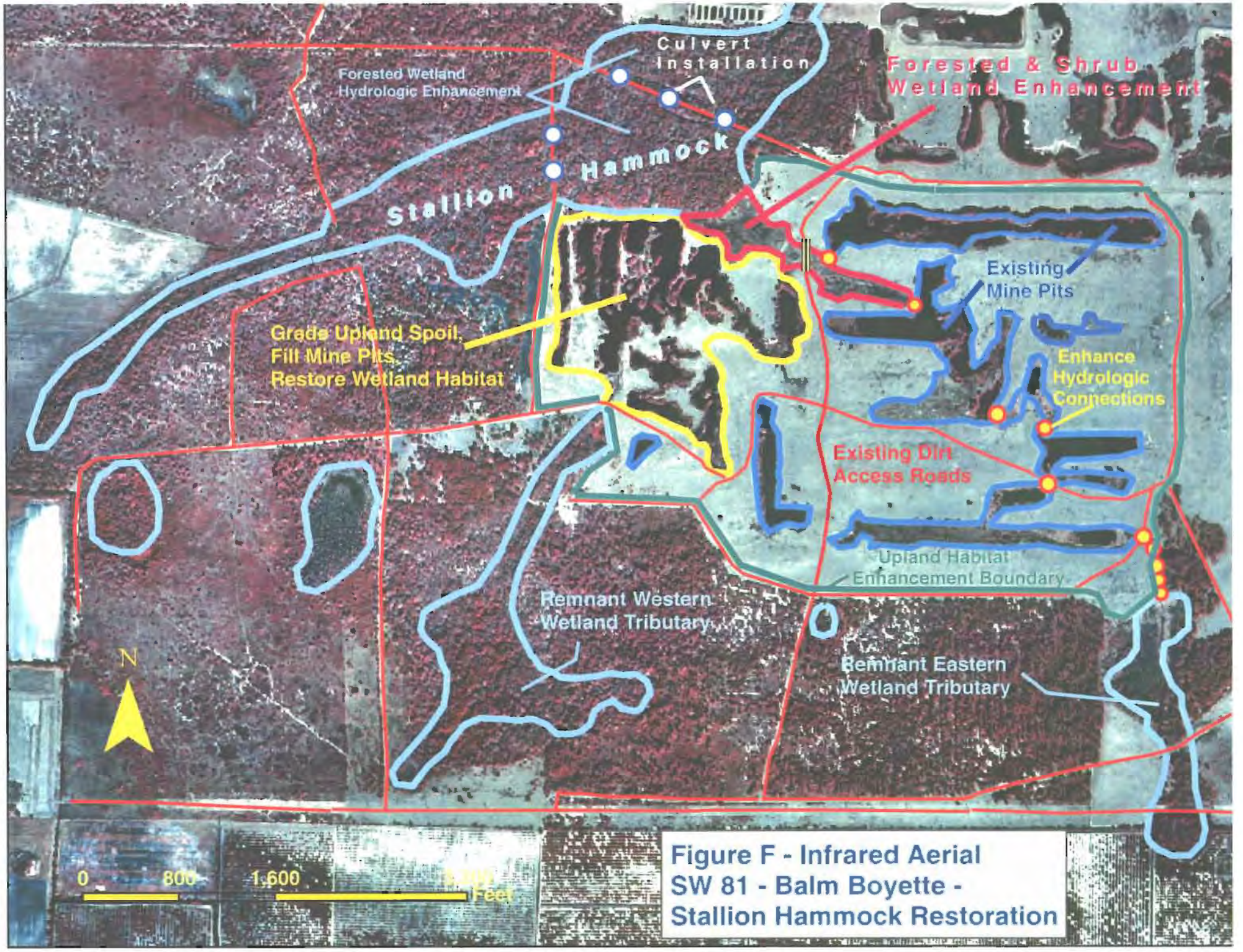


Figure F - Infrared Aerial
SW 81 - Balm Boyette - Stallion Hammock Restoration

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

1 (FM): 2569981 – CR 296 at I-275 Interchange	ERP #: _____	COE #: _____
2 (FM): 2586621 – I-75 (SR 93A), SR 60 to I-75/I-4 Interchange	ERP #: _____	COE #: _____
3 (FM): 2569942 – CR 296 Connector, NB I-275 (Ramp P) to SR 692	ERP #: _____	COE #: _____
4 (FM): 4091551 – SR 688 (Ulmerton Rd.), Long Branch to Wild Acres	ERP #: _____	COE #: _____
5 (FM): 2557931 – US 301 (SR 41), Tampa Bypass to Fowler Ave.	ERP #: _____	COE #: _____
6 (FM): 4113371 – US 92, Eureka Springs to Thonotasassa Rd.	ERP #: _____	COE #: _____
7 (FM): 4152341 – Dale Mabry Sidewalks	ERP #: _____	COE #: _____
8 (FM): 4133991 – US 41, 15 Terrace to Bull Frog Creek	ERP #: _____	COE #: _____
9 (FM): 4055252 – SR 60 (Adamo), US 301 to Falkenberg	ERP #: _____	COE #: _____
10 (FM): 4154891 – US 301, Sun City Center to Gibsonton Drive	ERP #: _____	COE #: _____

Drainage Basin: Tampa Bay Water Body(s) : Old Tampa Bay, Lake Seminole Canal, Cross Bayou, Tampa By-pass Canal, Big Bullfrog Creek, Little Bullfrog Creek SWIM water body? Old Tampa Bay

Impact Acres / Types:

(1) FM 2569981 1.9 ac. 619 (Fluccs)
0.1 ac. 640
1.0 ac. 643
TOTAL 3.0 acres

(2) FM 2586621 1.0 ac. 640 (Fluccs)

(3) FM 2569942 1.2 ac. 643 (Fluccs)

(4) FM 4091551 1.5 ac. 510 (Fluccs)
0.3 ac. 534
TOTAL 1.8 acres

(5) FM 2557931 0.1 ac. 618 (Fluccs)*

(6) FM 4113371 0.02 ac. 610 (Fluccs)**
0.02 ac.618
0.17 ac.640
0.69 ac.641x
TOTAL 0.89 acre

(7) FM 4152341 0.5 ac. 641x (Fluccs)

(8) FM 4133991 0.1 ac. 612 (Fluccs)
0.1 ac. 641x
TOTAL 0.2 acre

(9) FM 4055252 1.0 ac. 618 (Fluccs)
1.0 ac. 630
TOTAL 2.0 acres

(10) FM 4154891 2.2 ac. 617 (Fluccs)
0.8 ac. 621
0.9 ac. 631
1.1 ac. 641
TOTAL 5.0 acres

GRAND TOTAL – 15.88 acres

* Note – This US 301 project has an additional 0.4 acre impact in the Hillsborough basin; mitigation to be conducted separate from the mitigation program by FDOT.

** Note – This US 92 segment has an additional 2.83 acres of impact in the Hillsborough basin; mitigation designated for the Greer Tract (SW 72).

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 If yes, give DEP/WMD mit bank permit #: _____ COE # _____

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 has been discontinued 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 dominate 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): Almost all the designated roadway projects anticipate minor impacts to low quality freshwater wetlands. The only designated project with sizeable wetland impacts is the US 301 segment (Project 11 – FM 4154891). The majority of anticipated wetland

impacts with this roadway segment are associated with widening 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 at the Ekker habitat improvement project. It is anticipated the proposed 15 acres of wetland impacts associated with the 10 referenced roadway projects will decrease as the final designs are prepared for permit applications. If impacts decrease, depending on the wetland functional assessment (UMAM) of other proposed wetland impacts and the mitigation site, there may be available mitigation credits that will be reserved to potentially provide compensation for other 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 only mitigation bank in the basin is the Tampa Bay Mitigation Bank (TBMB). As of 2005, TBMB is under construction and doesn't have available freshwater wetland mitigation credits to compensate for the proposed wetland impacts associated with the referenced roadway 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 Ekker Tract project is a SWIM-designated 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, or Mark Brown Phone Number: 352-796-7211, ext. 4488

Entity responsible for monitoring and maintenance: Private consultant on contract through the SWFWMD.
Proposed timeframe for implementation: Commence: Planning & Design – 2005-2006 Complete: Maintenance & Monitoring - 2017 (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. Additional site evaluation and engineering design will be conducted in 2006. 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 – 2006
Construction & Planting – 2007-2008
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 and Attachment C.

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 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 opposum (*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 terebinthifolus*) 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 fish pond 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 the final design will be completed in 2006. The

design will need to incorporate survey cross-sections 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. It is envisioned the final design will result in an increase in forested wetland and marsh habitat, and less open water. However, the open water component will also include plantings of obligate species.

Prior to earthwork, a very extensive herbicide eradication of the exotic and nuisance vegetation will be conducted throughout the fish pond area and roadsides 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 (*Cephalantus 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 so in order to establish an appropriate buffer, the plan will include a 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 elliottii*). 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 elliottii, 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 the 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 (*Calicarpa 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 discing and/or possibly a low cool season prescribed burn where available fuel material is limited so as to not result in 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 discing 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.

It's noted that 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 a residence for on-site land management and security.

Attachment B – Schedule, Maintenance & Monitoring, Success Criteria

The proposed schedule includes engineering and environmental evaluation in 2005 and 2006 to obtain site information, conduct the necessary surface and groundwater modeling, and finalize a design plan for permitting in 2006. Construction is scheduled for 2007-2008. 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 will be expected on at least 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.

Attachment C - FDOT Mitigation Issues

The Tampa Bay Drainage Basin has four separate locations around the bay. The proposed wetland impacts associated with the various roadway projects proposed for mitigation at the Ekker Tract are relatively minor acreage, freshwater, and heavily impacted by existing roadway facilities in highly urban areas. As the roadway projects proceed through future design phases, the majority of listed wetland impacts generally decrease to approximately half of the original anticipated quantity.

The proposed activities and associated variety of habitat improvements associated with the Ekker Tract are appropriate to mitigate for these anticipated low-quality wetland impacts. The majority of the proposed wetland impacts will not occur until the 2007-2011 time frame, which means the wetland creation activities proposed for the Ekker project will be constructed prior to the majority of proposed wetland impacts. As noted, the primary roadway project with the majority of wetland impacts proposed for mitigation at Ekker includes the nearby US 301 segment in Sun City. Since this roadway project will primarily impact wetlands associated with Bullfrog Creek and Little Bullfrog Creek upstream from Ekker, the proposed mitigation plan is an ecologically valuable opportunity to appropriately compensate for wetland impacts within the sub-basin of the Tampa Bay Drainage Basin. As additional FDOT projects in the basin are proposed for the mitigation program, and anticipated impacts decrease from the 10 listed roadway projects, evaluation of the Ekker project will be conducted to determine if there might be additional mitigation credits that can be reserved for future roadway wetland impacts in the basin.

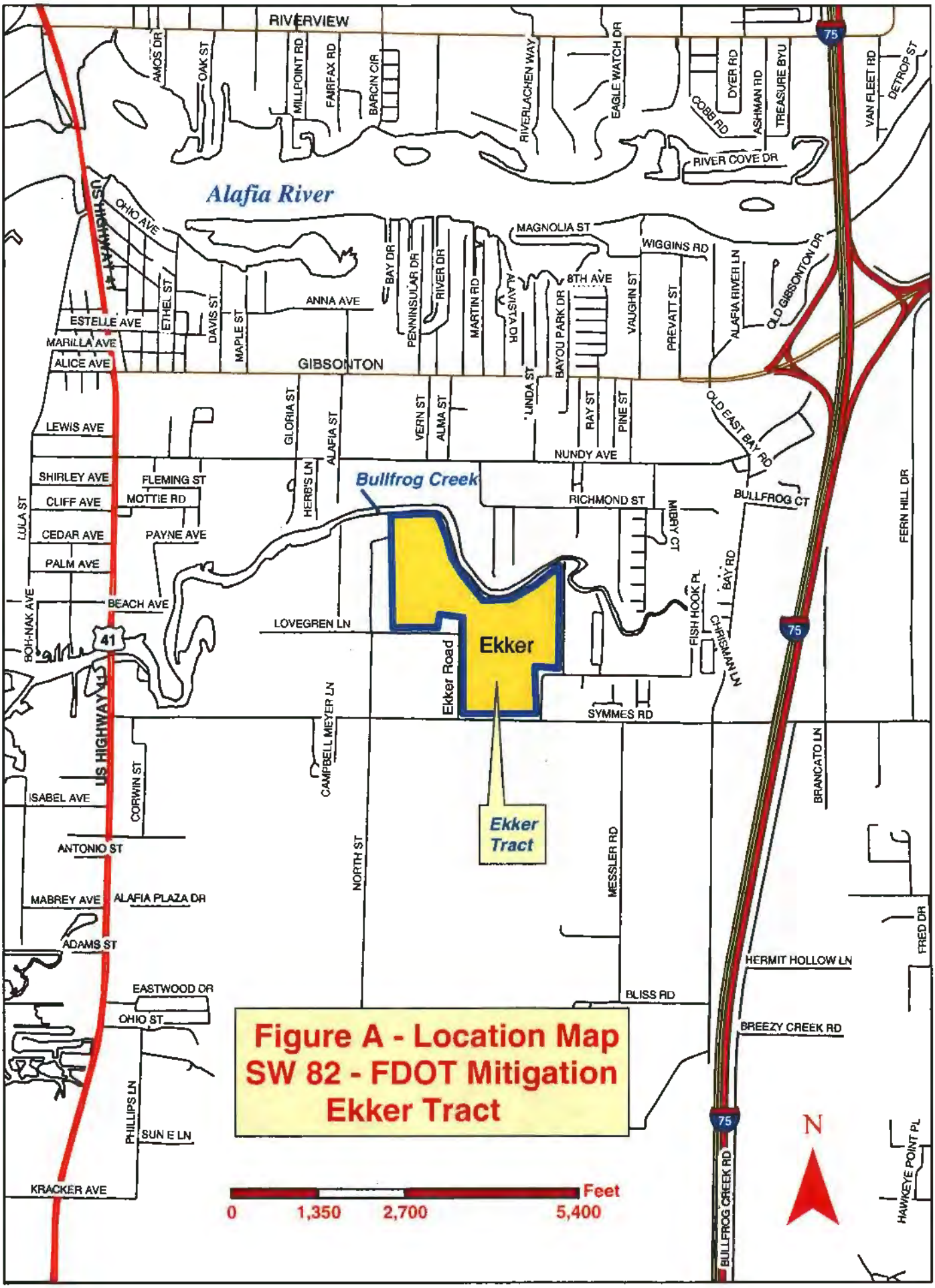


Figure A - Location Map
SW 82 - FDOT Mitigation
Ekker Tract

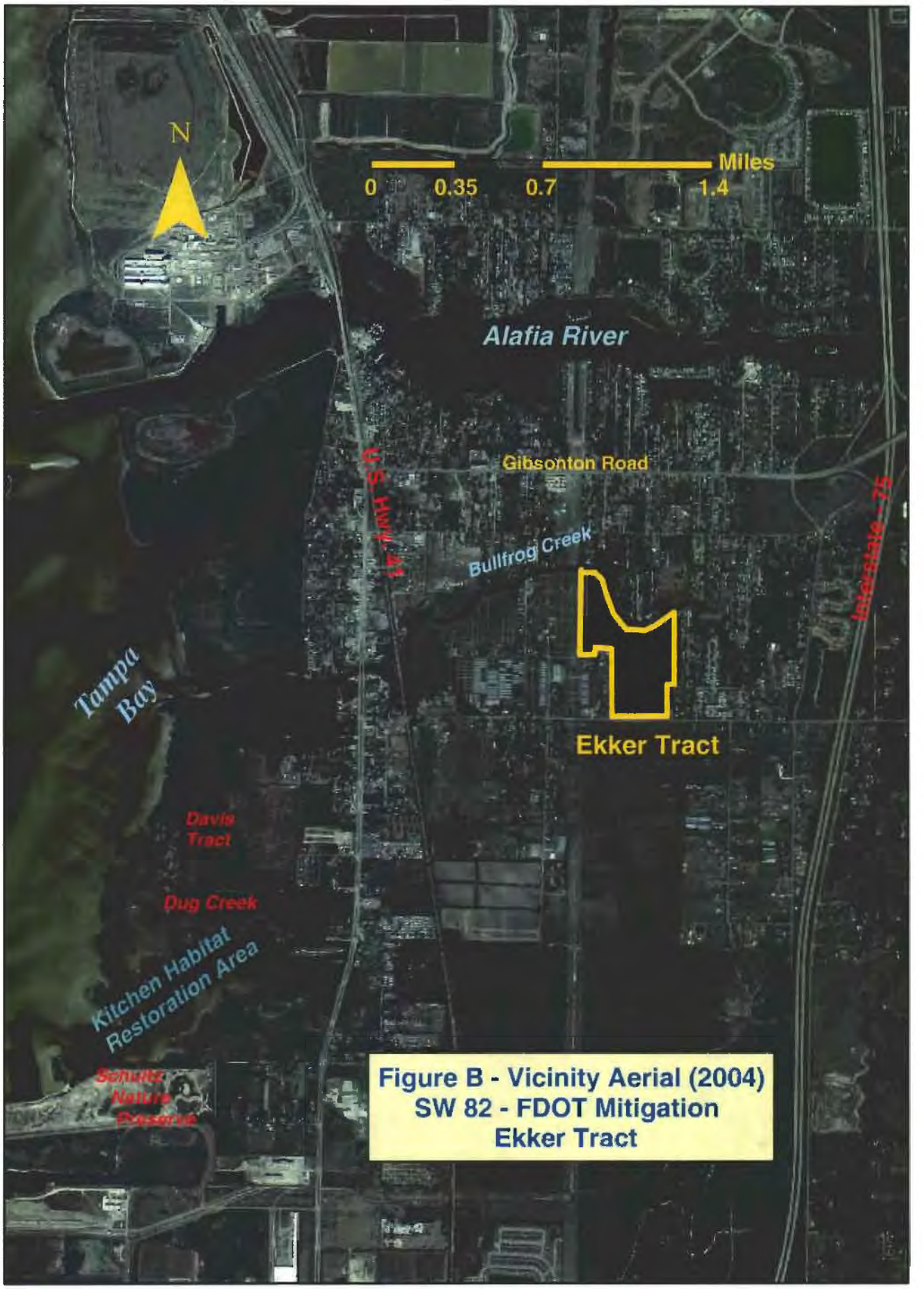
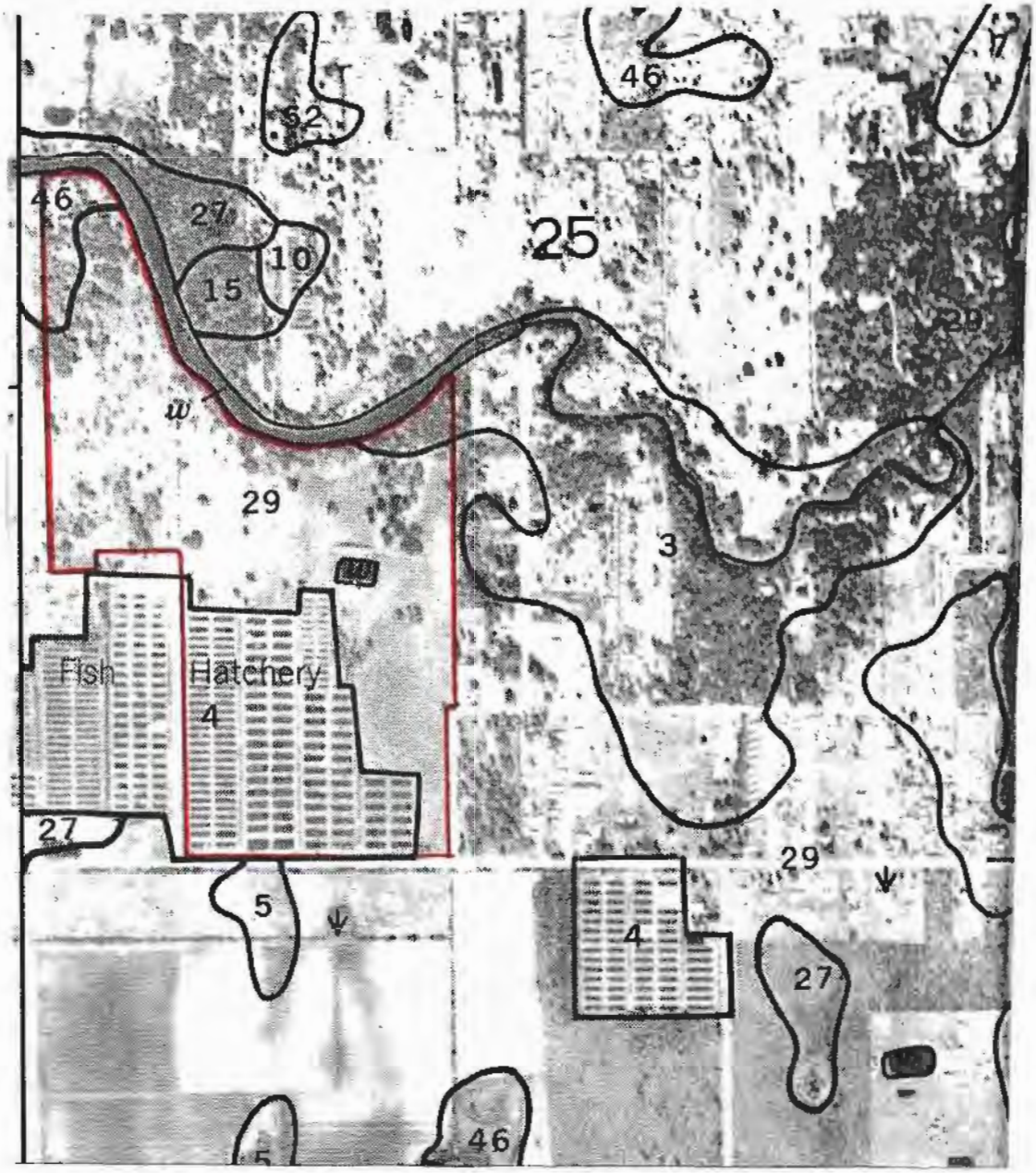


Figure B - Vicinity Aerial (2004)
SW 82 - FDOT Mitigation
Ekker Tract



LEGEND (Hydric Soil)**

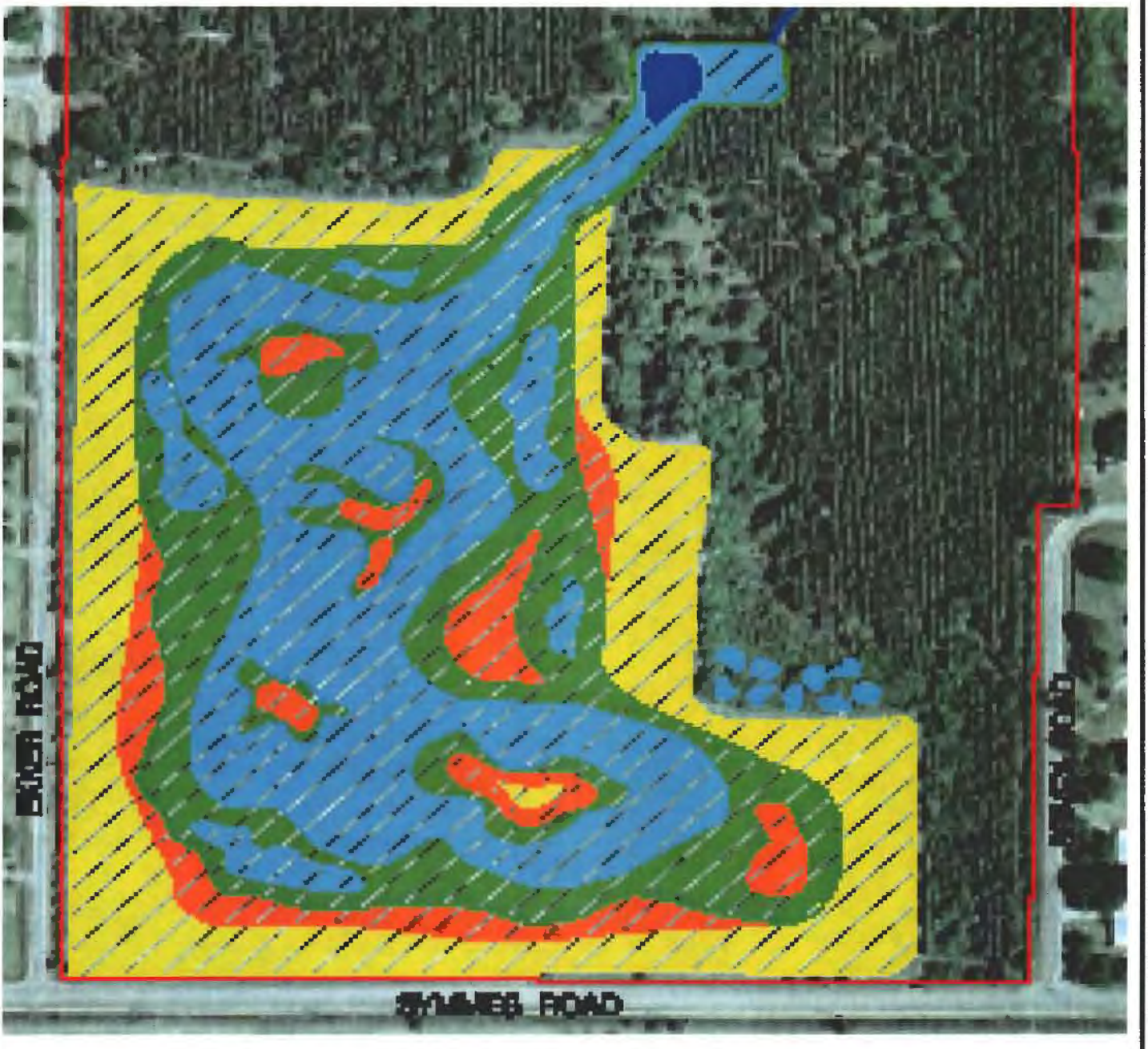
- **3 - Archbold fine sand**
- **4 – Arents, nearly level (historically Myakka f.s.)**
- **29 – Myakka fine sand**
- **46 – St. Johns fine sand ****

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**

Figure D - SW 82 - Ekker Tract
Conceptual Habitat Improvement Plan
Scale 1 inch = 400 feet, North ^



LEGEND

- 6.82 ACRES – UPLAND
- 7.24 ACRES – OPEN WATER
- 6.91 ACRES – MARSH
- 1.90 ACRES – FORESTED WETLAND
- 0.16 ACRES – FROG PONDS

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)**