

**MITIGATION / MONITORING /  
MAINTENANCE PLAN  
FOR  
INTERNAL PRESERVES**

**REVISED: JULY 15, 2012**

**PREPARED BY:**



**TURRELL HALL & ASSOCIATES, INC  
3584 EXCHANGE AVENUE  
NAPLES, FL 34104**

## **I. INTRODUCTION:**

The purpose of this report is to document the proposed mitigation activities for preserves internal to the development project known as *Mirasol*. A Mitigation and Monitoring Plan for the large preserve (Main Preserve) that is proposed outside of the development footprint is presented in its own, independent document.

The proposed project encompasses a total of approximately 1,798 acres in four sections of northern Collier County north of CR 846 and east of Interstate 75. A residential and golf course community is planned, with access to be provided from Immokalee Road (CR 846) along the southern property boundary. Most of the southern two sections were historically mowed and these two Sections (15 & 22) in addition to the northern Section (10) were used as cattle pasture. Altered sheet flows from further north and east currently flow across the property and because of constricted and limited outfall, the property is abnormally flooded (to increased depths) on an annual basis.

The historic use of the property as cattle pasture coupled with the annual flooding now occurring has contributed to unchecked proliferation of melaleuca across the entire property. A majority of the site has melaleuca densities of greater than 50% coverage. This infestation in conjunction with the flooding has led to a degradation of the uplands and severely depressed the functional values for the entire area. Native vegetation, wildlife forage value, and actual wildlife utilization have all suffered drastic reductions due to the existing conditions of the site.

To characterize surrounding land use, active farm fields exist to the north of the property while lands to the east consist of undeveloped parcels, a mitigation parcel, and several single-family home-sites. The properties to the west of the subject parcel consist of the proposed Parklands (north) and Terafina (central) developments, and the existing Olde Cypress (south) development. The southern property boundary abuts the drainage easement and Cocohatchee canal alongside of Immokalee Road (CR 846).

The development site plan proposes to directly impact approximately 514.4 acres of State jurisdictional wetlands. The plan also proposes to preserve approximately 961.2 acres of wetlands and 125.8 acres of uplands to the north and west of the development area. Within the development area the project proposes to preserve 34.7 acres of wetlands and 2.1 acres of uplands. It is to these 36.8 acres of internal preserves that this document is dedicated towards.

## **II. EXISTING CONDITIONS:**

The project site consists of 1,798 acres located in four sections of northern Collier County north of CR 846 and east of Interstate 75. There are limited upland (302.5 acres) and substantial wetland (1,495.8 acres) communities present on the site, which have all been heavily impacted by melaleuca infestation and altered hydrology.

### **Habitat Descriptions:**

The following paragraphs outline the basic composition of species assemblages found on-site. While many more species are present than presented in this report, the following gives a brief description of the vegetative communities.

#### **411 - Pine Flatwoods**

This is the predominant upland habitat present on the property. The canopy component of this area consists of mature slash pines (*Pinus elliottii*) and melaleuca (*Melaleuca quinquenervia*). Melaleuca concentrations vary in these upland areas but some areas exhibit densities approaching 75%. Wax myrtle (*Myrica cerifera*) and small melaleuca form the midstory. These uplands exist as remnant islands throughout the site, most likely due to the altered, elevated water levels present. Understory species include saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*) and wild grape vine (*Vitis rotundifolia*).

#### **422 - Brazilian Pepper**

These two small areas are present in the northeast and northwest corners of the property. There are both upland and wetland areas present. Brazilian pepper (*Schinus terebinthifolius*) dominates this vegetative community.

#### **617 - Disturbed Mixed Hydric Hardwoods**

This small community in the southwestern corner of Section 15 is the only example of this community on the site. The dominant plant species are bald cypress (*Taxodium distichum*), melaleuca, wax myrtle, swamp bay (*Persea palustris*), saltbush (*Baccharis halimifolia*), and live oak (*Quercus virginiana*). A few cabbage palms (*Sabal palmetto*) are also present. Herbaceous understory vegetation consists of sawgrass (*Cladium jamaicense*) and swamp fern (*Blechnum serrulatum*).

#### **621 - Cypress Swamp**

This habitat contains predominately bald cypress with scattered dahoon holly (*Ilex cassine*), wax myrtle, and rare swamp bays. Ground covers are sparse but consist mainly of swamp fern.

#### **424 - Hydric Melaleuca**

These areas are dominated by melaleuca (*Melaleuca quinquenervia*) with minimal groundcover of swampfern, sawgrass and several grasses. Melaleuca concentrations are 90 to 100 % of the canopy cover.

**624 – Cypress / Pine / Cabbage palm**

This habitat contains predominately bald cypress with scattered slash pine, wax myrtle, and rare cabbage palms. Ground covers are limited but consist mainly of swamp fern and assorted grasses and sedges.

**643 - Disturbed Wet Prairie**

This community appears as a disturbed area alongside a road in western Section 22 and in the northeast corner of Section 10. Little to no canopy is present and groundcovers include red root (*Lachnocaulon caroliniana*), Crinum lily (*Crinum americanum*), Broomsedge (*Andropogon spp.*), Pipeworts (*Eriocaulon spp.*), Hat pins (*Eriocaulon spp.*), Yellow-eyed grass (*Xyris spp.*), dog fennel (*Eupatorium leptophyllum*), etc.

**640 - Flag Pond**

This community appears in only one small area within the 160-acre adjacent mitigation parcel in Section 11. No canopy is present and the area is dominated by emergent vegetation, mostly alligator flag (*Thalia geniculata*).

**424 / 411 – Mixed Melaleuca / Pine flatwoods**

These areas contain vegetation from both communities as listed above. Areas are differentiated by the concentration of melaleuca found in each. The majority of the site contains melaleuca concentrations close to or over 50 % of canopy cover. Concentrations of individual areas are shown on the FLUCCS map that are a part of the permit submittal.

**621(624) / 424 – Cypress or Cypress / Pine and Melaleuca**

As above, these areas are a mix of the different communities differentiated by Melaleuca concentration.

**534 – Ponds**

These are small areas excavated as watering holes for the cattle kept on-site.

**WETLAND IMPACT AREAS:**

The development plan proposes to directly impact approximately 514.4 acres and preserve within the development about 34.7 acres of SFWMD jurisdictional wetlands. The aerial extent of impacts is high but the vast majority of wetlands impacted are highly disturbed, and in some cases, created from historic uplands by the elevated water levels

now occurring on-site. A breakdown of the impacted areas by FLUCFCS category is presented in the attached Tables.

### III. MITIGATION ACTIVITIES

Conservation areas within the project site are identified with two (2) different labels; Development preserves, and the Main preserve. This distinction was made in order to outline the proposed mitigation activities for each individual preserve. This report details the activities planned for the development preserves while the mitigation and monitoring activities planned for the Main preserve are presented under separate cover.

The development preserves are identified as 4 distinct areas on the attached map. The management activities associated with these preserve areas are outlined within this document and will be a requirement for the project.

All of the preserves shall be placed into conservation easements with the South Florida Water Management District, and enforcement rights shall be granted to the South Florida Water Management District and the US Army Corps of Engineers. Conservation easements to Collier County will also be placed over these preserve areas.

As stated above, there are four areas included within the development as preserves. These areas combined are approximately 36.8 acres in size and are identified individually on the attached map.

#### *Preserve C*

This is a predominately cypress preserve located in the north central portion of Section 22. It is 9.67 acres in size all of which are wetlands. This preserve contains some hydric pine flatwoods around the central cypress area that have been heavily infested by melaleuca. All of the exotic vegetation will be cut by hand and removed from this preserve area. The hydrology will be maintained by a direct connection to the adjacent lake. Water from the lake will be able to enter the preserve as the water level rises but only after it has undergone treatment within the lake. The boundary will be clearly delineated as a preserve.

#### *Preserve D*

This is a small preserve located immediately east of Preserve C in the central portion of Section 22. It is 2.79 acres in size all of which are wetlands. This preserve also contains hydric pine flatwoods around the central cypress dome that have been heavily infested by melaleuca. All of the exotic vegetation will be cut by hand and removed from this preserve area. The hydrology will be maintained by a direct connection to the adjacent lake. Water from the lake will be able to enter the preserve as the water level rises but only after it has undergone treatment within the lake. The boundary will be clearly delineated as a preserve.

**Preserve E**

This is the largest preserve area within the development footprint. It is 13.77 acres in size all of which are wetlands. This preserve is located along the border of Sections 22 and 15. It is composed of two cypress areas surrounded by hydric pine flatwoods. Melaleuca has extensively infested this preserve area. The current intent is for all of the exotic vegetation to be cut by hand and removed from the preserve. However, because of the density of melaleuca, a portion of this preserve area may be mechanically cleared. If any mechanical clearing is done, the cleared portion will be immediately planted according to the planting plan outlined below in this report. Like Preserves C and D, this preserve will have a direct connection to the lake system and will receive water from the lakes once it has been treated. Since this is the largest internal preserve it offers the best opportunity to help educate the residents about the preserves and about wetlands in general. The owner may later explore the possibility of constructing an elevated, hand-railed boardwalk into this preserve to facilitate this. Any such proposal would be presented to and coordinated with the South Florida Water Management District and the Corps of Engineers prior to implementation and any necessary permits will be applied for and received prior to this occurring. The boundary will be clearly delineated as a preserve.

**Preserve F**

This preserve is located linearly along the eastern boundary of Section 15. The preserve is 10.61 acres in size and is composed of 8.52 acres of wetlands and 2.09 acres of uplands. The wetlands are a mix of cypress and hydric pine with widely varying melaleuca concentrations. All exotic vegetation will be removed from this preserve area and the boundary will be clearly delineated as a preserve. All exotic removal is currently anticipated to be done by hand clearing but a couple of very dense areas may be mechanically cleared. If any mechanical clearing is done, the cleared portion will be immediately planted according to the planting plan outlined below in this report.

***Exotic Vegetation Eradication***

Melaleuca infestation is rampant throughout the site and an extensive eradication program will be implemented to eliminate this noxious plant from all preserve spaces. This program will entail hand clearing within all the preserves internal to the development. All hand cleared debris will be removed from the preserves.

Because of the potential damage and destruction to groundcover vegetation and likely rutting of the ground by machinery, no mechanical clearing is currently proposed. If any mechanical clearing is done in preserves E or F, the cleared portion will be immediately planted according to the planting plan outlined below in this report.

Quarterly maintenance inspections and treatments will be necessary to eliminate the melaleuca that has already gained a stranglehold on the property. Once the removal

efforts have been successful, annual maintenance treatments should be sufficient to control future exotic growth. The preserve areas will be exotic free immediately following a maintenance activity. At no time shall the density of exotic and nuisance plant species within these preserves exceed 4% of the total aerial cover.

***Replanting Plans***

The preserve areas will be left to regenerate naturally for at least a year before deciding if supplemental planting is necessary. If no immediate seed source is available, immediate replanting helps to re-establish the denuded areas more rapidly and contributes to the restoration of canopy components more efficiently. The preserve areas will be evaluated once the initial exotic removal activities are completed and any plantings felt necessary will be proposed and coordinated with SFWMD staff as part of the Time Zero Report.

Replanting will also be considered one year after the exotic removal activities for any area that shows less than 50% coverage by appropriate native vegetation. Appropriate vegetation will include canopy, mid-story, and ground cover vegetation. The one year of natural regeneration is proposed to allow for existing vegetation remaining after the exotic removal to re-establish itself in the newly opened areas. Natural regeneration is preferable to immediate planting because it allows for the local plants that will grow in the restoration areas to establish, and it allows for more natural biodiversity of plants. Replanting will be considered after two years for any area that shows less than 75% coverage by appropriate native vegetation.

Appropriate plant palettes will be applied for the affected areas. They will be dependant on existing ground elevations, anticipated high water elevations, and historic vegetative cover. Also, all areas disturbed as part of the construction or mitigation activities will be replanted according to South Florida Water Management District guidelines and as outlined below:

**Cypress:** Cypress areas will be planted with sapling cypress, dahoon holly and scattered red maple trees with minimum heights of 4 feet. Depending on the size of the area being planted and the density of the adjacent vegetation, planting will be done on 10 foot or 15 foot centers. It is anticipated that adjacent ground cover vegetation will rapidly colonize the areas so no ground cover planting will be done until a full growing season has passed. If ground cover colonization has not occurred, sawgrass, cordgrass, and other appropriate, available vegetation will be planted in those areas. These plantings will be done on 3 foot centers.

The following table shows some of the representative species that can be considered for planting and restoration of the preserve areas.

<b>CYPRESS PLANTING AREAS</b>		
Canopy	Mid-story	Ground Cover
Cypress <i>(Taxodium distichum)</i>	Button Bush <i>(Cephalanthus occidentals)</i>	Sawgrass <i>(Cladium jamaicense)</i>
Red Maple <i>(Acer rubrum)</i>	Marlberry <i>(Ardisia escallonioides)</i>	Cinnamon Fern <i>(Osmunda cinnamomea)</i>
Dahoon Holly <i>(Ilex cassine)</i>	Pond Apple <i>(Annona glabra)</i>	Swamp Fern <i>(Blechnum serrulatum)</i>
Laurel Oak <i>(Quercus laurifolia)</i>	Cocoplum <i>(Chrysobalanus icaco)</i>	Alligator Flag <i>(Thalia geniculata)</i>
Slash Pine <i>(Pinus elliottii)</i>	Wax Myrtle <i>(Myrica cerifera)</i>	Crinum Lily <i>(Crinum americanum)</i>

**Flatwoods:** Pine flatwood areas will be planted with sapling slash pine on 50 to 75 foot centers. Trees will be from 4' to 6' in height. In very hydric areas, a few cypress saplings may also be used. Few midstory plantings are proposed because of the future management plan for the areas as potential fox squirrel and red-cockaded woodpecker habitat. As above, no ground cover plantings will be done for a full growing season unless no existing vegetation is present. Wiregrass, cordgrass, broomsedge, and other appropriate native vegetation will be used if no regeneration is seen within the first year. These will be planted on 3-foot centers to fill in open areas.

<b>PINE FLATWOOD PLANTING AREAS</b>		
Canopy	Mid-story	Ground Cover
Slash Pine <i>(Pinus elliottii)</i>	Wax Myrtle <i>(Myrica cerifera)</i>	Wiregrass <i>(Aristida spp.)</i>
Cypress <i>(Taxodium distichum)</i>	St. John's Wort <i>(Hypericum spp.)</i>	Swamp Fern <i>(Blechnum serrulatum)</i>
Cabbage Palm <i>(Sabal palmetto)</i>		Sand Cordgrass <i>(Spartina alterniflora)</i>
		Yellow-eyed Grass <i>(Xyris spp.)</i>

These lists are not all inclusive and alternative appropriate native vegetation may be used.

All plantings will be coordinated with the wet season so that expected rains will serve to keep the new plantings hydrated and no outside irrigation source will be needed.



### ***Educational Displays***

The applicant will establish two (2) wildlife displays for the proposed preserve areas. They will feature 'Cypress Domes of Southwest Florida' and 'Pine Flatwoods of Southwest Florida' along with their associated flora and fauna. They briefly describe the uniqueness of these communities, while highlighting plant and animal species which are typical of these habitats. Several 3' x 4' displays will be installed in prominent locations throughout the development. Additional 8.5 x 11 copies will also be available in the club house.

The proposed mitigation activities shall offset unavoidable, adverse wetland impacts and achieve mitigation success by providing viable and sustainable ecological and hydrological functions.

### ***Target Criteria***

All woody exotic vegetation will be removed from the internal preserve areas. Preserves will contain a minimum of 80% coverage by appropriate vegetation in all three strata combined. Hydric flatwood target conditions are as a very open canopy, prairie type ground cover with widely spaced trees. Trees will be a mix of slash pine and cypress depending on site specific hydrology. Tree density in the open flatwood areas should be between 10 to 50 trees per acre. Cypress dome target conditions are as a more closed canopy (110 to 175 trees per acre) with sparser ground cover. A minimum of 80% appropriate vegetative coverage will still be maintained. Mesic pine areas will contain tree densities in the 50 to 100 trees per acre range with midstory vegetation of saw palmetto, wax myrtle, myrsine, and other appropriate plantings. Ground cover may be scarce in dense midstory areas.

### ***Financial Assurances***

A cost estimate for the enhancement and maintenance activities has been presented to the SFWMD. Assurances that the project has the financial capability to undertake the work will be provided in the form of a letter of credit, performance bond, or other appropriate surety instrument. Once the activities have been completed as outlined in this document and the permit special conditions, the District will release the surety back to the project.

### ***Mitigation Calculations***

Pre and post development WRAP analysis were conducted. The proposed development consists of 514.4 acres of wetland impacts. The functional assessment depicting the mitigation credits and deficits associated with the preserve areas has been provided as part of the permit application.

#### IV. MONITORING / MAINTENANCE / MANAGEMENT:

The goals and objectives of this monitoring plan will be to provide for ongoing progress and ultimate success of preserved and enhanced areas in a series of scheduled monitoring reports. The reports will quantify and describe conditions within the managed areas, comparing observations with the proposed standards and offering advice for corrective actions if needed.

In areas of heavy vegetation, a visual inspection for exotic plant invasion will be made and all exotic vegetation found will be flagged, mapped and reported for treatment. Meandering transects will be followed in the preserve areas for vegetative inventory and observation of wildlife during regular monitoring. Photo points will be established along with plot sampling stations to determine percent survival and percent coverage of planted and recruited plant species. Transect and plot sampling station locations will be determined at time zero, after exotic eradication and plantings are installed. The mitigation efforts shall be deemed successful when the area contains a minimum of 80% coverage of native vegetation, with less than 5% exotic and nuisance vegetation for a period of 2 years. The preserve areas will be maintained in this exotic free state in perpetuity. Once restoration and enhancement activities are deemed successful, the internal preserve areas will continue to be maintained in perpetuity and the homeowner's association or the Community Development District will be responsible for this perpetual maintenance.

A Baseline Monitoring Report will describe the existing conditions of the conservation areas prior to exotic eradication and supplemental planting. The Time Zero Monitoring Report will describe the aerial extent of exotic removal and other mitigation work, i.e. revegetation, photographs from referenced locations, qualitative observations of wildlife usage and other information such as climatic and hydrological conditions and health of existing vegetation. Annual Monitoring reports shall document changes from the baseline conditions the success of the exotic eradication and identifies ways to maintain or improve these conditions.

Baseline, Time Zero and Annual Reports will include the following:

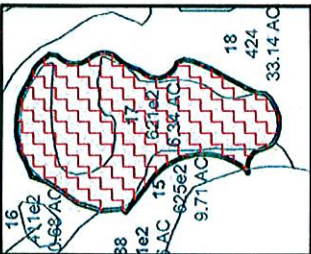
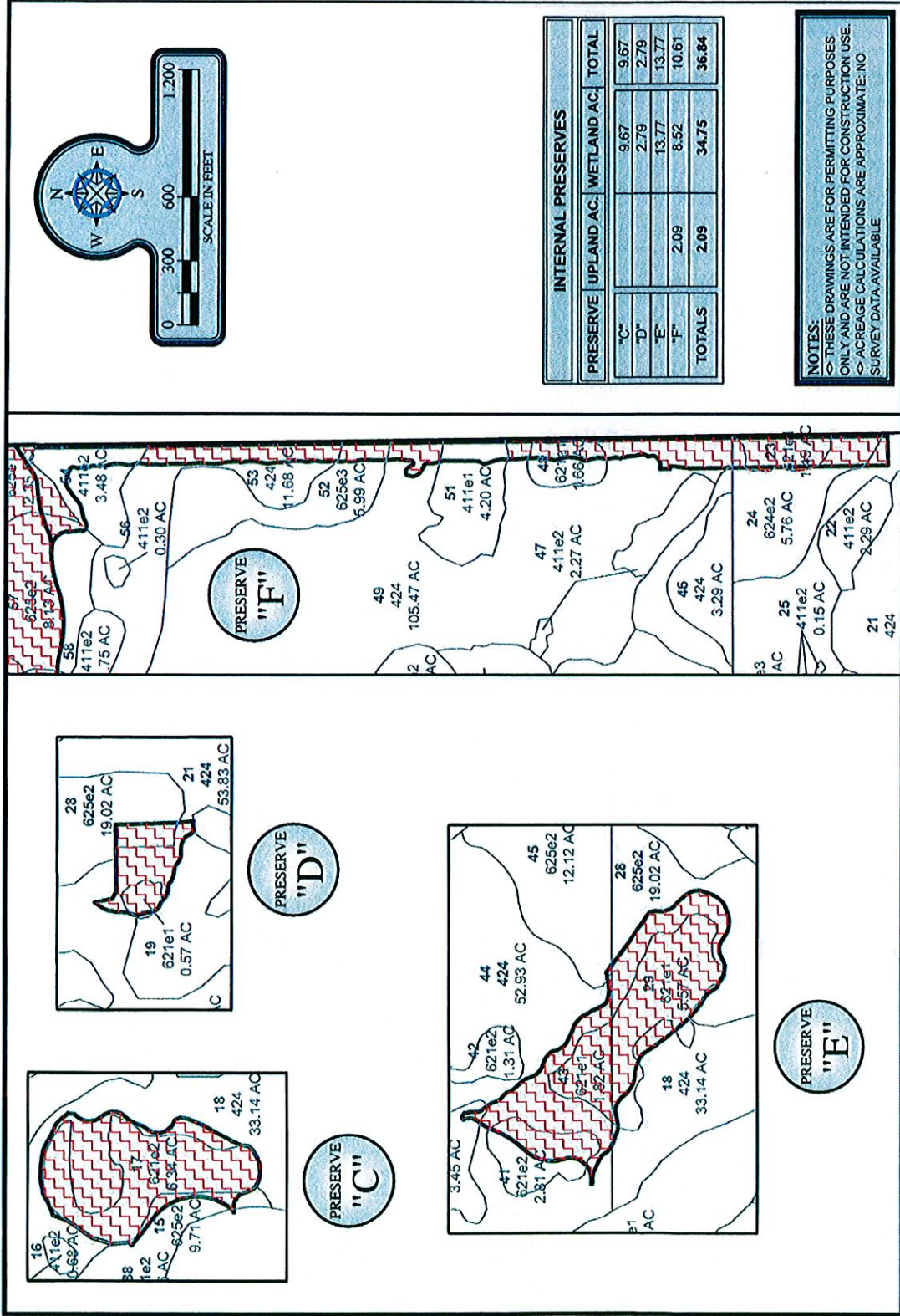
- quantification of any revegetation of exotic species and recommendations for remedial actions.
- quantification of revegetation of cleared areas by native species including dominant species and % cover by species.
- percent coverage, open space and water depths as appropriate.
- direct and indirect wildlife observations.
- site hydrological characteristics.
- photographs from a referenced location and panoramic photographs. A photo point station will be identified with a PVC labeled stake.
- A staff gauge or constant monitoring groundwater logger will be installed with monthly readings provided in each annual monitoring report.

The maintenance and management of the preserve areas will be the responsibility of the owner/developer in perpetuity. When the property owners association or CDD acquires ownership of the property, maintenance and management responsibilities will transfer to that entity as well. At this time the said associations shall assume responsibility for the perpetual maintenance and management of the preserve and retained areas. Association documents will indicate the responsibilities, restrictions and limitations associated with the conservation areas.

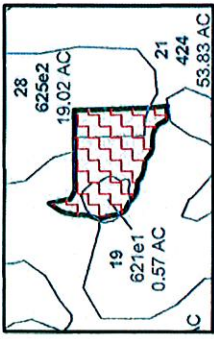
The conservation areas for *Mirasol* will require regular maintenance. The maintenance activities may include, but are not limited to the following.

- maintenance, repair and/or replacement of monitoring wells,
- follow-up eradication of exotic vegetation,
- supplemental herbicidal treatment of trees/stumps to prevent re-growth after initial treatment.
- Upkeep and replacement of signage delineating preserve areas.

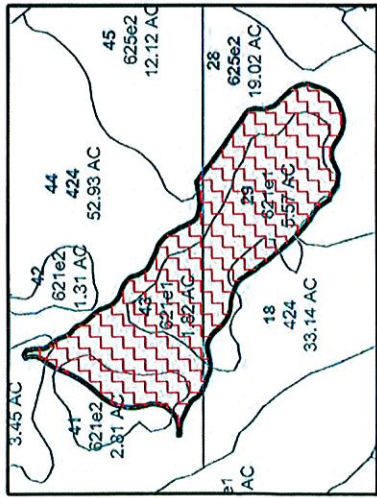
The maintenance activities will be performed on a quarterly basis for the first year, then biannually for the remaining four (4) years of the monitoring period. Perpetual maintenance after the monitoring period will be on an annual basis.



PRESERVE "C"



PRESERVE "D"



PRESERVE "E"

P:\9418 Mirasol\2012\_DRAWINGS\ERP\ERP 2012.dwg

INTERNAL PRESERVES		
PRESERVE	UPLAND AC.	WETLAND AC. TOTAL
"C"	9.67	9.67
"D"	2.79	2.79
"E"	13.77	13.77
"F"	2.09	8.52
<b>TOTALS</b>	<b>2.09</b>	<b>34.75</b>

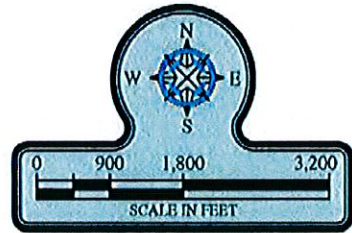
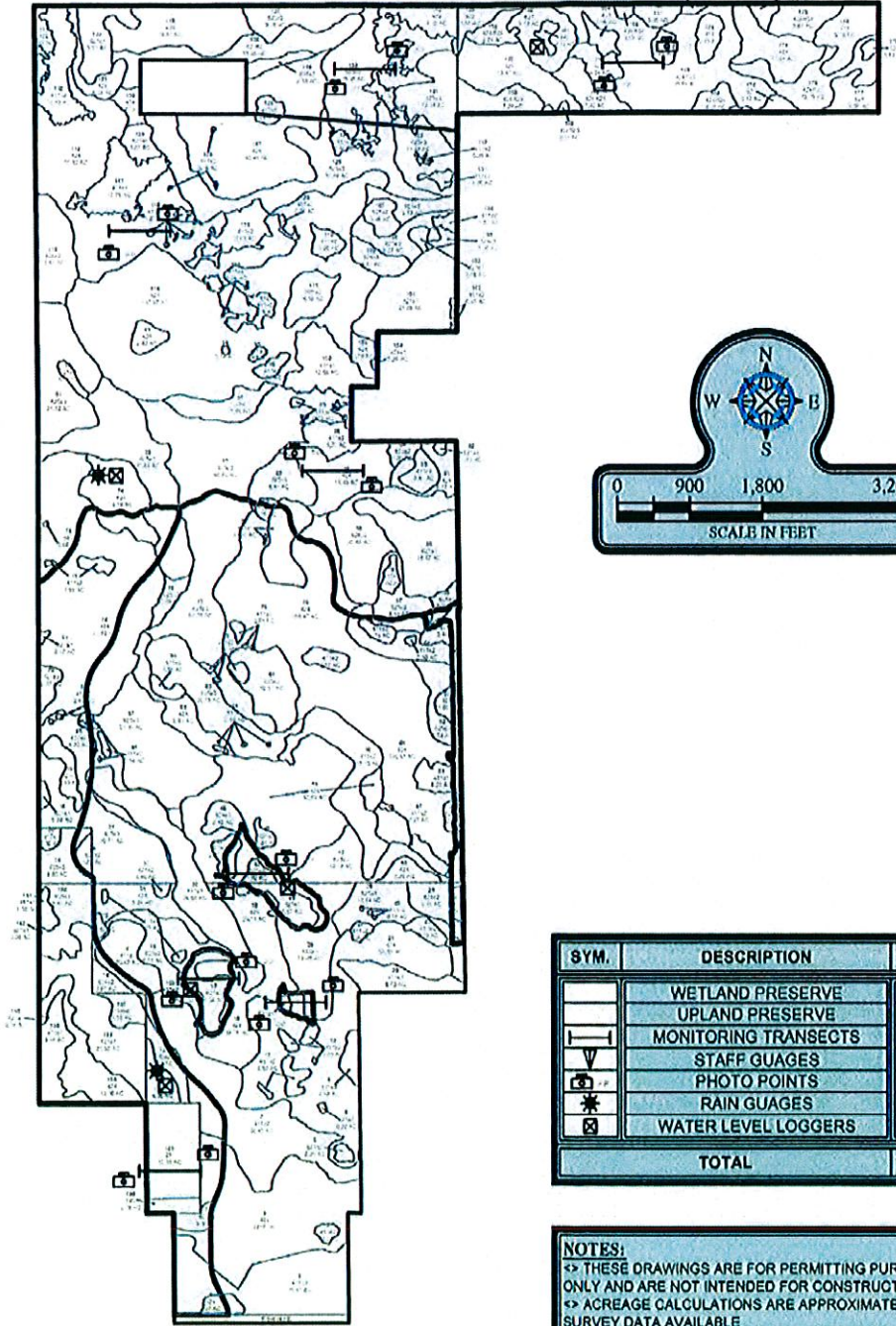
**NOTES:**  
 - THESE DRAWINGS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT INTENDED FOR CONSTRUCTION USE.  
 - AVERAGE CALCULATIONS ARE APPROXIMATE. NO SURVEY DATA AVAILABLE

DESIGNED BY: T.T.T.	REVISION:	TAB NAME:	INTERNAL
DRAWN BY: SS	04-06-2012	SHEET:	
CREATED: 04-25-08	N/A	SCALE:	1"=600'
JOB NO.: 9418	N/A	TOWNSHIP:	48 S
SECTION: 15		RANGE:	26 E

**MIRASOL**  
 INTERNAL PRESERVES (DETAILED)

**Turrell & Associates, Inc.**  
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SYM.	DESCRIPTION	ACRES
	WETLAND PRESERVE	995.96
	UPLAND PRESERVE	129.44
— —	MONITORING TRANSECTS	N/A
V	STAFF GAUGES	N/A
📷	PHOTO POINTS	N/A
★	RAIN GAUGES	N/A
☒	WATER LEVEL LOGGERS	N/A
<b>TOTAL</b>		<b>1125.40</b>

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**MIRASOL**  
 MONITORING MAP

DESIGNED:	T.T.T.	REVISION:	TAB NAME:	Monitoring
DRAWN BY:	SS	04-08-2012	SHEET:	
CREATED:	04-25-06	N/A	SCALE:	1"=1,800'
JOB NO.:	9418	N/A		
SECTION- TOWNSHIP-48 S RANGE- 28 E				

**MITIGATION / MONITORING /  
MAINTENANCE PLAN  
FOR  
MAIN PRESERVE**

**REVISED: AUGUST 14, 2012**

**PREPARED BY:**



**TURRELL HALL & ASSOCIATES, INC  
3584 EXCHANGE AVENUE  
NAPLES, FL 34104**

## I. INTRODUCTION:

The purpose of this report is to document the proposed mitigation activities for preserves external to the development project known as *Mirasol*.

## II. EXISTING CONDITIONS:

The project site consists of 1,798 acres located in four sections of northern Collier County north of CR 846 and east of Interstate 75. There are limited upland (302.5 acres) and substantial wetland (1,495.8 acres) communities present on the site, which have all been heavily impacted by melaleuca infestation and altered hydrology.

The Main preserve is approximately 1,087.0 acres in size and is composed of 961.2 acres of wetlands and 125.8 acres of uplands. 14.5 acres of the wetland preserve will be created from existing uplands as part of the mitigation and enhancement activities. The Main preserve encompasses the northern portion of the project site as well as approximately 200 acres along the western boundary of the site. There are no currently proposed impact areas within the main preserve but there is an access easement that has to be provided to the privately owned out parcel located in the center of Section 10. The access area is approximately 1.2 acres in size. Boardwalks and at grade pedestrian access may be considered in the future but are not currently proposed. No vehicular or other motorized access will be allowed except for monitoring or maintenance purposes.

## III. MITIGATION ACTIVITIES

This preserve is the main preserve on the site and it is from activities conducted within this area that the majority of mitigation credit for the development impacts is achieved. Historical vegetation communities within the preserve include cypress swamp, hydric and mesic pine flatwoods, and wet prairie. All of these habitats have been impacted by widespread exotic vegetation infestation as well as altered hydrological regimes.

### *Exotic Vegetation Eradication*

Melaleuca infestation is rampant throughout the site and an extensive eradication program will be implemented to eliminate this noxious plant from all preserve spaces. This program will include hand clearing, and kill-in-place methods within the preserve. Because of the potential damage and destruction to groundcover vegetation and likely rutting of the ground by machinery, no mechanical clearing is currently proposed. Hand cleared debris will be removed from the preserve where feasible but in areas where removal would cause additional, unwanted damage, the trees will be killed in place (>6" dbh), or cut and stacked into piles (<6" dbh). If stacked in piles, the trunks will be cut into manageable sections and stacked "teepee" or "log cabin" style and the piles will be placed no closer than 100 feet from each other. If possible, burn permits will be obtained

from the local fire control district and the pile will be burned in place. If obtaining burn permits is not possible, the piles will simply be left to decompose.

While mechanical removal is not currently contemplated, it may be utilized on isolated pockets where exotic density is felt to be too great to achieve enhancement success within the 5 year time frame. If mechanical clearing is contemplated, the area to be cleared, timing, and other specifics will be coordinated with appropriate SFWMD staff. If any mechanical clearing is done, the cleared area will be immediately planted according to the planting plan outlined below in this report.

In addition to melaleuca, Brazilian pepper and several other exotics are also present on the property. All Category I and Category II exotics, as defined by the Florida Pest Plant Council, are included in this eradication program.

Initially, quarterly maintenance inspections and treatments will be necessary to eliminate the melaleuca that has already gained a stranglehold on the property. All category I and II exotic vegetation will be brought under control before any re-planting or species management techniques (i.e. fire or mowing) are employed. Once the removal efforts have been successful, annual maintenance treatments should be sufficient to control future exotic growth. The preserve areas will be exotic free immediately following a maintenance activity. At no time shall the density of exotic and nuisance plant species exceed 2% relative coverage in any vegetative strata or 4% of the relative coverage in all strata.

#### ***Wetland Creation***

Three upland areas in the south west portion of the preserve will be scraped down and contoured similarly to the wood stork foraging improvements of the farm field which is described below. Two of these areas are existing mesic pine communities (8.68 acres and 3.09 acres respectively) while the third area is a small commercial (2.78 acre) area that has been used for storage and repair work located at the south end of the farm field. The existing vegetation will be removed and the fill from the contouring activities will be utilized within the development area. Random depressions and contours will concentrate prey as water levels recede and further enhance opportunities on the site for wood stork foraging. Planting will be with ground cover vegetation only and maintenance of the areas will include removal of any canopy or midstory vegetation that may recruit into the areas. Maintenance may occur through hand removal of vegetation, controlled burns, or mowing.

#### ***Berm Removal***

An existing berm that currently surrounds the farm field area will be removed from the northern and eastern sides of the field. If specimen trees are present on or adjacent to portions of the berm or would be adversely impacted by the berm removal, then small



sections of berm may be left as long as sufficient breaches are created to allow for free flows across the area. This will allow for open sheet flow of surface waters onto and across the site during periods of high water. The berm will be scraped down to the adjacent natural ground elevation and the disturbed area will be planted with appropriate plantings to match the adjacent vegetative communities.

#### ***Wood Stork and Other Wading Bird Foraging Improvements***

The existing (17.31 acre) farm field will be scraped down and contoured to create a series of depressional areas of varying depths. This work will also tie into and include the three wetland creation areas described above. The depressions will serve to concentrate forage fish and provide enhanced foraging opportunities to wood storks and other wading birds. Fill from the construction of these areas will be utilized as needed in the development portion of the project.

Wood stork foraging sites are generally composed of a prey source and prey concentration areas. The foraging area concept is essentially a shallow trough 80 to 200 feet wide pocked with depressions which, depending on their depth serve either as aquatic fauna refugia, or as prey concentration zones to facilitate foraging. The trough is basically a small scale shallow slough, with a wet prairie hydroperiod target of around 3-4 months. This is slightly deeper than the existing ground elevations of the mesic and hydric pine flatwoods, or farm field habitats that make up the areas under consideration for these activities so the refuge and foraging depressions would be created in a scattered pattern within the improvement areas.

The dry season refuge for aquatic fauna should not be large deep open water lakes. The entire dry season refuge can be as simple as a circular depression only 50' in diameter, the outer ring supporting a hydroperiod of 8-10 months, the intermediate ring 10-12 months and the center a permanently wet open water depression that may be as much as 6-8 feet deep during the peak of the wet season. The determining factor is that this center location retains about a foot of water during the average dry season. Since the proposed design will incorporate refuges within the same trough as the forage concentration areas, a hydrologic connection will form between them in advance of sheet flow conditions on the site. This will allow prey to populate the adjacent foraging areas sooner than would occur without the connectivity provided by the trough.

The foraging depressions will be designed as shallow cones excavated within the trough. These depressions will be shallower than the refuges and will serve to concentrate prey as the water table drops. The foraging depression size will vary between 0.15 and 0.50 acre in area. The target hydroperiod within the foraging depressions will be 4-5 months along the outer edge and around 6 months nearing the center. A 300-400 square foot "dimple" in the middle of foraging depression will serve as the actual foraging footprint. This "dimple" will be approximately six inches deeper than the immediate surrounding area feeding into it. Incorporating narrow, shallow channels between the refuge and foraging

depressions will mimic an alligator/wildlife trail and should provide prey access to the foraging areas earlier in the wet season. This will allow for more space and more time to reproduce which will in turn provide more biomass in the foraging depressions as the water levels recede.

Depressions will range from one foot to eight feet in depth. Shallow contours will encourage and facilitate concentration of the forage fish as water levels recede and will provide foraging access over an extended period of time. Planting of this area will be with low herbaceous and graminoid vegetation only to insure that foraging access to the area is maintained.

Since the main component of these areas is foraging improvement, dense vegetative coverage is not desired. Planting of the scraped down areas will be done in conjunction with the wet season immediately following the contouring work as outlined below. Shallow open water areas and sparse emergent vegetation will be the desired condition during the wet season. More vegetation may volunteer into the depressions areas during the dry season should die off or substantially thin out as water levels rise. Vegetative coverage of 50% will be considered successful in these foraging improvement areas.

#### ***Replanting Plans***

The preserve areas subject to exotic removal efforts will be left to regenerate naturally for at least a year before deciding if complete replanting is necessary. In areas that are more than 75% melaleuca and that have no suitable groundcover vegetation present, replanting may be done immediately following the exotic eradication or contouring activities. If no immediate seed sources are available in these areas, immediate replanting helps to re-establish the denuded areas more rapidly and contributes to the restoration of canopy components more efficiently. The entire preserve area will be evaluated once the initial exotic removal activities are completed and any plantings felt necessary will be proposed and coordinated with SFWMD staff as part of the Time Zero Report.

Replanting will be considered two years after the exotic removal activities for any area that shows less than 50% coverage by appropriate native vegetation. Appropriate vegetation will include canopy, mid-story, and ground cover vegetation. The one year of natural regeneration is proposed to allow for existing vegetation remaining after the exotic removal to re-establish itself in the newly opened areas. Natural regeneration is preferable to immediate planting because it allows for more natural biodiversity of plants. Replanting will be considered after three years for any area that shows less than 75% coverage by appropriate native vegetation.

Replanting will also occur immediately after any mechanical removal of exotic vegetation and in the wood stork foraging improvement areas. Areas disturbed by the exotic removal will be re-graded to match adjacent elevations and remove any rutting, and then planted with the appropriate plant palette.

Appropriate plant palettes will be applied for the affected areas that will be dependant on existing ground elevations, anticipated high water elevations, and historic vegetative cover. Also, all areas disturbed as part of the construction or mitigation activities will be replanted according to South Florida Water Management District guidelines and as outlined below:

**Cypress:** Cypress areas will be planted with sapling cypress, dahoon holly and scattered red maple trees with minimum heights of 4 feet. Depending on the size of the area being planted and the density of the adjacent vegetation, planting will be done on 10 foot or 15 foot centers. It is anticipated that adjacent ground cover vegetation will rapidly colonize the areas so no ground cover planting will be done until a full growing season has passed. If ground cover colonization has not occurred, sawgrass, cordgrass, and other appropriate, available vegetation will be planted in those areas. These plantings will be done on 3 foot centers.

The following table shows some of the representative species that can be considered for planting and restoration of the preserve areas.

<b>CYPRESS PLANTING AREAS</b>		
Canopy	Mid-story	Ground Cover
Cypress <i>(Taxodium distichum)</i>	Button Bush <i>(Cephalanthus occidentals)</i>	Sawgrass <i>(Cladium jamaicense)</i>
Red Maple <i>(Acer rubrum)</i>	Marlberry <i>(Ardisia escallonioides)</i>	Cinnamon Fern <i>(Osmunda cinnamomea)</i>
Dahoon Holly <i>(Ilex cassine)</i>	Pond Apple <i>(Annona glabra)</i>	Swamp Fern <i>(Blechnum serrulatum)</i>
Laurel Oak <i>(Quercus laurifolia)</i>	Cocoplum <i>(Chrysobalanus icaco)</i>	Alligator Flag <i>(Thalia geniculata)</i>
Slash Pine <i>(Pinus elliottii)</i>	Wax Myrtle <i>(Myrica cerifera)</i>	Crinum Lily <i>(Crinum americanum)</i>

**Flatwoods:** Pine flatwood areas will be planted with sapling slash pine on 50 to 75 foot centers. Trees will be from 4' to 6' in height. In very hydric areas, a few cypress saplings may also be used. Few midstory plantings are proposed because of the future management plan for the areas as potential fox squirrel and red-cockaded woodpecker habitat. As above, no ground cover plantings will be done for a full growing season unless no existing vegetation is present. Wiregrass, cordgrass, broomsedge, and other appropriate native vegetation will be used if no regeneration is seen within the first year. These will be planted on 3-foot centers to fill in open areas.

PINE FLATWOOD PLANTING AREAS		
Canopy	Mid-story	Ground Cover
Slash Pine <i>(Pinus elliotii)</i>	Wax Myrtle <i>(Myrica cerifera)</i>	Wiregrass <i>(Aristida spp.)</i>
Cypress <i>(Taxodium distichum)</i>	St. John's Wort <i>(Hypericum spp.)</i>	Swamp Fern <i>(Blechnum serrulatum)</i>
Cabbage Palm <i>(Sabal palmetto)</i>		Sand Cordgrass <i>(Spartina alterniflora)</i>
		Yellow-eyed Grass <i>(Xyris spp.)</i>

These lists are not all inclusive and alternative appropriate native vegetation may be used.

**Wetland Creation and Wood Stork Enhancement:** Scraped down and contoured areas will be planted with ground cover herbaceous and graminoid species on 3 foot centers. Plantings will be dependant on anticipated water depths and duration of inundation as outlined in the table below. Areas deeper than shown will not be planted.

<u>Zone 1:</u> ≥ high water (12.75' - 14' NGVD)	<u>Zone 2:</u> ≤ 1' below high water (11.75' - 12.5' NGVD)	<u>Zone 3:</u> 1' to 2' below high water (10.75' - 11.5' NGVD)	<u>Zone 4:</u> 2' to 4' below high water (8.75' - 9.5' NGVD)
Sand Cordgrass <i>(Spartina alterniflora)</i> Wiregrass <i>(Aristida spp.)</i> Yellow-eyed Grass <i>(Xyris spp.)</i> Swamp Fern <i>(Blechnum serrulatum)</i> Crinum Lily <i>(Crinum americanum)</i> Sawgrass <i>(Cladium jamaicense)</i> Red root <i>(Lachnanthes carollana)</i> St. John's Wort <i>(Hypericum spp.)</i>	Bacopa <i>(Bacopa caroliniana)</i> Beak Rush <i>(Rhynchospora spp)</i> Iris <i>(Iris virginica)</i> Alligator Flag <i>(Thalia geniculata)</i> Pickerelweed <i>(Pontedaria cordata)</i> Canna Lily <i>(Canna generalis)</i> Sand Cordgrass <i>(Spartina alterniflora)</i> Duck Potato <i>(Sagittaria latifolia)</i> Maidencane <i>(Panicum hemitomon)</i>	Duck Potato <i>(Sagittaria latifolia)</i> Bulrush <i>(Schoenoplectus californicus)</i> Spike Rush <i>(Eleocharis spp.)</i> Alligator Flag <i>(Thalia geniculata)</i> Pickerelweed <i>(Pontedaria cordata)</i> Creeping Primrosewillow <i>(Ludwigia repens)</i>	Spatterdock <i>(Nuphar advena)</i> Water Lily <i>(Nymphaea odorata)</i> Soft-stem bulrush <i>(Schoenoplectus tabernaemontani)</i>

These lists are not all inclusive and alternative appropriate native vegetation may be used.

All plantings will be coordinated with the wet season so that expected rains will serve to keep the new plantings hydrated and no outside irrigation source will be needed.

### ***Prescribed Burning***

The predominate long-term management technique proposed is the use of periodic burning to control vegetation growth and promote the native pine flatwood communities desired as the result of the restoration activities. Home-owners will be made aware as part of their purchase agreements that prescribed burning will be undertaken on the preserve. Controlled burning will only be proposed for those areas where exotic vegetation has been successfully removed. These will be amended as the details are coordinated with the relevant agencies. The proposed burning will be done in coordination with the land managers of the CREW Trust preserve, Division of Forestry, and the Corkscrew Swamp Sanctuary preserve.

The CREW General Management Plan 2001-2006 (Sec. 6.3.3.1 pgs 47-51) outlines the general prescribed burn guidelines followed by CREW. It generally states that since each habitat has its own optimum fire frequency ranging from one or two years, to several decades, the systems will be monitored and prescribed burns will be conducted when it is felt that the burn would best help the target and adjacent communities. Also, the burns will be conducted when prevailing winds are in the right direction to minimize smoke impacts on the adjacent residential communities and roadways. CREW does not have any restriction for burning adjacent to residences but wind and humidity are taken into account to insure that smoke and ash side effects are minimized on adjacent developments. CREW staff have been contacted regarding this project and prescribed burns will be a management tool used on the property as needed to maintain viable healthy habitats. Following the initial exotic removal activities and prior to the transfer of the property to CREW, the owner will consult with CREW land managers regarding the need to burn all or part of the property prior to the transfer.

### ***Homeowner Education***

In addition to the prescribed burning information mentioned above, all homeowners will be given informational pamphlets regarding south Florida ecosystems and local wildlife. Preserve related information will also be included in the home-owners documents for the development so that residents are well informed that fire management techniques will be used on the property and pet controls will be required throughout the property.

### ***Long-Term Protection***

The 961.2 acres of wetlands and 125.8 acres of uplands composing the Main Preserve shall be placed into conservation easements, and enforcement rights shall be granted to the South Florida Water Management District and the US Army Corps of Engineers. The conservation easement for this area will be filed and recorded as required in the SFWMD permit.

Once the exotic vegetation has been removed and the native vegetation restored, the intent of the applicant is to donate the preserve to CREW or another appropriate public entity for perpetual preservation. Until such time as that may happen however, it will be the responsibility of the CDD or homeowner's association to maintain the preserve. In addition to the donation of the property to an appropriate public entity, the applicant will also establish an escrow fund for the long-term maintenance of the preserve. The amount of the escrow fund will be determined at the time the preserve is turned over and be based on the expected long-term maintenance requirements. It is felt that the donation of the preserve to a public entity specifically charged with property maintenance and preservation, in lieu of perpetual management by a homeowners association that may not be fully equipped or experienced in preservation management techniques, will be more appropriate for a preserve of this size. It is important to note that the applicant will be responsible for reaching the success criteria outlined below before donation of the preserve occurs.

#### *Target Criteria*

All exotic vegetation will be killed within the preserve areas. Hydric flatwood target conditions are as a very open canopy, prairie type ground cover with widely spaced trees. Trees will be a mix of slash pine and cypress depending on site specific hydrology. Tree density in the open flatwood areas should be between 10 to 50 trees per acre. Cypress dome target conditions are as a more closed canopy (110 to 175 trees per acre) with sparser ground cover. A minimum of 80% appropriate vegetative coverage will still be maintained. Mesic pine areas will contain tree densities in the 50 to 100 trees per acre range with midstory vegetation of saw palmetto, wax myrtle, myrsine, and other appropriate plantings. Ground cover may be scarce in dense midstory areas.

#### *Forested and prairie habitats*

After 2 years, all preserve areas will contain a minimum of 50% coverage by appropriate vegetation in all three strata combined. After 3 years, all preserve areas will contain a minimum of 75% coverage by appropriate vegetation in all three strata combined. After 5 years time, preserves will contain a minimum of 80% coverage by appropriate vegetation in all three strata combined. Any areas not meeting the minimum appropriate vegetative coverage will be subject to supplemental planting plans as outlined above.

#### *Created marsh habitats*

As outlined above, the created marsh areas will be subject to a slightly different review with regards to target criteria. After 2 years, all created marsh will contain a minimum of 50% ground cover coverage by appropriate vegetation. Since the main component of these areas is foraging improvement, dense vegetative coverage is not desired. Shallow open water areas and sparse emergent vegetation will be the desired condition during the wet season. More vegetation may volunteer into the depressions areas during the dry season should die off or substantially thin out as water levels rise. Vegetative coverage of 50% will be considered successful in these foraging improvement areas.

### ***Financial Assurances***

Because of the size, different components, and nature of the proposed mitigation activities, the mitigation program will be broken up into the following 5 different areas.

- 1 – Wood Stork Foraging Improvements
- 2 – Internal Preserves
- 3 – Western Preserve
- 4 – Northern Preserve
- 5 – Section 11

Financial assurances will be broken down to cover each of these areas rather than one document to cover the entire preserve. This will allow District compliance staff to review and act on the separate areas independently. If there is an issue with one of the preserves, the remainder of the areas can still achieve success criteria and obtain sign-offs from the District.

A cost estimate for the enhancement and maintenance activities has been presented to the SFWMD. Assurances that the project has the financial capability to undertake the work will be provided in the form of a letters of credit, performance bonds, or other appropriate surety instruments. Once the activities have been completed for an area as outlined in this document and the permit special conditions, the District can then release the surety back to the project.

### ***Success Criteria***

The creation, enhancement, and preservation activities proposed for the preserve will generate mitigation credit that is being applied towards the project's impacts. In order to adequately gauge the appropriateness and eventual success of the mitigation, certain benchmarks must be set to compare against over time. A set of surety documents (letters of credit, bond, etc.) will be put in place in order to insure success of the creation and wood stork foraging improvement areas. The bond will remain until the areas meet the success criteria regarding exotic removal, re-vegetation and plant coverage.

### **Vegetation**

The base planting and vegetation restoration efforts shall be deemed, in part, successful when the area contains a minimum of 80% coverage of native vegetation, with less than 4% exotic and nuisance vegetation for a period of 3 years. The preserve areas will be maintained in this exotic-free state in perpetuity.

Ground cover diversity has been limited by the altered hydrology and exotic infestation throughout the site. It is expected that species diversity will increase as the exotic

vegetation is removed. The restoration of a prescribed burning regimen will also help to restore a more diverse, natural native habitat. Monitoring of the preserves will include species composition and diversity monitoring of identified plots to document this increase.

#### **IV. MONITORING / MAINTENANCE / MANAGEMENT:**

The goals and objectives of this monitoring plan will be to provide for ongoing progress and ultimate success of preserved and enhanced areas in a series of scheduled monitoring reports. The reports will quantify and describe conditions within the managed areas, comparing observations with the proposed standards and offering advice for corrective actions if needed.

In areas of heavy vegetation, a visual inspection for exotic plant invasion will be made and all exotic vegetation found will be flagged, mapped and reported for treatment. Meandering transects will be followed in the preserve areas for vegetative inventory and observation of wildlife during regular monitoring. Photo points will be established along with plot sampling stations to determine percent survival and percent coverage of planted and recruited plant species. Transect and plot sampling station locations will be determined at time zero, after exotic eradication and plantings are installed. The mitigation efforts shall be deemed successful when the area contains a minimum of 80% coverage of native vegetation, with less than 4% exotic and nuisance vegetation for a period of 3 years as well as meeting the other success criteria outlined above. The preserve areas will be maintained in this exotic-free state in perpetuity. Once creation and enhancement activities are deemed successful, the preserve will be offered to CREW and an escrow fund will be established for the long-term maintenance of the preserve.

#### **Water Levels and Rainfall**

In order to document that hydrological impacts do not occur as a result of the project, the project will place four water level data loggers and two logging type rain gauges within the Main preserve boundaries. The water level loggers will be placed inside of two (2) inch PVC pipe wells and sunk to a depth of approximately eight (8) feet below ground level. This will place the loggers below the water table and will allow for continuous monitoring of the water levels, above and below ground, experienced on the site. The rain gauges will be set to collect and record rainfall events on a daily basis so that comparisons can be made with the on-site rainfall and water levels experienced. Approximate locations for the loggers, both rainfall and water level, are shown on the SFWMD permit exhibit.

The surface water levels and rainfall data will be included in a report that will be given to the Corps of Engineers and to the SFWMD on an annual basis. This monitoring will be done in conjunction with the vegetative and exotic removal monitoring conducted within



the forested preserves for the project. The reports will be produced annually for five years after the completion of the initial exotic removal.

#### **Wood Stork Activity**

The National Audubon Society Corkscrew Sanctuary staff currently monitors the productivity of the Corkscrew wood stork colony in the form of the number of nests constructed as well as the number of young fledged.

The project will also document the utilization of the preserve areas by wood storks. This information will be useful in conjunction with the available productivity and hydrological data to determine if the project design serves to increase or decrease foraging opportunities. Since the FWS reviewed potential incidental take based on forage production the project will implement a monitoring program to estimate the forage fish production on the project site.

#### **Forage Fish Monitoring**

Sampling sites will be established along transects that will incorporate the different wetland communities on the site. The four main habitats to be sampled are hydric pine flatwoods, pine/cypress flatwoods, hypericum prairie, and cypress. The sampling devices will consist of, 1m<sup>2</sup> throw traps, seines, and acrylic Breder traps. All fish caught will be identified and counted. Results will be presented in the annual report to the agencies.

#### **Reports**

A Baseline Monitoring Report will describe the existing conditions of the conservation areas prior to exotic eradication and supplemental planting. The Time Zero Monitoring Report will describe the aerial extent of exotic removal and other mitigation work, i.e. revegetation, photographs from referenced locations, qualitative observations of wildlife usage and other information such as climatic and hydrological conditions and health of existing vegetation. The Time Zero Report will be completed within 30 days of the completion of the initial exotic removal work. Annual Monitoring reports shall document changes from the baseline conditions the success of exotic eradication and identifies ways to maintain or improve these conditions.

#### **Baseline, Time Zero and Annual Reports will include the following:**

- Quantification of any re-growth of exotic species and recommendations for remedial actions.
- Quantification of restoration of cleared areas by native species including dominant species and % cover by species.
- Percent coverage, open space and diversity as appropriate of restored vegetation.

- Direct and indirect wildlife observations.
- Photographs from a referenced location and panoramic photographs. A photo point station will be identified with a PVC labeled stake.
- The current status of the construction of the project as well as any construction phases or milestones that have been completed.
- A summary of the rainfall data collected on-site as well as data from the other agency rainfall monitoring stations identified in the report.
- A summary of the on-site water level data as well as the off-site data available from the other agency monitoring stations.
- Current status of the plantings and exotic removal as well as regeneration of the native vegetation throughout the preserve area.
- Ongoing results of the forage fish sampling including species diversity and densities broken down by habitat types and water depths.
- Any observed on-site foraging by wood storks. Included in this information will be, number of storks observed, habitat or general area observed, number of days or duration of observation, and estimated foraging efficiency.

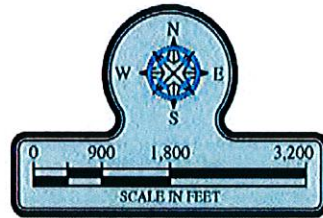
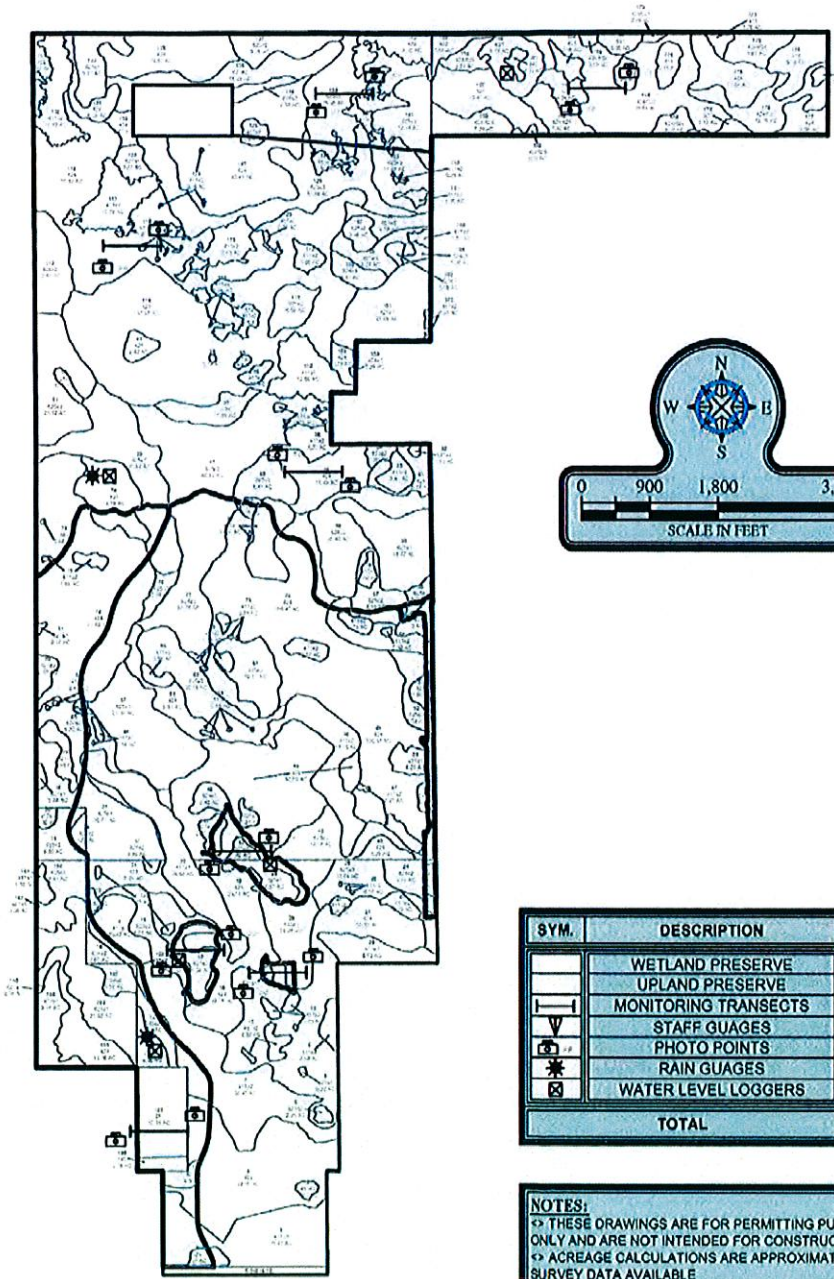
The maintenance and management of the preserve areas will be the responsibility of the owner/developer in perpetuity. The responsibility for the preserve maintenance can be transferred to the property owners association or CDD once the project is "turned-over" to the appropriate association. The transfer will include all documentation associated with the restoration and enhancement activities as well as the long term responsibilities associated with the preserves.

This may entail the property owner's association or CDD acquiring ownership of the preserve prior to the CREW transfer. The maintenance and management responsibilities for the preserves will transfer to that entity. At this time the said associations shall assume responsibility for the perpetual maintenance and management of the preserve and retained areas. Association documents will indicate the responsibilities, restrictions and limitations associated with the conservation areas. Once the restoration activities have met the success criteria, the Preserve will be offered to CREW (or another suitable public entity) along with the escrow funds to perpetually maintain the preserve.

The maintenance activities will be performed on a quarterly basis for the first year, then biannually or annually as needed for the remaining five (5) years of the monitoring period. Monitoring may continue past the 5 year time period if additional time is needed to meet the success criteria for the preserve. The annual monitoring requirement will be released once the success criteria have been met for a period of three consecutive years. Perpetual maintenance after the monitoring period will be on an annual or as needed basis.

**MONITORING/MAINTENANCE SCHEDULE**  
 (dates to be modified dependant on permitting schedule)

<b>Report #</b>	<b>Report Name / Activity</b>	<b>Due Date</b>	
1	<b>Baseline Monitoring Report</b>	December 2013	
	<b>Final Letters of Credit</b>	December 2013	
	<b>Initial Exotic Removal</b>	January 2014	
	<b>Maintenance Activity</b>	March 2014	
	<b>Maintenance Activity</b>	June 2014	
	<b>Preserve Title Insurance Commitments</b>	May 2014	
	<b>Record Conservation Easements</b>	June 2014	
	2	<b>Time Zero Monitoring Report</b>	July 2014
		<b>Maintenance Activity</b>	January 2015
<b>Maintenance Activity</b>		April 2015	
3	<b>First Annual Monitoring Report</b>	June 2015	
	<b>Maintenance Activity</b>	April 2016	
4	<b>Second Annual Monitoring Report</b>	June 2016	
	<b>Maintenance Activity</b>	April 2017	
	5	<b>Third Annual Monitoring Report</b>	June 2017
<b>Maintenance Activity</b>		April 2018	
6	<b>Fourth Annual Monitoring Report</b>	June 2018	
	<b>Maintenance Activity</b>	April 2019	
	7	<b>Fifth (Final) Annual Monitoring Report</b>	June 2019
<b>Site Inspection</b>		July 2019	
8	<b>Establish CREW Escrow Account</b>	December 2019	
9	<b>Turnover to CREW</b>	January 2020	



SYM.	DESCRIPTION	ACRES
[Symbol]	WETLAND PRESERVE	995.96
[Symbol]	UPLAND PRESERVE	129.44
[Symbol]	MONITORING TRANSECTS	N/A
[Symbol]	STAFF GAUGES	N/A
[Symbol]	PHOTO POINTS	N/A
[Symbol]	RAIN GAUGES	N/A
[Symbol]	WATER LEVEL LOGGERS	N/A
<b>TOTAL</b>		<b>1128.40</b>

**NOTES:**  
 ⇨ THESE DRAWINGS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT INTENDED FOR CONSTRUCTION USE.  
 ⇨ ACREAGE CALCULATIONS ARE APPROXIMATE; NO SURVEY DATA AVAILABLE

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**MIRASOL**  
 MONITORING MAP

DESIGNED: T.T.T.	REVISION:	TAB NAME: Monitoring
DRAWN BY: SS	04-06-2012	SHEET:
CREATED: 04-25-06	N/A	SCALE: 1"=1,800'
JOB NO.: 0418	N/A	
SECTION- TOWNSHIP-48 S RANGE-26 E		