

ATTACHMENT C – OCEC Wetland Mitigation Plan

1. Best management practices for erosion control shall be implemented prior to construction commencement and shall be maintained at all times during construction to prevent siltation and turbid discharges in excess of State water quality standards (>29 NTU's above background, pursuant to Rule 62-302, F.A.C.). Methods may include, but are not limited to the use of staked hay bales, staked filter cloth, sodding, seeding, staged construction and the installation of turbidity screens around the immediate project site.
2. Wetland areas or waterbodies that are outside the specific limits of construction authorized by this permit, must be protected from erosion, sedimentation, siltation, scouring, excess turbidity, and/or dewatering. There shall be no discharge in violation of the water quality standards in Chapter 62-302, F.A.C. Turbidity/erosion controls shall be installed prior to clearing, excavation or placement of fill material, shall be maintained until construction is completed and disturbed areas are stabilized. The turbidity and erosion control devices shall be removed within 14 days once these conditions are met.
3. Prior to construction, the licensee shall provide the Department with an original, signed and notarized Conservation Easement for recording in the Official Records of Okeechobee County. This conservation easement shall contain approximately 376 acres of uplands and wetlands. The licensee shall also provide the following documents prior to recording the conservation easement:
 - a. A title commitment with no exceptions for review and approval by the Department. Upon the Department's approval of the title commitment, the title company shall record the Conservation Easement, legal description and survey in the official records of Okeechobee County and provide the Department with the original recorded copy.
 - b. An acceptable title insurance policy issued to the Department for the lands encumbered by the recorded Conservation Easement referenced in the Specific Condition above.
4. To mitigate for 24.70 acres of permanent impacts to wetlands and other surface waters, the licensee shall implement the mitigation plan as described in Attachment C (beginning on page 4), known as "Revised Wetland Mitigation Plan, March 2016." The plan shall consist of the preservation and enhancement of 376-acres of wetlands and uplands by conducting the following: (1) granting a conservation easement to the Department prior to the commencement of any construction activities; (2) eradication and monitoring of the mitigation area for category 1 and 2 invasive exotic species (Florida Exotic Pest Plant Council's 2015 List of Invasive Plant Species) from the property; (3) prescribed fire in the uplands on an approximately two to four year rotation, based on fuel loading; and (4) perpetual maintenance of the mitigation area in perpetuity. The enhancement of the lands subject to the conservation easement shall commence with a baseline monitoring report to be completed in March of Year 1, as shown on the Maintenance and Monitoring Schedule in the Mitigation Plan.

5. All livestock shall be removed from the lands encumbered by the conservation easement, and mechanical/hand removal and herbicide treatment of category 1 and 2 invasive exotic species (Florida Exotic Pest Plant Council's 2015 List of Invasive Plant Species) shall be completed throughout the wetland enhancement area as described in the Mitigation Plan.
6. Transects, monitoring stations and associated monitoring activities shall be established throughout the enhancement area and completed as described in the attached Revised Mitigation Plan, March 2016.
7. A "Baseline" Monitoring Report shall be submitted prior to the initiation of the wetland enhancement work and shall include the following:
 - a. Licensee's name and file number;
 - b. Color photographs from fixed locations to provide an accurate representation of each mitigation area from the monitoring stations identified in Figure 3 and referenced in Specific Condition #22 above. The photographs shall be taken from fixed reference points and directions which are shown on a scaled map;
 - c. Data collected from the transects and monitoring stations (e.g., species composition and coverage etc.);
 - d. Percent cover of category 1 and 2 invasive exotic species (Florida Exotic Pest Plant Council's 2015 List of Invasive Plant Species) within the overall wetland enhancement area and within each community type;
 - e. Description of current livestock impacts within the various community types.
8. A "Time Zero" Report shall be submitted within 30 days of completion of the enhancement activities. The report shall include the following:
 - a. Licensee's name and file number;
 - b. Date that each portion of the mitigation was completed (i.e. livestock removal, invasive/exotic species removal, etc.);
 - c. Herbicide listing, date and location of application;
 - d. Enough color photographs taken from the fixed referenced points to adequately represent the various wetland community types.
9. Subsequent Monitoring Reports shall be submitted to the Department for five years (semiannually for the first year, and annually thereafter for a minimum of five years following completion of the wetland enhancement work). The Monitoring Reports shall include the following:
 - a. Licensee's name, address, and file number;
 - b. Date of the inspection or additional work/maintenance;
 - c. Color photographs taken from the established fixed locations;
 - d. Data collected from the transects and monitoring stations (e.g., species composition and coverage etc.);
 - e. Percent cover of category 1 and 2 invasive exotic species (Florida Exotic Pest Plant Council's 2015 List of Invasive Plant Species) within the overall enhancement area and within each community type;
 - f. A written summary describing the success of the enhancement area, including

steps needed and/or taken to promote future success such as additional nuisance or exotic species removal/treatment;

- g. Plan view depicting the location of any nuisance/exotic plant removal or treatment within the community types.
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- 10. The wetland enhancement area shall be deemed successful when Department staff have verified the total contribution to percent cover by category 1 and 2 invasive exotic species (Florida Exotic Pest Plant Council's 2015 List of Invasive Plant Species) has been maintained at less than 5% within the overall enhancement area and each of the various community types for a period of at least one year without intervention, and the species composition and coverage for each community type is indicative of that community.
 - 11. The responsibility to assess if the wetland enhancement area is meeting the specified success criteria shall not fall solely on the Department. In the event the licensee becomes aware the enhancement area is not meeting the success criteria (based on either site observations or review of monitoring reports), the licensee, no later than six months before the permit construction phase expiration date, shall submit a new Revised Mitigation Plan to the Department for review and approval.
 - 12. Permanent signs shall be placed along the boundary of the lands encumbered by the conservation easement. The signs shall consist of aluminum posts, driven well into the ground and extending a minimum of three feet above the ground, with a highly visible aluminum sign (minimum 12-inches by 12 inches) bolted to the post. The permanent signs as described above shall be posted at 500-foot intervals along the perimeter, and in conspicuous locations throughout the conservation easement area. The licensee shall provide photographs of the signs that were installed along with a plan-view drawing or exhibit showing the location of each sign. The sign should read:

WETLAND CONSERVATION AREA
LAND & DRAINAGE
ALTERATION ACTIVITIES
PROHIBITED
Contact the Department of Environmental Protection
for more information

FPL OKEECHOBEE CLEAN ENERGY CENTER REVISED WETLAND MITIGATION PLAN



March 2016

Project No. 1414979

1.0 INTRODUCTION

The FPL Okeechobee Clean Energy Center (OCEC) is a proposed natural gas fired combined cycle power plant and associated linear facilities (Project) located in rural NE Okeechobee County (Figure 1). The Project has been designed to avoid and minimize impacts to jurisdictional wetlands through maximizing utilization of previously-disturbed upland improved pasture and citrus grove areas for construction of the power block and associated facilities (Figure 2). The Project design will result in 19.99 acres of unavoidable impact to citrus irrigation ditches and 4.71 acres of impact to mixed hardwood wetlands (Figure 3), requiring a total of 12.6 credits of mitigation as calculated according to the Florida Department of Environmental Protection (FDEP) Uniform Mitigation Assessment Method (UMAM), as detailed below (Table 1). In addition, 0.11 acre of temporary impacts within drainage ditches are proposed; these areas will be restored in-situ. UMAM functional assessment forms for both impact and mitigation areas are included in Appendix A.

Table 1. FPL Okeechobee Clean Energy Center – Wetland Impact Summary

Wetland Type (FLUCFCS Code)	Acreage		UMAM Score	Functional Loss
	Permanent (Fill)	Temporary		
Citrus and Pasture Ditches (511)	19.52	0.10	0.47	9.17
Linear Facilities Corridor Ditches (511)	0.47	0.01	0.50	0.24
Mixed Wetland Hardwoods (617)	4.71		0.67	3.16
TOTAL	24.70	0.11		12.6

The loss of wetland functions associated with construction of the Project will be replaced through onsite mitigation in the form of enhancement and preservation of an approximately 376 acre undeveloped parcel (Mitigation Area) located in the northeastern portion of the 2,341-acre OCEC Site (Figure 4) adjacent to the Fort Drum Marsh Conservation Area. Mitigation focused upon removal of nuisance/exotic species of vegetation, enhancement of the native vegetative community through prescribed fire, and preservation of significant acreage of enhanced habitat through a conservation easement would provide a regional increase in the functional value of wetland and upland habitats to offset the functional loss associated with construction of the Project. Onsite wetland and upland enhancement and preservation will generate 14.4 credits, resulting in an overall net increase in wetland functions compared to the Project's unavoidable wetland impacts. Functional lift in excess of the OCEC Unit 1 impacts will be used to offset unavoidable wetland impacts associated with the potential construction of future solar generation within the OCEC Site.

The following describes the vegetative communities within the Mitigation Area, wildlife utilization, proposed enhancement activities, and the resulting functional lift generated through the proposed enhancement and preservation of the Site, as well as a description of the monitoring and reporting schedule, and success criteria. In addition, a demonstration of the proposed mitigation plan's compliance with 33 CFR 332.4(c)(2-13) follows the discussion of monitoring, reporting, and success criteria.

2.0 HABITAT CLASSIFICATION

The approximately 376-acre Mitigation Area is located within the undeveloped northeastern portion of the OCEC Site, bounded on the west and south by existing drainage ditches and on the east and north by the Site boundary. Approximately 50% of the existing vegetative communities within the Mitigation Area are high-quality wetlands, including mixed wetland hardwoods (FLUCFCS 617), mixed hardwood-conifer forested wetlands (FLUCFCS 630), wetland shrubs (FLUCFCS 631), freshwater marsh (FLUCFCS 641), and wet prairie (FLUCFCS 643), with ditches (FLUCFCS 511) along the western and southern perimeter (Figure 4). Upland communities are dominated by shrub and brushland (FLUCFCS 320), mixed hardwood-conifer forest (FLUCFCS 434), pine flatwoods (FLUCFCS 411), and unimproved pasture (FLUCFCS 212). The Site is approximately 50% wetlands and 50% uplands. A soil series map and USGS topographic map are provided in Figures 5 and 6, respectively. A summary of acreage by habitat is provided in Table 2.

Table 2. FPL Okeechobee Clean Energy Center Mitigation Site – Acreage by Habitat Types [(Florida Land Use, Cover and Forms Classification System (FLUCFCS) and Florida Natural Areas Inventory Guide to Natural Communities of Florida (FNAI)]

FLUCFCS Code	Habitat Type		Acreage	Percent
	FLUCFCS	FNAI*		
212	Unimproved Pasture	Unimproved Pasture	22.75	6.0
320	Shrub and Brushland	Dry Prairie	98.1	26.1
411	Pine Flatwoods	Mesic Flatwoods	13.48	3.6
434	Hardwood-Conifer Mixed	Mesic Hammock	54.23	14.4
511	Ditches	Ditches	6.9	1.8
617	Mixed Wetland Hardwoods	Basin Swamp	35.0	9.3
625	Hydric Pine	Wet Flatwoods	18.97	5.0
630	Wetland Forested Mixed	Hydric Hammock	25.63	6.8
631	Wetland Scrub	Wetland Scrub	41.92	11.1
641	Freshwater Marsh	Depression Marsh	55.55	14.8
643	Wet Prairie	Wet Prairie	3.95	1.0
TOTAL			376.5	100

* Where no corresponding FNAI Natural Community exists, the FLUCFCS designation is used

A description of each vegetative habitat follows, presented in order based upon FLUCFCS code. Representative photographs of dominant habitat types are included in Appendix B.

Unimproved Pasture (FLUCFCS 212) – Areas of unimproved pasture (Appendix B, Photograph 1) occur along the southern and western portions of the Mitigation Area, comprising approximately 22.8 acres (6%). These areas have been historically converted from natural vegetation to bahia grass (*Paspalum notatum*), but have not been actively maintained and support a variety of weedy herbaceous species and scattered shrubs and trees such as wax myrtle (*Myrica cerifera*), laurel oak (*Quercus laurifolia*), live oak (*Quercus virginiana*), and slash pine (*Pinus elliotii*).

Shrub and Brushland (FLUCFCS 320) – Approximately 98.1 acres (26%) of shrub and brushland (Appendix B, Photograph 2) occur within the Mitigation Area, comprising approximately 26% of the entire Site. Saw palmetto (*Serenoa repens*) is the dominant species in the shrub layer, with a variety of subdominant species include gallberry (*Ilex glabra*), rusty lyonia (*Lyonia ferruginea*), fetterbush (*Lyonia lucida*), wax myrtle, American beautyberry (*Callicarpa americana*), and running oak (*Quercus pumila*), as well as occasional trees including cabbage palm (*Sabal palmetto*), laurel oak, slash pine, and persimmon (*Diospyros virginiana*). The groundcover is relatively sparse due to the dense shrub cover; common species include blackroot (*Pterocaulon pycnostachyum*), wiregrass (*Aristida stricta*), witchgrass (*Dichanthelium* sp.), muscadine (*Vitis rotundifolia*), ticktrefoil (*Desmodium* sp.), bahia grass, and field paspalum (*Paspalum laeve*).

Pine Flatwoods (FLUCFCS 411) – Pine flatwoods (Appendix B, Photograph 3) comprise approximately 13.5 acres or 4% of the Mitigation Area. The canopy is dominated by slash pine, with occasional laurel oak and an understory dominated by saw palmetto. Additional shrub species include wax myrtle, gallberry, running oak, fetterbush, and rusty lyonia.

Hardwood-Coniferous Mixed (FLUCFCS 434) – A total of approximately 54.2 acres of upland hardwood-coniferous forest (Appendix B, Photograph 4) are located within the Mitigation Area, comprising approximately 14% of the Site. Slash pine, cabbage palm, and live oak are the primary canopy species, with occasional water oak (*Quercus nigra*) and laurel oak also present. Shrub species include saw palmetto, gallberry, rusty lyonia, American beautyberry, and wax myrtle.

Ditches (FLUCFCS 511) – Approximately 6.9 acres of ditches (Appendix B, Photograph 5) occur within western and southern edges of the Mitigation Area, comprising approximately 2% of the Site. Typical vegetation within and adjacent to the ditches includes pickerelweed (*Pontederia cordata*), soft rush (*Juncus effusus*), lemon bacopa (*Bacopa caroliniana*), alligator weed (*Alternanthera philoxeroides*), Peruvian primrose willow (*Ludwigia peruviana*), Mexican primrose willow (*Ludwigia leptocarpa*), smartweed (*Polygonum* spp.), arrowhead (*Sagittaria lancifolia*), water spangles (*Salvinia minima*), duckweed (*Lemna minor*), torpedo grass (*Panicum repens*), and water hyacinth (*Eichhornia crassipes*).

Mixed Wetland Hardwoods (FLUCFCS 617) – High-quality mixed wetland hardwoods (Appendix B, Photographs 6 and 7) comprise approximately 35 acres (9%) of the Mitigation Area. The canopy species composition is diverse, including red maple (*Acer rubrum*), blackgum (*Nyssa sylvatica*), pop ash (*Fraxinus caroliniana*), dahoon holly (*Ilex cassine*), coastal plain willow (*Salix caroliniana*), cabbage palm, American elm (*Ulmus americana*), and persimmon. A variety of shrub and groundcover species are present, such as buttonbush (*Cephalanthus occidentalis*), groundsel tree (*Baccharis halimifolia*), wax myrtle, Brazilian pepper (*Schinus terebinthifolius*), old world climbing fern (*Lygodium microphyllum*), pickerelweed, arrowhead, fireflag (*Thalia geniculata*), swamp fern (*Blechnum serrulatum*), sawgrass (*Cladium jamaicense*), Virginia chain fern (*Woodwardia virginica*), maidencane (*Panicum hemitomon*), canna (*Canna flacida*), false nettle (*Boehmeria cylindrica*), iris (*Iris hexagona*), water spangles, duckweed, and Virginia saltmarsh mallow (*Kosteletzkya pentacarpos*).

Hydric Pine Flatwoods (FLUCFCS 625) – Approximately 19 acres of hydric pine flatwoods (Appendix B, Photograph 8) occur within the Mitigation Area, comprising approximately 5% of the Site. The community composition is similar to pine flatwoods, with the addition of red maple, dahoon holly, and a variety of plants adapted to hydric soils such as redroot (*Lachnanthes caroliniana*), bogbuttons (*Lachnocaulon* sp.), St. John's wort (*Hypericum* spp.), sundews (*Drosera* sp.), meadowbeauty (*Rhexia* sp.), orange milkroot (*Polygala lutea*), and candyroot (*Polygala nana*).

Mixed Wetland Forest (FLUCFCS 630) – Mixed wetland forest (Appendix B, Photograph 9) comprises approximately 25.6 acres (7%) of the Mitigation Area. This wetland type contains a similar composition as described above for mixed wetland hardwoods, but with the addition of slash pine as a common canopy component as well as cabbage palm and live oak.

Wetland Shrub (FLUCFCS 631) – Approximately 41.9 acres of wetland shrubs (Appendix B, Photographs 10 and 11) occur primarily within the east-central portion of the Mitigation Area, comprising approximately 11% of the Site. This vegetative community is dominated by a mixture of shrub and groundcover species with a scattered overstory of wetland trees. Common species include saw palmetto, fetterbush, wax myrtle, St. John's wort, gallberry, redroot (*Lachnanthes caroliniana*), carpet grass (*Axonopus bifurcatus*), camphorweed (*Pluchea odorata*), maidencane (*Panicum hemitomon*), candyroot, bogbuttons, red maple, blackgum, dahoon holly, cabbage palm, slash pine, and live oak.

Freshwater Marsh (FLUCFCS 641) – Large areas of high-quality freshwater marshes (Appendix B, Photographs 12 and 13) occur within the Mitigation Area, comprising a total of approximately 55.6 acres or 15% of the Site. The marshes are concentrated along the eastern edge of the Mitigation Area, contiguous with parcels of mixed wetland hardwoods and wetland shrubs. The herbaceous vegetative community is diverse, with dominant species including maidencane, St. John's wort, and cordgrass and a variety of subdominant species such as pickerelweed, arrowhead, buttonbush, redroot, blue maidencane (*Amphicarpum muhlenbergianum*), fireflag, lemon bacopa, yellow-eyed grass (*Xyris* sp.), camphorweed (*Pluchea* sp.), Virginia chain fern, iris, mermaidweed (*Proserpinaca pectinata*), marsh pennywort (*Hydrocotyle umbellata*), bushy bluestem (*Andropogon glomeratus*), pipeworts (*Eriocaulon* spp.), and swamp fern. Shrub and canopy species along the edges and occasionally within the interior of freshwater marsh wetlands include wax myrtle, dahoon holly, blackgum, red maple, cabbage palm, and coastal plain willow. Although the current functional value is high, establishment of Wright's nutrush (*Scleria lacustris*) has been documented within the freshwater marshes. Wright's nutrush is classified as a Category I invasive exotic on the Florida Exotic Pest Plant Council's 2015 List of Invasive Plant Species due to its ability to alter the composition and structure of native wetland communities and is an ongoing management challenge within the Blue Cypress Water Management and Conservation Areas in the Upper Basin of the St. John's River adjacent to the OCEC Mitigation Area.

Wet Prairie (FLUCFCS 643) – Approximately 4 acres of wet prairie (Appendix B, Photograph 14) occurs adjacent to unimproved pasture along the western edge of the Mitigation Area. These are areas of hydric soil that support low-growing herbaceous wetland vegetation but typically are not inundated. Common species include yellow-eyed grass, St. John's wort, mermaidweed, bushy bluestem, marsh pennywort, blue maidencane, sedges (*Cyperus* spp.), and sundews.

3.0 WILDLIFE UTILIZATION

The Mitigation Area provides high quality undisturbed upland and wetland wildlife habitat adjacent to the approximately 20,862 acre Fort Drum Marsh Conservation Area. Species classified by the US Fish and Wildlife Service (USFWS) and/or the Florida Fish and Wildlife Conservation Commission (FWC) as endangered, threatened, or species of special concern observed or likely to occur within the Mitigation Area include the white ibis (*Eudocimus albus*; FWC species of special concern), wood stork (*Mycteria americana*; USFWS and FWC endangered), snowy egret (*Egretta thula*; FWC species of special concern), little blue heron (*Egretta caerulea*; FWC species of special concern), tricolored heron (*Egretta tricolor*; FWC species of special concern), limpkin (*Aramus guarauna*, FWC species of special concern), sandhill crane (*Grus canadensis pratensis*; FWC threatened), gopher tortoise (*Gopherus polyphemus*; FWC threatened), Eastern indigo snake (*Drymarchon corais couperi*; USFWS and FWC threatened), gopher frog (*Rana capito*; FWC species of special concern), Florida mouse (*Peromyscus floridanus*; FWC species of special concern), Southeastern American kestrel (*Falco sparverius paulus*, FWC threatened), caracara (*Caracara cheriway*, USFWS and FWC threatened), and Sherman's fox squirrel (*Sciurus niger shermanii*; FWC species of special concern). In addition, the Mitigation Area provides suitable habitat for several species of state-endangered plants known to occur within Okeechobee County, including the many-flowered grass-pink (*Calopogon multiflorus*), celestial lily (*Nemastylis floridana*), hand fern (*Ophioglossum palmatum*), and cutthroat grass (*Panicum abscissum*).

The Mitigation Area provides suitable habitat for a variety of non-listed wildlife common to freshwater marshes, forested wetlands, pine flatwoods, and shrub and brushland of south Florida. Species observed or likely to occur include a variety of avian species such as common ground-dove (*Columbina passerina*), northern mockingbird (*Mimus polyglottos*), house wren (*Troglodytes aedon*), Carolina wren (*Thryothorus ludovicianus*), white-eyed vireo (*Vireo griseus*), blue-gray gnatcatcher (*Polioptila caerulea*), common yellowthroat (*Geothlypis trichas*), palm warbler (*Setophaga palmarum*), painted bunting (*Passerina ciris*), Eastern meadowlark (*Sturnella magna*), wild turkey (*Meleagris gallopavo*), swallow-tailed kite (*Elanoides forficatus*), red-shouldered hawk (*Buteo lineatus*), barred owl (*Strix varia*), mourning dove (*Zenaida macroura*), red-bellied woodpecker (*Melanerpes caroliniana*), pileated woodpecker (*Hylatomus pileatus*), yellow-bellied sapsucker (*Sphyrapicus varius*), blue jay (*Cyanocitta cristata*), tufted titmouse (*Baeolophus bicolor*), ruby-crowned kinglet (*Regulus calendula*), American robin (*Turdus migratorius*), catbird (*Dumetella carolinensis*), black-and-white warbler (*Mniotilta varia*), yellow-rumped warbler (*Setophaga coronata*), northern parula (*Setophaga americana*), northern cardinal (*Cardinalis cardinalis*), short-tailed hawk (*Buteo brachyurus*), northern waterthrush (*Parkesia noveboracensis*), red-winged blackbird (*Agelaius phoeniceus*), common grackle (*Quiscalus quiscula*), boat-tailed grackle (*Quiscalus major*), mottled duck (*Anas fulvigula*), anhinga (*Anhinga anhinga*), great egret (*Casmerodias albus*), green heron (*Butorides virescens*), great blue heron (*Ardea herodias*), Wilson's snipe (*Gallinago delicata*), and belted kingfisher (*Megasceryle alcyon*). Common mammalian species observed or likely to occur include feral hog (*Sus scrofa*), white-tailed deer (*Odocoileus virginianus*), nine-banded armadillo (*Dasypus novemcinctus*), raccoon (*Procyon lotor*), coyote (*Canis latrans*), Eastern gray squirrel (*Sciurus carolinensis*), Eastern cottontail (*Sylvilagus floridanus*), and marsh rabbit (*Sylvilagus palustris*), while a variety of herpetofauna are likely to occur within the Site including black racer (*Coluber constrictor priapus*), yellow rat snake (*Pantherophis alleghaniensis*), pygmy rattlesnake (*Sistrurus miliarius*), water moccasin (*Agkistrodon piscivorus*), banded water snake (*Nerodia fasciata*), leopard frog (*Lithobates pipiens*), southern cricket frog (*Acris gryllus*), green tree frog (*Hyla cinerea*), ring-necked snake (*Diadophis punctatus*), Cuban brown anole (*Anolis sagrei*), and green anole (*Anolis caroliniana*).

4.0 ENHANCEMENT AND PRESERVATION

Proposed mitigation activities include enhancement of native vegetative communities through prescribed fire, removal of nuisance/exotic species of vegetation, and preservation of the 376-acre Mitigation Area through a conservation easement. Enhancement of the native vegetative community through control of the nuisance/exotic species Brazilian pepper, old world climbing fern, Wright's nutrush, and other Category I and II species on the Florida Exotic Pest Plant Council's 2015 List of Invasive Plant Species will be conducted throughout the Mitigation Area, improving wildlife habitat conditions and preventing further spread of exotic vegetation within the region. In addition to exotic vegetation control, all wetland and upland areas within the Mitigation Area will be preserved through a conservation easement to provide habitat for threatened species as well as to increase the extent and quality of upland buffers for adjacent wetlands.

Eradication of Brazilian pepper will be achieved through manual removal and a combination of basal-bark and cut-stump application of EPA-approved herbicides by qualified personnel skilled in the identification and control of nuisance species, while old world climbing fern, Wright's nutrush, and other herbaceous invasive species will be treated through foliar application of glyphosate herbicide (Roundup, Rodeo). Brazilian pepper will be cut utilizing chainsaws and removed by hand, and followed with cut stump application of an approved herbicide such as triclopyr (Garlon). Basal-bark treatment will be utilized for the remaining individuals, which allows for minimal disturbance of desirable vegetation through selective application upon target plants utilizing backpack and hand-held equipment. The cut Brazilian pepper will be placed in an upland staging area within the unimproved pasture portion of the Mitigation Area, and subsequently burned or ground into mulch utilizing a chipper. As necessary, herbicide re-treatments will be conducted at 6-month intervals for a period of two years to discourage regeneration of invasive plants.

A functional assessment of the Mitigation Area "without project" (current condition) and "with project" (post-mitigation) was conducted utilizing the Uniform Mitigation Assessment Method (62-345, F.A.C.). For upland preservation areas, the appropriate preservation adjustment factors were applied in accordance with 62-345.500(3)(a), F.A.C. For enhancement areas, time lag and risk variables were assigned based upon the protocol in 62-345.600, F.A.C. to quantify the number of years before the target community is achieved and the associated risk of the mitigation activity.

The exotic vegetation eradication and preservation of the entire 376 acre Mitigation Area will yield a total of 14.4 mitigation credits. UMAM spreadsheets for each habitat type are provided in Appendix A; a summary is provided in Table 3 below:

Table 3. Summary of acreage by habitat type, functional lift, and mitigation credits generated

Habitat Type (FLUCFCS Code)	Acres	Existing UMAM	Functional Lift		Time Lag (TL) x Risk (R) or Preservation Factors	Lift per Acre	Mitigation Credits*
			Enhance	Preserve			
Unimproved Pasture (212)	22.75						N/A
Shrub and Brushland (320)	98.1	0.70		0.05	Preservation Factor = 0.6	0.03	2.94
Pine Flatwoods (411)	13.48	0.70		0.05	Preservation Factor = 0.6	0.03	0.40
Hardwood-Conifer Mixed (434)	54.23	0.70		0.05	Preservation Factor = 0.6	0.03	1.63
Ditches (511)	6.9	0.53	0.04		$1.03(TL) \times 1.25(R)$ = 1.2875	0.031	0.21
Mixed Wetland Hardwoods (617)	35	0.77	0.06		$1.03(TL) \times 1.25(R)$ = 1.2875	0.047	1.65
Hydric Pine (625)	18.97	0.77	0.06		$1.03(TL) \times 1.25(R)$ = 1.2875	0.047	0.89
Wetland Forested Mixed (630)	25.63	0.77	0.06		$1.03(TL) \times 1.25(R)$ = 1.2875	0.047	1.20
Wetland Scrub (631)	41.92	0.73	0.07		$1.03(TL) \times 1.25(R)$ = 1.2876	0.054	2.26
Freshwater Marsh (641)	55.55	0.73	0.07		$1.03(TL) \times 1.25(R)$ = 1.2875	0.054	3.00
Wet Prairie (643)	3.95	0.70	0.07		$1.03(TL) \times 1.25(R)$ = 1.2875	0.054	0.21
Total	376.5						14.4

*Credits calculated as acreage x (functional lift/TLxR); in the case of preservation, credits calculated as acreage x functional lift x preservation factor

5.0 MAINTENANCE AND MONITORING SCHEDULE

In accordance with typical conditions of FDEP and US Army Corps of Engineers (USACE) permits relative to applicant-sponsored mitigation, Table 4 provides a conceptual five-year schedule for mitigation activities and monitoring at the Mitigation Area:

Table 4. Conceptual schedule of mitigation activities and monitoring

YEAR	MONTH	ACTIVITY
1	March	Baseline monitoring event
	April/May	Herbicide treatment; mechanical/hand removal of exotic species; controlled burn of shrub and brushland and pine flatwoods
	May	Time Zero monitoring of herbaceous and forested wetland vegetative community
	June	Semiannual monitoring of herbaceous and forested wetland vegetative community
	October	Semiannual monitoring of herbaceous and forested wetland vegetative community; spot herbicide treatment/mechanical or hand removal of exotic vegetation as necessary
2	May	Spot herbicide treatment/mechanical or hand removal of exotic vegetation as necessary
	October	Annual monitoring of herbaceous and forested wetland vegetative community; spot herbicide treatment/mechanical or hand removal of exotic vegetation as necessary
3	October	Annual monitoring of herbaceous and forested wetland vegetative community
4	October	Annual monitoring of herbaceous and forested wetland vegetative community
5	May/June	Controlled burn of shrub and brushland and pine flatwoods (4 year rotation)
	October	Annual monitoring of herbaceous and forested wetland vegetative community

Monitoring activities include identification and percent cover of herbaceous and canopy species, tree diameters, water depths, panoramic photographs of the enhancement area as well photographs of each individual herbaceous and canopy plot, wildlife observations, and status of exotic/nuisance species eradication.

Five transects will be established throughout the Mitigation Area, with five herbaceous monitoring stations established at regular intervals upon each transect. Four of the herbaceous monitoring transects are proposed to be located within freshwater marsh and wetland shrub communities, while one transect is proposed within upland shrub and brushland habitat. In addition, ten canopy plots will be established within representative forested areas of the Mitigation Area, with eight plots located within forested wetlands and

two plots within forested uplands. Proposed transect locations, monitoring stations, and canopy plots are illustrated on Figure 7. The locations of monitoring stations will be permanently established with rebar and PVC pipes. At each of the 25 herbaceous monitoring stations, a 1-meter square quadrat will be placed to determine composition of the herbaceous strata. All plant species within the 1-meter square quadrat will be identified and their corresponding percent cover recorded, including coverage of bare ground and open water. Canopy plots of 10 m x 10 m (100 m²) in size will be established to measure canopy and sub-canopy vegetation. Within the ten canopy plots, all trees and shrubs will be identified; percent cover recorded by species, individual diameter at breast height measured, and survival noted. In addition, the herbaceous community within the canopy plots will be generally described to further document the overall species composition within the mitigation area and identify those plants that may not be present within the 1-meter square herbaceous quadrats. Percent cover will be measured in the field and converted to Daubenmire cover classes as follows:

Daubenmire Cover Class	Percent Cover Range	Midpoint of Range
1	0-5	2.5
2	6-25	15
3	26-50	37.5
4	51-75	62.5
5	76-95	85
6	96-100	97.5

Water depth will be recorded to the nearest centimeter at four locations within each canopy plot and at one location within each herbaceous monitoring station. Panoramic photographic documentation will be provided, including views of the Mitigation Area from fixed locations on the north, south, east, and west boundaries of the Mitigation Area, as well as photographic documentation of each herbaceous monitoring station and canopy plot.

A conceptual five year schedule of monitoring reports is described below, to be finalized in consultation with FDEP and USACE. A baseline monitoring event will be conducted prior to initiation of the mitigation plan in order to document existing conditions and vegetative community composition. A "Time Zero" report will be submitted within 30 days of completion of the Year One exotic vegetation control. The "Time Zero" report will include the date that each portion of the mitigation plan was completed, herbicide listing and date of application, and color photographs taken from fixed reference points shown on an aerial map.

Subsequent monitoring reports will be submitted to FDEP and/or the USACE for a period of up to five years with semiannual reports to the FDEP for the first year, and annual reports thereafter for a minimum of three years following completion of the wetland enhancement work. Including the baseline and time zero monitoring events, a minimum of six monitoring reports are required, as summarized below (Table 5):

Table 5. Conceptual Summary of Mitigation Monitoring Reports

Report	Submitted to FDEP	Submitted to USACE
Baseline Monitoring Event	X	
Time Zero Monitoring Event	X	X
1 st Semiannual Monitoring Event	X	
2 nd Semiannual/1 st Annual Monitoring Event	X	X
2 nd Annual Monitoring Event	X	X
3 rd Annual Monitoring Event	X	X
4 th Annual Monitoring Event	X*	X*
5 th Annual Monitoring Event	X*	X*

*Year Four and Five Reports only submitted if success criteria are not met after Year Three

The monitoring reports will include the date of the inspection or work done, color photographs taken from the fixed reference points, data collected from the transects and monitoring stations, percent cover of Category I and II invasive exotic species within the overall Mitigation Area and within each community type, and a written summary describing the success of the Mitigation Area including steps needed and/or taken to promote future success such as additional nuisance or exotic species removal/treatment.

5.1 SUCCESS CRITERIA

The monitoring reports will detail the condition of the Mitigation Area relative to the prescribed success criteria as required by the FDEP and USACE, as well as proposed corrective actions to be implemented to achieve success criteria, as necessary.

Based on typical FDEP and USACE mitigation criteria, the Mitigation Area will be deemed successful when FDEP and USACE staff have determined that the percent cover of Florida Exotic Plant Pest Council Category I and II invasive exotic species has been maintained at less than 5% within the overall Mitigation Area for a period of at least one year without intervention.

Following achievement of success criteria and FDEP and USACE release from mitigation monitoring, it is FPL's intention to manage the mitigation site to enhance habitat quality in perpetuity under a conservation easement. Long-term management will include use of prescribed fire on an approximately two to four year rotation, based on fuel loading.

6.0 COMPLIANCE WITH 33 CFR 332.4(C)(2-13)

In accordance with the USACE Compensatory Mitigation for Losses of Aquatic Resources, Final Rule (Federal Register Vol. 73, No. 70, April 10, 2008), mitigation plans must incorporate the 12 components presented in 33 CFR 332.4(c)(2-13). The following describes each of the 12 components and documents the OCEC Mitigation Plan's compliance:

332.4(c)(2): Objectives. A description of the resource type(s) and amount(s) that will be provided, the method of compensation (i.e., restoration, establishment, enhancement, and/or preservation), and the manner in which the resource functions of the compensatory mitigation project will address the needs of the watershed, ecoregion, physiographic province, or other geographic area of interest.

Project Compliance: The mitigation plan proposes approximately 376 acres of enhancement and preservation contiguous to the St. Johns River Water Management District Fort Drum Marsh Conservation Area, providing significant acreage of conservation land within the headwaters of the St. Johns River. The Mitigation Area contributes to the regional watershed restoration goals of the SJRWMD and USACE Upper St Johns River Basin Project, through enhancement and preservation of high quality native habitat within the headwaters of the Upper St. Johns River Basin. The resource types and amounts within the Mitigation Area are provided above in Section 2.0 - Habitat Classification and are summarized in Tables 2 and 3.

332.4(c)(3): Site selection. A description of the factors considered during the site selection process. This should include consideration of watershed needs, onsite alternatives where applicable, and the practicability of accomplishing ecologically self-sustaining aquatic resource restoration, establishment, enhancement, and/or preservation at the compensatory mitigation project site.

Project Compliance: Following avoidance and minimization of impacts associated with the Project through utilization of previously-impacted areas and uplands to the greatest extent practicable, unavoidable wetland impacts and associated functional loss were derived. The OCEC is within the service area of the Mary A Mitigation Bank in Brevard County, but the bank does not provide mitigation credits to offset impacts to forested wetlands and it is not located within the same drainage basin as the OCEC. In addition, no Corps-approved in lieu fee program has been established with a service area covering the OCEC Project. Since resource type-for-type wetland mitigation bank credits were not available and no in lieu fee program exists, permittee-responsible mitigation was proposed. The proposed Mitigation Area fulfills each of the criteria used during the mitigation site selection process:

- Preference for on-site mitigation, within the same drainage basin, to ensure replacement of aquatic resource functions within the immediate vicinity of Project impacts;
- Existence of hydrological conditions, soil characteristics, and other physical and chemical characteristics conducive to provide type-for-type resource functions;
- Preference for mitigation parcels that provide suitable habitat for threatened and endangered species and watershed-scale features such as aquatic habitat diversity, habitat connectivity, and other landscape scale functions to support regional conservation efforts;
- Selection of sites with conditions conducive to rehabilitation and re-establishment efforts focused upon successful restoration of native wetland communities; and
- Sites of sufficient size to allow for mitigation of the aquatic resource functions lost as a result of the Project.

332.4(c)(4): Site protection instrument. A description of the legal arrangements and instrument, including site ownership, that will be used to ensure the long-term protection of the compensatory mitigation project site.

Project Compliance: It is FPL's intention to place the Mitigation Area under a conservation easement and manage the site in perpetuity upon fulfilling the proposed restoration activities and demonstrating compliance with success criteria.

332.4(c)(5): Baseline information. A description of the ecological characteristics of the proposed compensatory mitigation project site and, in the case of an application for a DA permit, the impact site. This may include descriptions of historic and existing plant communities, historic and existing hydrology, soil conditions, a map showing the locations of the impact and mitigation site(s) or the geographic coordinates for those site(s), and other site characteristics appropriate to the type of resource proposed as compensation. The baseline information should also include a delineation of waters of the United States on the proposed compensatory mitigation project site. A prospective permittee planning to secure credits from an approved mitigation bank or in-lieu fee program only needs to provide baseline information about the impact site, not the mitigation bank or in-lieu fee project site.

Project Compliance: A description of the Mitigation Area and impact sites is included in this mitigation plan and the Section 404 permit application. The delineation of waters of the United States on the proposed compensatory mitigation sites is based upon field review, soil surveys, and aerial imagery.

332.4(c)(6): Determination of credits. A description of the number of credits to be provided, including a brief explanation of the rationale for this determination.

(i) For permittee-responsible mitigation, this should include an explanation of how the compensatory mitigation project will provide the required compensation for unavoidable impacts to aquatic resources resulting from the permitted activity.

(ii) For permittees intending to secure credits from an approved mitigation bank or in-lieu fee program, it should include the number and resource type of credits to be secured and how these were determined.

Project Compliance: A UMAM functional assessment of each wetland type within the proposed Mitigation Area is included in Appendix A and summarized in Table 3 above. The functional assessment includes an evaluation of the functional value of the Mitigation Area in its existing condition and the expected functional value following completion of mitigation activities. The number of mitigation credits generated includes time lag and risk factors (both FDEP and USACE time lag factors have been included). The proposed mitigation activities will provide type-for-type enhancement and preservation of wetlands and adjacent uplands to replace the loss of wetland functions associated with construction of the OCEC.

332.4(c)(7): Mitigation work plan. Detailed written specifications and work descriptions for the compensatory mitigation project, including, but not limited to, the geographic boundaries of the project; construction methods, timing, and sequence; source(s) of water, including connections to existing waters and uplands; methods for establishing the desired plant community; plans to control invasive plant species; the proposed grading plan, including elevations and slopes of the substrate; soil management; and erosion control measures. For stream compensatory mitigation projects, the mitigation work plan may also include other relevant information, such as planform geometry, channel form (e.g., typical channel cross-sections), watershed size, design discharge, and riparian area plantings.

Project Compliance: Please see the discussion contained with this mitigation plan for a description of the proposed work at the Mitigation Area. In accordance with 33 CFR 332.4(c)(1), FPL would request that the district engineer address any of the specific work plan requirements as permit conditions.

332.4(c)(8): Maintenance plan. A description and schedule of maintenance requirements to ensure the continued viability of the resource once initial construction is completed.

Project Compliance: Please see discussion above in Sections 4.0 and 5.0 for proposed methods and maintenance requirements to ensure the continued viability of the mitigation sites.

332.4(c)(9): Performance standards. Ecologically-based standards that will be used to determine whether the compensatory mitigation project is achieving its objectives.

Project Compliance: The mitigation activities will be measured against performance standards to assess whether the project is achieving its objectives. Specifically, the enhancement of natural vegetative communities will be measured through annual monitoring of the vegetative community structure. As described in this mitigation plan, the conceptual performance standards, to be finalized in consultation with the USACE and FDEP, will likely include the following typical criteria:

- Nuisance/exotic species of vegetation occupy <5 percent of the total cover on the parcel
- Percent cover by native vegetation is 95 percent or greater within the wetlands on the parcel
- Wetland species will be reproducing naturally in each stratum

The final success determination shall not be made less than three years from the completion of implementation of the initial enhancement measures and when the above mentioned criteria have been continuously met for a period of at least one growing season, without intervention in the form of removal of undesirable vegetation.

332.4(c)(10): Monitoring requirements. A description of parameters to be monitored in order to determine if the compensatory mitigation project is on track to meet performance standards and if adaptive management is needed. A schedule for monitoring and reporting on monitoring results to the district engineer must be included.

Project Compliance: Monitoring events are expected to occur annually towards the end of the growing season (October), with reports delivered to the USACE and FDEP by the end of the calendar year in accordance with the conceptual schedule provided above in Table 5. During each monitoring event, data will be collected at permanent monitoring stations to document the vegetative community condition.

Monitoring activities include identification and percent cover of herbaceous and canopy species, water depths, panoramic photographs of the Mitigation Area as well as photographs of each individual herbaceous and/or canopy plot, wildlife observations, and status of exotic/nuisance species eradication.

Transects will be established through the Mitigation Area, with herbaceous monitoring stations established at equal intervals along each transect. The locations of monitoring stations will be permanently established with rebar and PVC pipes.

At each monitoring station, a 1-meter square quadrat will be placed to determine composition of the herbaceous strata. All plant species within each 1-meter square quadrat will be identified and their corresponding percent cover recorded, including coverage of bare ground and open water.

Within forested communities, 100 m² canopy plots will be established to measure canopy and sub-canopy vegetation. Within the canopy plots, all trees and shrubs will be identified; percent cover recorded by species, and individual diameters measured. In addition, the herbaceous community within the canopy plots will be generally described to further illustrate the overall vegetative community species composition.

Water depth will be recorded to the nearest inch at four locations within each canopy plot and at one location within each 1-meter square quadrat. Panoramic photographs will be taken from fixed permanent stations, to document conditions through views of each mitigation site from the north, south, east, and west boundaries.

Monitoring reports will be furnished to the USACE and FDEP to include, at a minimum:

- Status of construction
- Problems encountered and solutions
- Anticipated work within the next 12 months
- Panoramic photographs taken from permanent stations
- Status of nuisance eradication, if required
- Status of enhancement
- Herbicide listing and date of application, if any, and
- Percent cover of all herbaceous and canopy species

332.4(c)(11): Long-term management plan. A description of how the compensatory mitigation project will be managed after performance standards have been achieved to ensure the long-term sustainability of the resource, including long-term financing mechanisms and the party responsible for long-term management.

Project Compliance: It is FPL's intention to place the Mitigation Area under a conservation easement and manage the area in perpetuity upon fulfilling the proposed restoration activities and demonstrating compliance with success criteria.

As a public utility, FPL has sufficient financial assurances to successfully complete the proposed mitigation activities and provide long-term management. FPL has a proven track record of large, successful mitigation and conservation projects, such as the Northwest Mitigation Parcel associated with the FPL Martin Plant (Martin County), the Everglades Mitigation Bank (Miami-Dade County), the Barley Barber Swamp (Martin County), the Scout Lagoon on the Turkey Point Plant property, and mangrove restoration areas on the Turkey Point Plant property associated with Turkey Point Unit 5 and stack laydown projects.

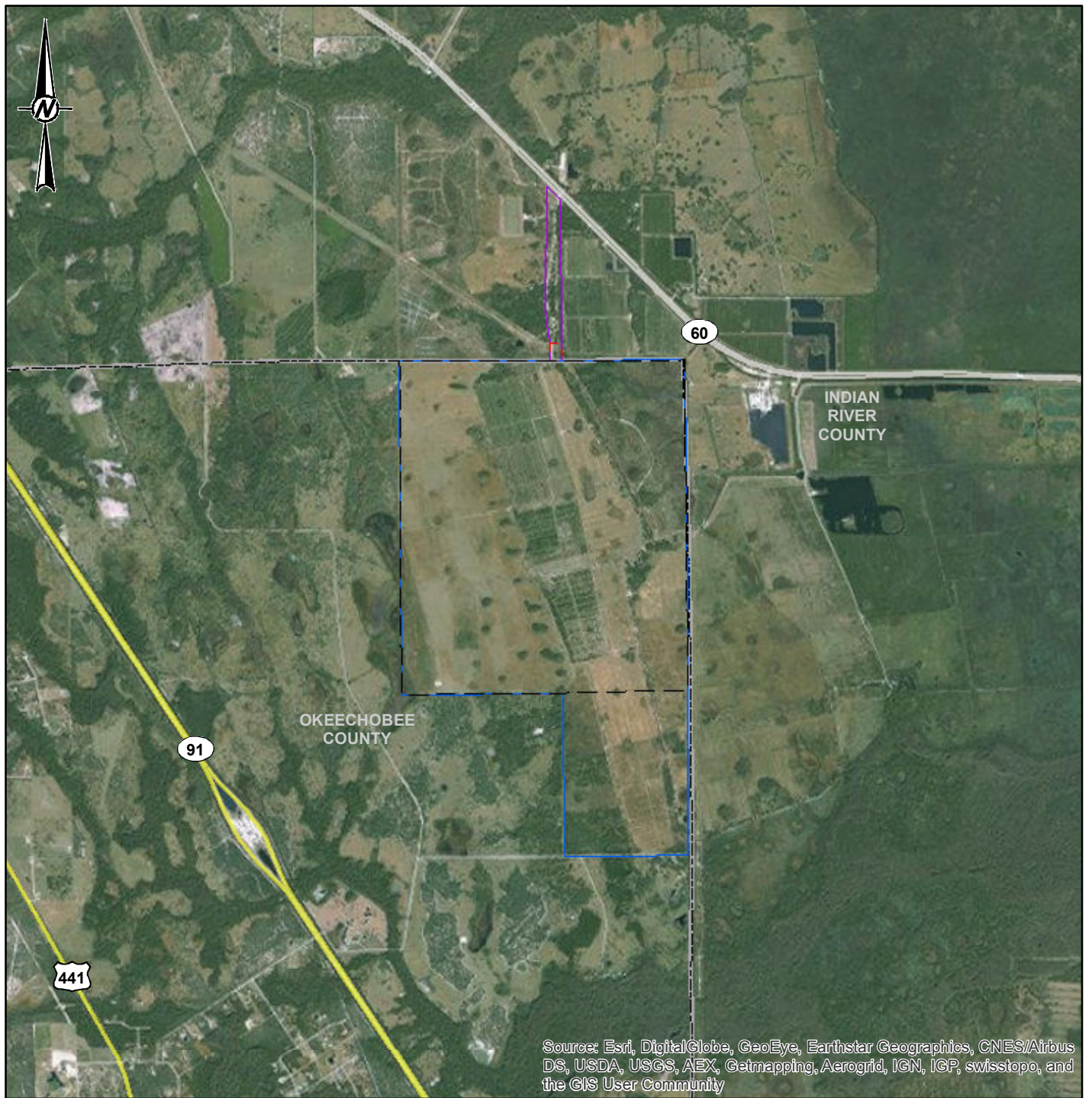
332.4(c)(12): Adaptive management plan. A management strategy to address unforeseen changes in site conditions or other components of the compensatory mitigation project, including the party or parties responsible for implementing adaptive management measures. The adaptive management plan will guide decisions for revising compensatory mitigation plans and implementing measures to address both foreseeable and unforeseen circumstances that adversely affect compensatory mitigation success.

Project Compliance: Results of the annual monitoring will be used to identify those mitigation activities that are to be adapted to address any unforeseen changes in site conditions. In the case of nuisance/exotic species of vegetation, the adaptive management plan will focus on altering treatment locations depending upon the reduction in extent or encroachment into additional areas of the mitigation Site. A similar facet of the adaptive management plan may arise in the unforeseen instance of failure of natural recruitment of native species. In this case, FPL would evaluate the installation of native species of vegetation to

supplement natural recruitment, with the goal of achieving the performance standard. Similarly, the efficacy of prescribed burns will be evaluated, and the frequency or extent of burning will be modified as necessary to promote long-term productivity and habitat diversity.

332.4(c)(13): Financial assurances. A description of financial assurances that will be provided and how they are sufficient to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with its performance standards.

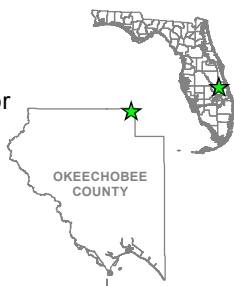
Project Compliance: The mitigation project's financial assurance will be provided by FPL, who has a track record of successful mitigation projects that fulfill performance standards. FPL will remain the owner and operator of the OCEC and will manage the Mitigation Area as part of the overall OCEC operations and maintenance plan.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

LEGEND

- FPL Owned Property
- Linear Facility Corridor
- Transmission Interconnection Corridor
- Certified Site Boundary
- County Boundary



CLIENT
FPL

PROJECT
OKEECHOBEE CLEAN ENERGY CENTER

TITLE
**GENERAL LOCATION
MAP**



YYYY-MM-DD	2015-09-07
DESIGNED	NRL
PREPARED	NRL
REVIEWED	KAB
APPROVED	KFK

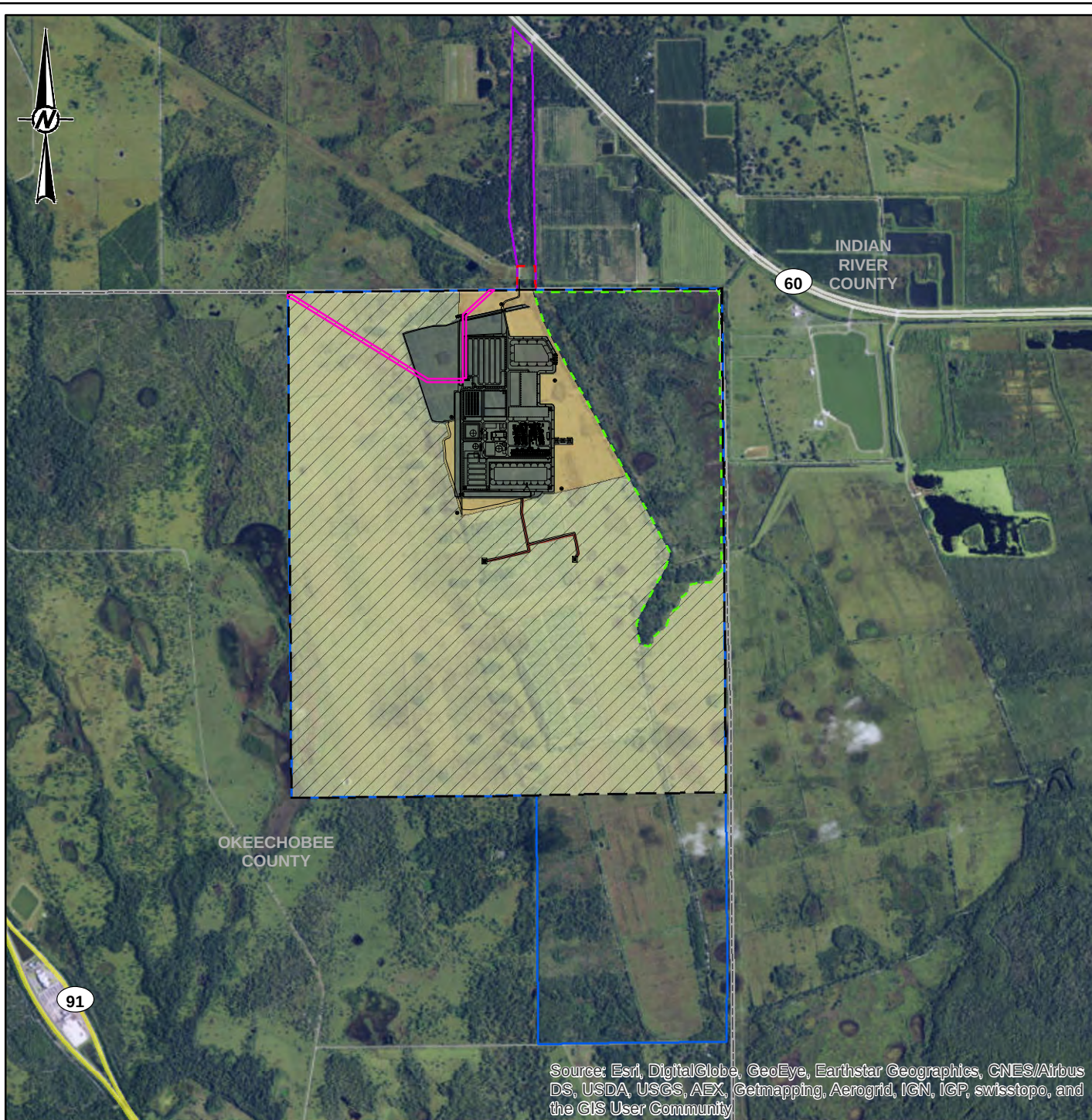
REFERENCE(S)
PROPERTY, LINEAR FACILITY CORRIDOR, CERTIFIED BOUNDARY, FPL & GOLDER ASSOCIATES INC., 2015



PROJECT NO. 1414979 CONTROL B071 REV. 0 FIGURE 1

G:\PROJECTS\FPL\Okeechobee\9 PROJECTS\1414979\8 SCA Project\02 PRODUCTION\XD1414979_B023_GeneralLocMap.mxd

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A 25mm



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

LEGEND

- OCEC Unit 1
- Open Space
- UFA Well Delivery Pipeline
- Mitigation Area
- Certified Site Boundary
- FPL Owned Property
- Linear Facility Corridor
- Transmission Interconnection Corridor
- On-Site Gas Pipeline Alternatives
- Future Solar Area

0 3,200 6,400
1:38,400 Feet

REFERENCE(S)

PROPERTY, LINEAR FACILITY CORRIDOR, CERTIFIED BOUNDARY, FUTURE SOLAR AREA, OPEN SPACE, MITIGATION AREA, FPL & GOLDER ASSOCIATES INC., 2015
FACILITY LAYOUT, BLACK & VEATCH, 2015

CLIENT
FPL

PROJECT
OKEECHOBEE CLEAN ENERGY CENTER

TITLE
SITE PLAN



YYYY-MM-DD	2015-09-17
DESIGNED	NRL
PREPARED	NRL
REVIEWED	KAB
APPROVED	KFK

PROJECT NO.
1414979

CONTROL
B072

REV.
0

FIGURE
2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
25mm



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

- LEGEND
- Certified Site Boundary
 - FPL Owned Property
 - Linear Facilities Corridor
 - Mitigation Area (376.48 acres)
 - Setback (50ft)
 - Habitat Classification
 - 211 - Improved Pastures
 - 212 - Unimproved Pastures
 - 320 - Shrub And Brushland
 - 411 - Pine Flatwoods
 - 434 - Hardwood-Coniferous Mixed
 - 511 - Ditches
 - 617 - Mixed Wetland Hardwoods
 - 625 - Hydric Pine Flatwoods
 - 630 - Wetland Forested Mixed
 - 631 - Wetland Shrub
 - 641 - Freshwater Marshes
 - 643 - Wet Prairies
 - 646 - Treeless Hydric Savanna
 - 740 - Disturbed Land

REFERENCE(S)

MITIGATION AREA, GOLDER ASSOCIATES INC., 2014-2015
LAND USE, SJRWMD, 2009

MITIGATION AREA LAND USE		
FLUCFCS CODE	HABITAT DESCRIPTION	ACREAGE
211	Improved Pastures	0
212	Unimproved Pastures	22.75
320	Shrub And Brushland	98.1
411	Pine Flatwoods	13.48
434	Hardwood-Coniferous Mixed	54.23
511	Ditches	6.9
617	Mixed Wetland Hardwoods	35
625	Hydric Pine Flatwoods	18.97
630	Wetland Forested Mixed	25.63
631	Wetland Shrub	41.92
641	Freshwater Marshes	55.55
643	Wet Prairies	3.95
GRAND TOTAL		376.48



CLIENT
FPL

PROJECT OKEECHOBEE CLEAN ENERGY CENTER

TITLE
MITIGATION AREA LAND COVER



YYYY-MM-DD	2015-05-20
DESIGNED	GD
PREPARED	GD
REVIEWED	KAB
APPROVED	KAB

PROJECT NO.
1414979

CONTROL
B004

REV.
0

FIGURE
4



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

LEGEND

- Certified Site Boundary
- FPL Owned Property
- Linear Facility Corridor
- Mitigation Area (376.48 acres)
- Setback (50ft)
- Soils_NRCS_2012
- 2 - BASINGER FINE SAND
- 3 - BASINGER AND PLACID SOILS, DEPRESSIONAL
- 5 - VALKARIA FINE SAND

- 6 - MANATEE LOAMY FINE SAND, DEPRESSIONAL
- 7 - FLORIDANA, RIVERIA, AND PLACID SOILS, DEPRESSIONAL
- 8 - PINDEA FINE SAND
- 9 - RIVIERA FINE SAND
- 11 - IMMOKALEE FINE SAND
- 14 - MYAKKA FINE SAND
- 15 - OKEELANTA MUCK
- 18 - PARKWOOD FINE SAND
- 25 - WABASSO FINE SAND

REFERENCE(S)

MITIGATION AREA, GOLDER ASSOCIATES INC., 2014-2015
LAND USE, SJRWMD, 2009

CLIENT
FPL

PROJECT
OKEECHOBEE CLEAN ENERGY CENTER

TITLE
USDA/NRCS SOILS



YYYY-MM-DD	2015-08-27
DESIGNED	GD
PREPARED	JW
REVIEWED	KAB
APPROVED	KAB

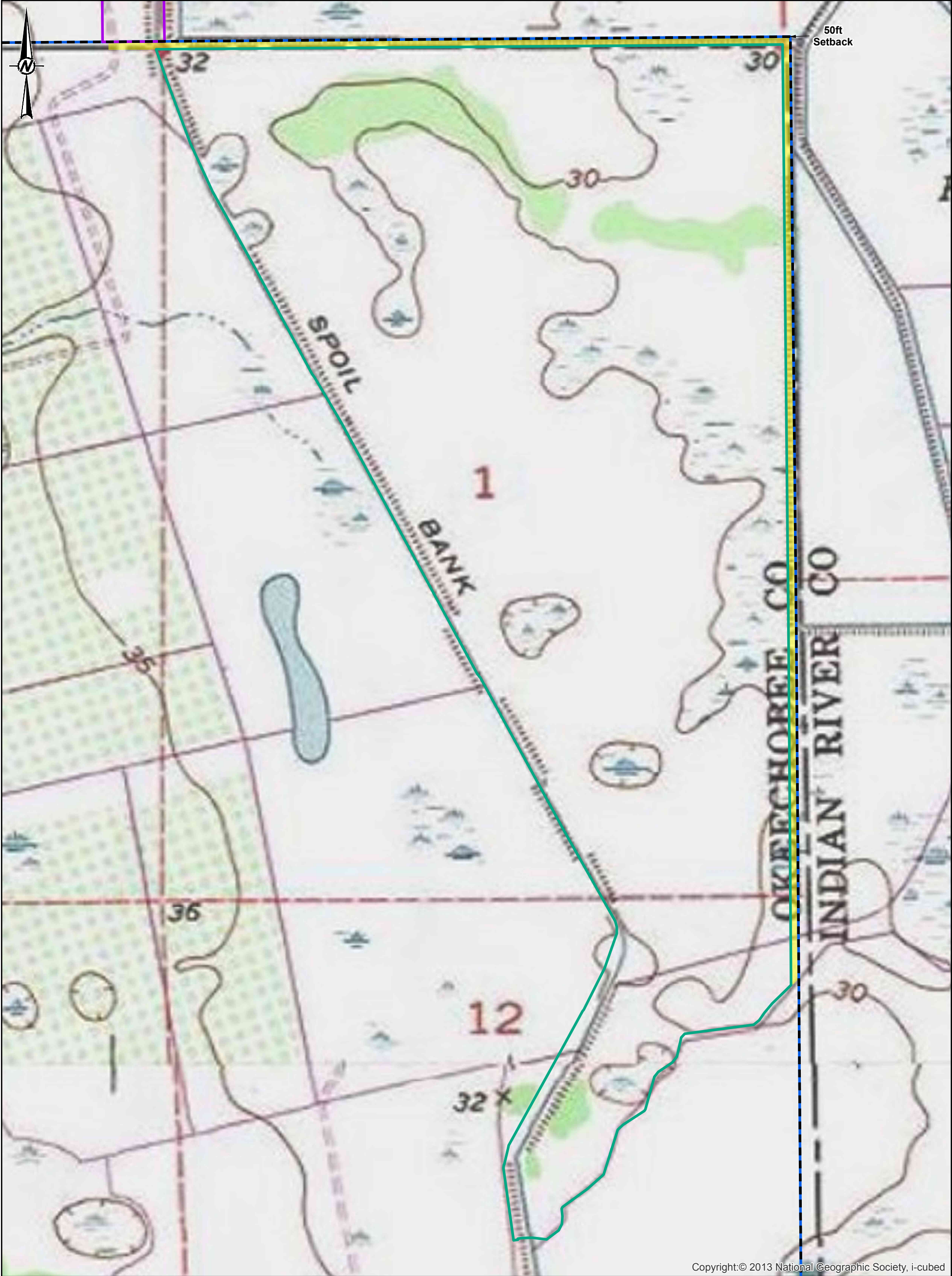
PROJECT NO.
1414979

CONTROL
B061

REV.
0

FIGURE
5





Copyright:© 2013 National Geographic Society, i-cubed

- LEGEND
- Certified Site Boundary
 - FPL Owned Property
 - Linear Facility Corridor
 - Mitigation Area (376.48 acres)
 - Setback (50ft)

REFERENCE(S)

MITIGATION AREA, GOLDER ASSOCIATES INC., 2014-2015
LAND USE, SJRWMD, 2009

CLIENT
FPL

PROJECT
OKEECHOBEE CLEAN ENERGY CENTER

TITLE
USGS TOPOGRAPHIC MAP

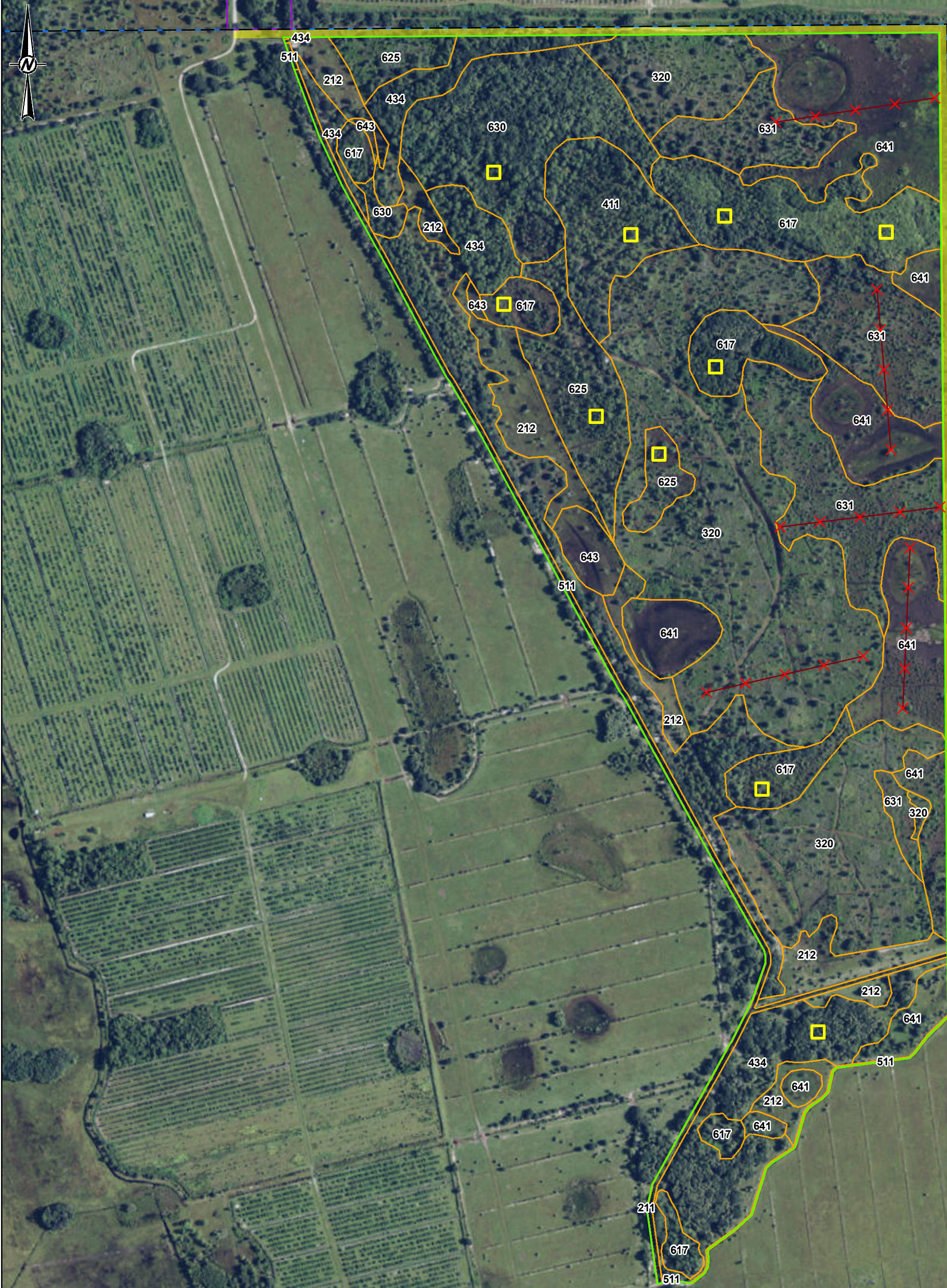


YYYY-MM-DD	2015-08-27
DESIGNED	GD
PREPARED	JW
REVIEWED	KAB
APPROVED	KAB



PROJECT NO. 1414979 CONTROL B062 REV. 0

FIGURE 6



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

LEGEND

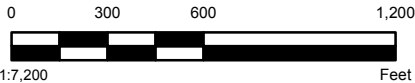
- Herbaceous Vegetation Monitoring Stations (25)
- 10m x 10m Canopy Monitoring Stations (10)
- 300m Herbaceous Vegetation Monitoring Transect (5)
- Certified Site Boundary
- FPL Owned Property
- Linear Facilities Corridor
- Mitigation Area (376.48 acres)
- Setback (50ft)
- Habitat Classification
 - 211 - Improved Pastures
 - 212 - Unimproved Pastures

REFERENCE(S)

MITIGATION AREA, GOLDBER ASSOCIATES INC., 2014-2015
LAND USE, SJRWMD, 2009

- 320 - Shrub And Brushland
- 411 - Pine Flatwoods
- 434 - Hardwood-Coniferous Mixed
- 511 - Ditches
- 617 - Mixed Wetland Hardwoods
- 625 - Hydric Pine Flatwoods
- 630 - Wetland Forested Mixed
- 631 - Wetland Shrub
- 641 - Freshwater Marshes
- 643 - Wet Prairies
- 646 - Treeless Hydric Savanna
- 740 - Disturbed Land

MITIGATION AREA LAND USE		
FLUCFCS CODE	HABITAT DESCRIPTION	ACREAGE
212	Unimproved Pastures	22.75
320	Shrub and Brushland	98.10
411	Pine Flatwoods	13.48
434	Hardwood-Coniferous Mixed	54.23
511	Ditches	6.90
617	Mixed Wetland Hardwoods	35.00
625	Hydric Pine Flatwoods	18.97
630	Wetland Forested Mixed	25.63
631	Wetland Scrub	41.92
641	Freshwater Marshes	55.55
643	Wet Prairies	3.95
GRAND TOTAL		376.48



CLIENT
FPL

PROJECT
OKEECHOBEE SCA

TITLE
MITIGATION AREA MONITORING LOCATIONS



YYYY-MM-DD	2015-08-04
DESIGNED	JW
PREPARED	JW
REVIEWED	KAB
APPROVED	KAB

PROJECT NO. 1414979 CONTROL B048 REV. 0

FIGURE
7

APPENDIX A

UMAM FUNCTIONAL ASSESSMENT

WETLAND IMPACT SITES

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center		Application Number		Assessment Area Name or Number Citrus and Pasture Ditches: 1, 2N (511), 2S, 3, 4, 5, 6, 7, 8, 9(511), A, B, C (511), D(511), E, F, G, H, I-J(511), L, N(511), AA, AB(511)	
FLUCCs code 511 (Citrus Grove and Pasture Ditches)		Further classification (optional)		Impact or Mitigation Site? Impact	
				Assessment Area Size 27.36 acres	
Basin/Watershed Name/Number Upper St. John's / HUC 3080101		Affected Waterbody (Class)		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Irrigation/drainage ditches within active citrus groves and pasture. Connect to forested wetlands and other drainage ditches, eventually flowing off site to the south and east.					
Assessment area description Ditches within citrus groves and pastures, dominated by a variety of native and nuisance/exotic species such as Peruvian primrose willow (<i>Ludwigia peruviana</i>), cattail (<i>Typha latifolia</i>), piedmont primrose willow (<i>Ludwigia arcuata</i>), creeping primrose willow (<i>L. repens</i>), torpedo grass (<i>Panicum repens</i>), pickerelweed (<i>Pontederia cordata</i>), marsh pennywort (<i>Hydrocotyle umbellata</i>), soft rush (<i>Juncus effusus</i>), and spike rush (<i>Eleocharis</i> sp.).					
Significant nearby features Citrus groves, access roads, pasture, transmission line ROW				Uniqueness (considering the relative rarity in relation to the regional landscape.) Not rare in relation to regional landscape	
Functions Wildlife habitat, pasture land, and citrus groves.				Mitigation for previous permit/other historic use N/A	
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Wading birds, herpetofauna, mammals, etc.				Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Potential, use by wading birds such as white ibis (SSC), wood stork (E), little blue heron (SSC), snowy egret (SSC) and tricolor heron (SSC).	
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): Observation/signs of white-tailed deer, feral hogs, armadillo, opossum, raccoon, coyote, great blue heron, cattle egret					
Additional relevant factors: 					
Assessment conducted by: M. Arrants, K. Bullock, A. Zions, C. Brookshire				Assessment date(s): Dec-14	

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center	Application Number	Assessment Area Name or Number Citrus and Pasture Ditches: 1, 2N (511), 2S, 3, 4, 5, 6, 7, 8, 9(511), A, B, C (511), D(511), E, F, G, H, I-J(511), L, N(511), AA, AB(511)
Impact or Mitigation Impact	Assessment conducted by: Arrants, Bullock, Zions, Brookshire	Assessment date: Dec-14

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10) Condition is optimal and fully supports wetland/surface water functions	Moderate(7) Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal (4) Minimal level of support of wetland/surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
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.500(6)(a) Location and Landscape Support w/o pres or current 6 with	Location and landscape support variable is reduced due to ditching and access roads in citrus groves, fencing and active pastures. Individual parameter scores: a) Support to wildlife listed in Part 1 by outside habitats = 6, reduced due to location within citrus groves; b) Invasive exotic species = 7, moderate coverage; c) Wildlife access to and from outside = 6, decreased due to limitations imposed by conversion to agriculture; d) functions that benefit fish & wildlife downstream-distance or barriers = 5, limited benefit; e) Impacts to wildlife listed in Part 1 by outside land uses = 6, reduced due to clearing of native habitat and surrounding agricultural landuse; f) Hydrologically connected areas downstream of assessment area = 5, drainage ditches provide connections; g) Dependency of downstream areas on assessment area = 6, moderate benefit to downstream areas.
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current 4 with	The water environment score is reduced due to man-made nature of citrus irrigation ditches and pasture drainage ditches. Individual parameter scores: a) water levels and flows = 4, altered due to land clearing, ditching; b) water level indicators = 4, artificial drainage ditches; c) soil moisture = 4, consistent with expected; d) soil erosion or deposition = 4, moderate erosion; e) evidence of fire history = N/A; f) vegetation community zonation = 4, typical of assessment area, some edge effect and upland encroachment; g) hydrologic stress on vegetation = 4, some upland and transitional species encroachment; h) use by animal species with specific hydrological requirements = 4, reduced due to surrounding altered landscape/changed hydrology; i) vegetative species tolerant of and associated with water quality degradation = 4, minimal; j) direct observation of water quality = 4, typical of assessment area; K) existing water quality data = N/A; l) water depth wave, wave energy, currents and light penetration = N/A.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current 4 with	The community structure variable is reduced from disturbance due to citrus operation, cattle, and ditch maintenance. Individual parameter scores: a) plant community species in the canopy, shrub, or ground stratum = 4, mixture of exotic and native species; b) invasive exotics or other invasive plant species = 4, significant coverage of exotic/nuisance species; c) regeneration and recruitment = 4, recruitment impacted by surrounding citrus grove landuse and maintenance; d) age & size distribution = 4, typical of assessment area type, impacted due to maintenance; e) density and quality of coarse woody debris, snag, den, and cavity = N/A; f) plant condition = 4, slightly reduced due to maintenance on edges; g) land management practices = 4, reduced due to routine maintenance; h) topographic features = 4, typical for assessment area; i) siltation or algal growth in submerged aquatic plant communities = N/A

Score = sum of above scores/30 (if uplands, divide by 20) current or w/o pres 0.47 with

If preservation as mitigation, Preservation adjustment factor = Adjusted mitigation delta =

For impact assessment areas FL = delta x acres = 0.47 x 19.52 acres = 9.17 credits ; 0.10 ac of temporary impact restored in-situ
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Delta = [with-current] 0.47

If mitigation Time lag (t-factor) = Risk factor =

For mitigation assessment areas RFG = delta/(t-factor x risk) =
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PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center		Application Number		Assessment Area Name or Number Linear Facilities Corridor Ditches- Wetlands AD, S, SR60	
FLUCCs code 511		Further classification (optional)		Impact or Mitigation Site? Impact	
Assessment Area Size 3.35 acres					
Basin/Watershed Name/Number Upper St. John's / HUC 3080101		Affected Waterbody (Class)		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Roadside ditches adjacent to SR 60 and ditches adjacent to Site access road (226th Court), connect to forested wetlands outside of ROW					
Assessment area description Maintained roadside ditches adjacent to SR 60 and ditches adjacent to Site access road. Vegetative community dominated by a mixture of nuisance/exotic and native species such as Peruvian primrose willow (<i>Ludwigia peruviana</i>), water lettuce (<i>Pistia stratiotes</i>), bushy broomsedge (<i>Andropogon glomeratus</i>), wax myrtle (<i>Myrica cerifera</i>), cattail (<i>Typha latifolia</i>), groundsel tree (<i>Baccharis halimifolia</i>).					
Significant nearby features SR 60		Uniqueness (considering the relative rarity in relation to the regional landscape.) Not rare in relation to regional landscape			
Functions Wildlife habitat, drainage, and storage.		Mitigation for previous permit/other historic use N/A			
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Wading birds, herpetofauna		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) American alligator (T S/A), and potential occasional use by wading birds such as white ibis (SSC), little blue heron (SSC), snowy egret (SSC), or tricolor heron (SSC).			
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): American alligator, great egret					
Additional relevant factors:					
Assessment conducted by: M. Arrants, K. Bullock, A. Zions, C. Brookshire		Assessment date(s): Dec-14			

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center	Application Number	Assessment Area Name or Number Linear Facilities Corridor Ditches- Wetlands AD, S, SR60
Impact or Mitigation Impact	Assessment conducted by: Arrants, Bullock, Zions, Brookshire	Assessment date: Dec-14

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current	with	Location and landscape support variable is reduced due to location of excavated ditch adjacent to roadways. Individual parameter scores: a) Support to wildlife listed in Part 1 by outside habitats = 4, reduced due to disturbance from maintenance mowing/herbicide, surrounding development; b) Invasive exotic species = 5, moderate coverage; c) Wildlife access to and from outside = 5, decreased due to limitations imposed by surrounding developed areas; d) functions that benefit fish & wildlife downstream-distance or barriers = 5, little benefit, artificial drainageway; e) Impacts to wildlife listed in Part 1 by outside land uses = 6, reduced due to surrounding development and clearing of native habitat; f) Hydrologically connected areas downstream of assessment area = 5, artificial drainage feature; g) Dependency of downstream areas on assessment area = 4, minimal benefit to downstream areas.
	5		
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current	with	The water environment score is reduced due to proximity of roadway, maintenance and herbicide application, artifical hydroperiod resulting from excavation of drainage ditch within surrounding disturbed landscape, and adjacent development. Individual parameter scores: a) water levels and flows = 3 artifical nature of excavated ditch; b) water level indicators = 3, altered hydroperiod due to to excavated ditch; c) soil moisture = 3, consistent with expected; 3) soil erosion or deposition = 5, erosion from roadway, adjacent landuses; e) evidence of fire history = N/A; f) vegetation community zonation = 4, artifical system, significant upland species encroachment; g) hydrologic stress on vegetation = 3, upland and transitional species prevalent; h) use by animal species with specific hydrological requirements = 3, due to surrounding altered landscape/altered hydrology; i) vegetative species tolerant of and associated with water quality degradation = 3, some indication of high nutrients, cattails and exotic species; j) direct observation of water quality = 3, evidence of elevated nutrient input due to nuisance/exotic vegetation; K) existing water quality data = N/A; l) water depth wave, wave energy, currents and light penetration = N/A.
	5		
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current	with	The community structure variable is reduced due to moderate coverage of exotic/nuisance species, mowing, maintenance, herbicide application, and excavated, artifical nature of drainage ditches. Individual parameter scores: a) plant community species in the canopy, shrub, or ground stratum = 5, maintenance typically removes shrub/canopy stratum, non-desirable wetland species present; b) invasive exotics or other invasive plant species = 5, moderate coverage of exotic/nuisance species; c) regeneration and recruitment = 5, artifical system, recruitment impacted by surrounding development and maintenance; d) age & size distribution = 3, typical of artifical drainage ditch, impacted due to maintenance; e) density and quality of coarse woody debris, snag, den, and cavity = N/A; f) plant condition = 6, somewhat reduced due to maintenance and herbicide; g) land management practices = 4, due to alteration of community structure by routine maintenance; h) topographic features = 5, artifical excavated system; i) siltation or algal growth in submerged aquatic plant communities = N/A
	5		

Score = sum of above scores/30 (if uplands, divide by 20)		
current		with
or w/o pres	0.50	

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.5 x 0.47 ac. = 0.24 credits ; 0.01 ac. temporary impact restored in-situ

Delta = [with-current]
0.5

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center		Application Number		Assessment Area Name or Number C (617), D (617), AB (617), 2-N (617), and 9 (617)	
FLUCCs code 617 (Citrus Grove Mixed Wetland Hardwoods)		Further classification (optional)		Impact or Mitigation Site? Impact	Assessment Area Size 6.84 acres
Basin/Watershed Name/Number Upper St. John's / HUC 3080101		Affected Waterbody (Class)		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Mixed hardwood wetlands connect to citrus grove irrigation/drainage ditches.					
Assessment area description Ditches that connect to mixed wetland hardwoods supporting a variety of primarily native species of vegetation, including blackgum (<i>Nyssa biflora</i>), red maple (<i>Acer rubrum</i>), wax myrtle (<i>Myrica cerifera</i>), dahoon holly (<i>Ilex cassine</i>), and cabbage palm (<i>Sabal palmetto</i>). Understories are vegetated by, coastal plain willow (<i>Salix caroliniana</i>), wax myrtle (<i>Myrica cerifera</i>), Peruvian primrose willow (<i>Ludwigia peruviana</i>), swamp fern (<i>Blechnum serrulatum</i>), and royal fern (<i>Osmunda regalis</i>).					
Significant nearby features Citrus groves, pastures, transmission line ROW		Uniqueness (considering the relative rarity in relation to the regional landscape.) Not rare in relation to regional landscape			
Functions Wildlife habitat, irrigation, drainage, and storage		Mitigation for previous permit/other historic use N/A			
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Wading birds, herpetofauna, mammals, etc.		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Possible occasional use by wading birds such as white ibis (SSC), wood stork (E), little blue heron (SSC), snowy egret (SSC), and tricolor heron (SSC), as well as foraging by American alligator (S/A).			
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): White-tailed deer, feral pig, marsh rabbit, armadillo, raccoon, American alligator, softshell turtle					
Additional relevant factors:					
Assessment conducted by: M. Arrants, K. Bullock, A. Zions		Assessment date(s): Nov-14			

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center	Application Number	Assessment Area Name or Number C (617), D (617), AB (617), 2-N (617), and 9 (617)
Impact or Mitigation Impact	Assessment conducted by: Arrants, Bullock, Zions, Brookshire	Assessment date: Dec-14

Scoring Guidance
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current	with	Location and landscape support variable is reduced due to ditching and access roads in citrus groves, fencing and adjacency to active pastures. Individual parameter scores: a) Support to wildlife listed in Part 1 by outside habitats = 6, reduced due to location within citrus groves; b) Invasive exotic species = 7, moderate coverage; c) Wildlife access to and from outside = 6, decreased due to limitations imposed by conversion to agriculture; d) functions that benefit fish & wildlife downstream-distance or barriers = 5, limited benefit; e) Impacts to wildlife listed in Part 1 by outside land uses = 6, reduced due to clearing of native habitat and surrounding agricultural landuse; f) Hydrologically connected areas downstream of assessment area = 5, drainage ditches provide connections; g) Dependency of downstream areas on assessment area = 6, moderate benefit to downstream areas.
	6		
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current	with	The water environment score is slightly reduced due to location adjacent to citrus groves and alteration of drainage patterns (rim ditching). Individual parameter scores: a) water levels and flows = 5, altered due to land clearing, ditching; b) water level indicators = 6, somewhat reduced compared to typical; c) soil moisture = 5, consistent with expected; d) soil erosion or deposition = 6, minimal erosion; e) evidence of fire history = N/A; f) vegetation community zonation = 6, typical of assessment area, some edge effect and upland encroachment due to clearing; g) hydrologic stress on vegetation = 6, some upland and transitional species encroachment; h) use by animal species with specific hydrological requirements = 6, slightly reduced due to surrounding altered landscape/changed hydrology; i) vegetative species tolerant of and associated with water quality degradation = 6, some exotic species present; j) direct observation of water quality = 6, some nutrient enrichment likely due to presence of nuisance/exotic vegetation, proximity of roadways and associated runoff; K) existing water quality data = N/A; l) water depth wave, wave energy, currents and light penetration = N/A.
	6		
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current	with	The community structure variable is slightly reduced from disturbance due to rim ditching and areas of exotic species encroachment. Individual parameter scores: a) plant community species in the canopy, shrub, or ground stratum = 8, exotics present on edges of forested system, but interior dominated by native species; b) invasive exotics or other invasive plant species = 7, moderate coverage of exotic/nuisance species; c) regeneration and recruitment = 8, interior typical for assessment area; d) age & size distribution = 8, typical of assessment area type; e) density and quality of coarse woody debris, snag, den, and cavity = N/A; f) plant condition = 8, slightly reduced due to rim ditching; g) land management practices = 7, reduced due to agricultural use and ditching; h) topographic features = 7, typical for assessment area; i) siltation or algal growth in submerged aquatic plant communities = N/A
	8		

Score = sum of above scores/30 (if uplands, divide by 20)	
current	
or w/o pres	with
0.67	

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.67 x 4.71 acres = 3.16 credits

Delta = [with-current]
0.67

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

MITIGATION AREA

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center		Application Number	Assessment Area Name or Number Ditches
FLUCCs code 511	Further classification (optional)	Impact or Mitigation Site? Mitigation	Assessment Area Size 6.9 acres
Basin/Watershed Name/Number Upper St. John's / HUC 03080101	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Excavated ditch system along perimeter of mitigation site, connects to Fort Drum Marsh Conservation Area through herbaceous and forested wetlands			
Assessment area description Ditch system located on the perimeter of the mitigation site. Vegetative community dominated by a mixture of nuisance/exotic and native species such as Peruvian primrose willow (<i>Ludwigia peruviana</i>), pickerelweed (<i>Pontederia cordata</i>), water lettuce (<i>Pistia stratiotes</i>), bushy broomsedge (<i>Andropogon glomeratus</i>), wax myrtle (<i>Myrica cerifera</i>), cattail (<i>Typha latifolia</i>), groundsel tree (<i>Baccharis halimifolia</i>).			
Significant nearby features Fort Drum Marsh Conservation Area, undeveloped uplands and wetlands, pasture, citrus groves, transmission line right-of-way		Uniqueness (considering the relative rarity in relation to the regional landscape.) Not rare in relation to regional landscape	
Functions Wildlife habitat, drainage, and storage.		Mitigation for previous permit/other historic use N/A	
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Wading birds, forage fish, small mammals, herpetofauna		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) American alligator (T S/A), and potential occasional use by wading birds such as white ibis (SSC), little blue heron (SSC), snowy egret (SSC), or tricolor heron (SSC).	
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): American alligator, great egret, little blue heron			
Additional relevant factors:			
Assessment conducted by: M. Arrants, K. Bullock, A. Zions, C. Brookshire		Assessment date(s): December 2014 through July 2015	

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center	Application Number	Assessment Area Name or Number Ditches
Impact or Mitigation Mitigation	Assessment conducted by: Arrants, Bullock, Zions, Brookshire	Assessment date: Dec 2014 through August 2015

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support		Current: Location and landscape support variable is slightly reduced due to presence of invasive vegetation and adjacent pasture. Individual parameter scores: a) Support to wildlife listed in Part 1 by outside habitats = 6, due to surrounding habitats ; b) Invasive exotic species = 7, minimal coverage; c) Wildlife access to and from outside = 6, slightly decreased due to limitations imposed by adjacent cleared pastures; d) functions that benefit fish & wildlife downstream-distance or barriers = 6, some functions; e) Impacts to wildlife listed in Part 1 by outside land uses = 6, slightly reduced due to surrounding habitat loss; f) Hydrologically connected areas downstream of assessment area = 6, connected through ditching to other ditches and wetlands; g) Dependency of downstream areas on assessment area = 6, some benefit to downstream areas.	
w/o pres or current	with	With: No change. Preservation of mitigation parcel will slightly increase location and landscape support variable, but the proximity of the perimeter ditch to the OCEC offsets the benefit to location and landscape support.	
6	6		
.500(6)(b)Water Environment (n/a for uplands)		Current: The water environment variable is reduced due to man-made excavated nature of the perimeter ditch, modifying natural water flow. Individual parameter scores: a) water levels and flows = 5, altered water level; b) water level indicators = 4, less than expected; c) soil moisture = 7, typical for community type; d) soil erosion or deposition = 6, some areas of moderate erosion; e) evidence of fire history = N/A; f) vegetation community zonation = 6, slightly altered due to minimal presence of invasives, upland species; g) hydrologic stress on vegetation = 6, some due to altered hydrologic regime; h) use by animal species with specific hydrological requirements = 5, due to lack of open water connection and resultant reduction in number of fish species; i) vegetative species tolerant of and associated with water quality degradation = 5, moderate; j) direct observation of water quality = 8, no discoloration, turbidity, or sheen; k) existing water quality data = N/A; l) water depth wave, wave energy, currents and light penetration = N/A.	
w/o pres or current	with	With: No change. The water environment variable may be slightly increased due to preservation and ongoing land management, but no specific hydrologic improvements are proposed, therefore the water environment variable score is same as current score.	
5	5		
.500(6)(c)Community structure		Current: The community structure variable is reduced due to presence of invasive species, excavated nature of ditches. Individual parameter scores: a) plant community species in the canopy, shrub, or ground stratum = 5, mix of exotic and native species; b) invasive exotics or other invasive plant species = 5, moderate coverage; c) regeneration and recruitment = 5, slightly less than expected; d) age & size distribution = 5, less than expected; e) density and quality of coarse woody debris, snag, den, and cavity = 5, not adequate for system type; f) plant condition = 5, due to dead stems and low productivity; g) land management practices = 5, due to alteration of community structure; h) topographic features = 5, less than optimal; i) siltation or algal growth in submerged aquatic plant communities = N/A.	
1. Vegetation and/or 2. Benthic Community			
w/o pres or current	with	With: The community structure variable is slightly increased due to invasive exotic vegetation control and preservation of the mitigation parcel. Individual parameter scores: a) plant community species in the canopy, shrub, or ground stratum = 6, mostly native species; b) invasive exotics or other invasive plant species = 6, some coverage; c) regeneration and recruitment = 6, mostly consistent with expected; d) age & size distribution = 6, slightly less than expected; e) density and quality of coarse woody debris, snag, den, and cavity = 6, mostly adequate for system type; f) plant condition = 6, improved due to improved hydrology in surrounding area; g) land management practices = 6, improved; h) topographic features = 5, less than optimal; i) siltation or algal growth in submerged aquatic plant communities = N/A.	
5	6		

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.53	0.57

Delta = [with-current]
0.04

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) = 1.03 (2 years)*
Risk factor = 1.25; TL x R = 1.2875

For impact assessment areas
FL = delta x acres =

For mitigation assessment areas
RFG = delta/(t-factor x risk) = 0.03

***USACE t-factor = 1.017; TL x R = 1.2713**

6.9 acres x 0.03 = 0.21 credits

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center		Application Number		Assessment Area Name or Number Forested Wetlands	
FLUCCs code 617 (Mixed Wetland Hardwoods), 625 (Hydric Pine), and 630 (Wetland Forested Mixed)		Further classification (optional)		Impact or Mitigation Site? Mitigation	Assessment Area Size 79.6 acres
Basin/Watershed Name/Number Upper St. John's / HUC 03080101		Affected Waterbody (Class)		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Forested wetlands located in the interior of the mitigation parcel, hydrologically connected to Fort Drum Conservation Area					
Assessment area description Forested wetlands supporting a variety of primarily native species of vegetation, including red maple (<i>Acer rubrum</i>), pop ash (<i>Fraxinus caroliniana</i>), cabbage palm (<i>Sabal palmetto</i>), coastal plain willow (<i>Salix caroliniana</i>), blackgum (<i>Nyssa sylvatica</i>), live oak (<i>Quercus virginiana</i>), laurel oak (<i>Quercus laurifolia</i>), slash pine (<i>Pinus elliottii</i>), wax myrtle (<i>Myrica cerifera</i>), persimmon (<i>Diospyros virginiana</i>), American elm (<i>Ulmus alata</i>), dahoon holly (<i>Ilex cassine</i>), arrowhead (<i>Sagittaria lancifolia</i>), maidencane (<i>Panicum hemitomom</i>), fireflag (<i>Thalia geniculata</i>), Peruvian primrose willow (<i>Ludwigia peruviana</i>), swamp fern (<i>Blechnum serrulatum</i>), Brazilian pepper (<i>Schinus terebinthifolius</i>), sawgrass (<i>Cladium jamaicense</i>), and Virginia chain fern (<i>Woodwardia virginica</i>).					
Significant nearby features Fort Drum Marsh Conservation Area, undeveloped uplands and wetlands, pasture, citrus groves, transmission line right-of-way		Uniqueness (considering the relative rarity in relation to the regional landscape.) Not rare in relation to regional landscape			
Functions Wildlife habitat, water treatment and storage		Mitigation for previous permit/other historic use N/A			
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Wading birds, herpetofauna		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Likely occasional use by wading birds such as white ibis (SSC), wood stork (E), little blue heron (SSC), snowy egret (SSC), and tricolor heron (SSC), as well as foraging by American alligator (S/A).			
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): Swallow-tailed kite, feral pig					
Additional relevant factors:					
Assessment conducted by: M. Arrants, K. Bullock, A. Zions, C. Brookshire		Assessment date(s): December 2014 through July 2015			

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center	Application Number	Assessment Area Name or Number Forested Wetlands
Impact or Mitigation Mitigation	Assessment conducted by: Arrants, Bullock, Zions, Brookshire	Assessment date: Dec 2014 through August 2015

Scoring Guidance
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	Current: Location and landscape support variable is slightly reduced due to presence of invasive vegetation and adjacent agricultural uses. Individual parameter scores: a) Support to wildlife listed in Part 1 by outside habitats = 7, slightly reduced due to adjacent agricultural land use; b) Invasive exotic species = 7, minimal coverage; c) Wildlife access to and from outside = 7, minimally decreased due to limitations imposed by adjacent agricultural land use; proximity of Fort Drum Conservation Area provides benefit; d) functions that benefit fish & wildlife downstream-distance or barriers = 7, some benefit to downstream systems; e) Impacts to wildlife listed in Part 1 by outside land uses = 7, slightly reduced due to adjacent agricultural areas, fire suppression in adjacent natural uplands; f) Hydrologically connected areas downstream of assessment area = 7, connected through wetlands and ditches; g) Dependency of downstream areas on assessment area = 7, moderate benefit to downstream areas.	
	With: Location and landscape support variable increased slightly due to preservation of mitigation site and improved land management practices. Individual parameter scores: a) Support to wildlife listed in Part 1 by outside habitats = 8, increased due to improvement of surrounding habitats; b) Invasive exotic species = 8, decreased coverage due to invasive/exotic vegetation control; c) Wildlife access to and from outside = 8, due to improvement of surrounding habitats; d) functions that benefit fish & wildlife downstream-distance or barriers = 7, due to improvement in surrounding habitats; e) Impacts to wildlife listed in Part 1 by outside land uses = 7; f) Hydrologically connected areas downstream of assessment area = 7, similar to existing condition; g) Dependency of downstream areas on assessment area = 7, similar to existing condition.	
w/o pres or current	7	with
		8
.500(6)(b) Water Environment (n/a for uplands)	Current: The water environment score is slightly reduced due to historical hydrologic modifications resulting from ditching. Individual parameter scores: a) water levels and flows = 8, typical for community type; b) water level indicators = 8, lichen lines indicate regular seasonal inundation; c) soil moisture = 8, typical for community type; d) soil erosion or deposition = 8, minor areas of erosion, primarily due to wildlife (feral pig); e) evidence of fire history = N/A; f) vegetation community zonation = 7, typical, but slightly altered due to presence of invasives; g) hydrologic stress on vegetation = 8, none noted; h) use by animal species with specific hydrological requirements = 8, high quality forested wetlands provide suitable habitat; i) vegetative species tolerant of and associated with water quality degradation = 8, minimal; j) direct observation of water quality = 8, no discoloration, turbidity, or sheen; k) existing water quality data = N/A; l) water depth wave, wave energy, currents and light penetration = N/A.	
	With: No change. The water environment variable may be slightly increased due to preservation and ongoing land management, but no specific hydrologic improvements are proposed, therefore the water environment variable score is same as current score.	
w/o pres or current	8	with
		8
.500(6)(c) Community structure	Current: The community structure variable score reflects the dominance of desirable native wetland species and minimal presence of invasive exotic species. Individual parameter scores: a) plant community species in the canopy, shrub, or ground stratum = 8, dominated by native species; b) invasive exotics or other invasive plant species = 8, minimal coverage; c) regeneration and recruitment = 8, typical for assessment area; d) age & size distribution = 8, mixed age & size typical of community type; e) density and quality of coarse woody debris, snag, den, and cavity = 7, adequate for system type; f) plant condition = 9, no indication of poor health or low productivity; g) land management practices = 7, slightly reduced due to fire suppression; h) topographic features = 8, typical for community type; i) siltation or algal growth in submerged aquatic plant communities = N/A.	
	With: The community structure variable is slightly increased due to invasive/exotic vegetation control and preservation of the mitigation site. Individual parameter scores: a) plant community species in the canopy, shrub, or ground stratum = 9, dominated by native species; b) invasive exotics or other invasive plant species = 9, site to be managed to control invasive/exotic vegetation; c) regeneration and recruitment = 8, typical for assessment area; d) age & size distribution = 8, mixed age & size typical of community type; e) density and quality of coarse woody debris, snag, den, and cavity = 7, adequate for system type; f) plant condition = 9, no indication of poor health or low productivity; g) land management practices = 9, slightly increased due to preservation and use of prescribed fire; h) topographic features = 8, typical for community type; i) siltation or algal growth in submerged aquatic plant communities = N/A.	
w/o pres or current	8	with
		9

Score = sum of above scores/30 (if uplands, divide by 20)
current
or w/o pres
0.77
with
0.83

Delta = [with-current]
0.06

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) = 1.03 (2 years)*
Risk factor = 1.25; T x R = 1.2875

For impact assessment areas
FL = delta x acres =

For mitigation assessment areas
RFG = delta/(t-factor x risk) = 0.047

*USACE t-factor = 1.017; T x R = 1.2713

79.6 acres x 0.047 = 3.74 credits

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center		Application Number		Assessment Area Name or Number Freshwater Marsh and Wetland Shrub	
FLUCCs code 631 and 641		Further classification (optional)		Impact or Mitigation Site? Mitigation	
				Assessment Area Size 97.47 acres	
Basin/Watershed Name/Number Upper St. John's / HUC 03080101		Affected Waterbody (Class)		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Herbaceous and shrub wetlands located in the interior of the mitigation parcel, hydrologically connected to Fort Drum Conservation Area					
Assessment area description Areas of freshwater marshes are concentrated along the eastern edge of the mitigation area, contiguous with parcels of mixed wetland hardwoods and wetland shrubs. The herbaceous vegetative community is diverse, with dominant species including maidencane (<i>Panicum hemitomon</i>), St. John's wort (<i>Hypericum</i> spp.), and cordgrass (<i>Spartina bakeri</i>) and a variety of subdominant species such as pickerelweed (<i>Pontederia cordata</i>), arrowhead (<i>Sagittaria lancifolia</i>), buttonbush (<i>Cephananthus occidentalis</i>), redroot (<i>Lachnanthes caroliniana</i>), blue maidencane (<i>Amphicarpum muhlenbergianum</i>), and fireflag (<i>Thalia geniculata</i>). Shrub and canopy species along the edges and occasionally within the interior of freshwater marsh wetlands include wax myrtle (<i>Myrica cerifera</i>), dahoon holly (<i>Ilex cassine</i>), blackgum (<i>Nyssa sylvatica</i>), red maple (<i>Acer rubrum</i>), cabbage palm (<i>Sabal palmetto</i>), and coastal plain willow (<i>Salix caroliniana</i>). Wetland shrub habitat occurs within the east-central portion of the mitigation area, with a vegetative community dominated by a mixture of shrub and groundcover species and a scattered overstory of wetland trees. Common species include saw palmetto (<i>Serenoa repens</i>), fetterbush (<i>Lyonia lucida</i>), wax myrtle, St. John's wort, gallberry (<i>Ilex glabra</i>), redroot, carpet grass (<i>Axonopus fissifolius</i>), camphorweed (<i>Pluchea odorata</i>), maidencane, candyroot (<i>Polygala</i> sp.), bogbuttons (<i>Lachnocaulon</i> sp.), red maple, blackgum, dahoon holly, cabbage palm, slash pine (<i>Pinus elliotii</i>), and live oak (<i>Quercus virginiana</i>).					
Significant nearby features Fort Drum Marsh Conservation Area, undeveloped uplands and wetlands, pasture, citrus groves, transmission line right-of-way		Uniqueness (considering the relative rarity in relation to the regional landscape.) Not rare in relation to regional landscape			
Functions Wildlife habitat, water treatment and storage		Mitigation for previous permit/other historic use N/A			
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Wading birds, herpetofauna		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Possible occasional use by wading birds such as white ibis (SSC), wood stork (E), little blue heron (SSC), snowy egret (SSC), and tricolor heron (SSC).			
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): Swallow-tailed kite, bald eagle, feral pig, southern cricket frog, little blue heron, white ibis, wild turkey					
Additional relevant factors: 					
Assessment conducted by: M. Arrants, K. Bullock, A. Zions, C. Brookshire		Assessment date(s): December 2014 through July 2015			

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center	Application Number	Assessment Area Name or Number Wetland Shrub and Freshwater Marsh
Impact or Mitigation Mitigation	Assessment conducted by: Arrants, Bullock, Zions, Brookshire	Assessment date: Dec 2014 through August 2015

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10) Condition is optimal and fully supports wetland/surface water functions	Moderate(7) Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal (4) Minimal level of support of wetland/surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
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.500(6)(a) Location and Landscape Support	Current: Location and landscape support variable is slightly reduced due to presence of invasive vegetation and adjacent agricultural uses. Individual parameter scores: a) Support to wildlife listed in Part 1 by outside habitats = 7, slightly reduced due to adjacent agricultural landuse ; b) Invasive exotic species = 7, minimal coverage; c) Wildlife access to and from outside = 7, minimally decreased due to limitations imposed by adjacent agricultural landuse; proximity of Fort Drum Conservation Area provides benefit; d) functions that benefit fish & wildlife downstream-distance or barriers = 7, some benefit to downstream systems; e) Impacts to wildlife listed in Part 1 by outside land uses = 7, slightly reduced due to adjacent agricultural areas, fire suppression in adjacent natural uplands; f) Hydrologically connected areas downstream of assessment area = 7, connected through wetlands and ditches; g) Dependency of downstream areas on assessment area = 7, moderate benefit to downstream areas.		
	With: Location and landscape support variable increased slightly due to preservation of mitigation site and improved land management practices. Individual parameter scores: a) Support to wildlife listed in Part 1 by outside habitats = 8, increased due to improvement of surrounding habitats; b) Invasive exotic species = 8, decreased coverage due to invasive/exotic vegetation control; c) Wildlife access to and from outside = 8, due to improvement of surrounding habitats; d) functions that benefit fish & wildlife downstream-distance or barriers = 7, due to improvement in surrounding habitats; e) Impacts to wildlife listed in Part 1 by outside land uses = 7; f) Hydrologically connected areas downstream of assessment area = 7, similar to existing condition; g) Dependency of downstream areas on assessment area = 7, similar to existing condition.		
w/o pres or current	7	with	8
.500(6)(b)Water Environment (n/a for uplands)	Current: The water environment score is slightly reduced due to historical hydrologic modifications resulting from ditching and off road vehicle access pathways. Individual parameter scores: a) water levels and flows = 7, typical for community type; b) water level indicators = 7, typical seasonal inundation; c) soil moisture = 8, typical for community type; d) soil erosion or deposition = 7, some areas of erosion, primarily due to wildlife (feral pig) as well as off-road vehicle access; e) evidence of fire history = less than typical for community type; f) vegetation community zonation = 7, typical, but slightly altered due to presence of invasives; g) hydrologic stress on vegetation = 8, none noted; h) use by animal species with specific hydrological requirements = 8, high quality herbaceous and shrub wetlands provide suitable habitat; i) vegetative species tolerant of and associated with water quality degradation = 8, minimal; j) direct observation of water quality = 7, no discoloration, turbidity, or sheen; k) existing water quality data = N/A; l) water depth wave, wave energy, currents and light penetration = N/A.		
	With: No change. The water environment variable may be slightly increased due to preservation and ongoing land management, but no specific hydrologic improvements are proposed, therefore the water environment variable score is same as current score.		
w/o pres or current	7	with	7
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	Current: The community structure variable score reflects the dominance of desirable native wetland species and minimal presence of invasive exotic species. Individual parameter scores: a) plant community species in the canopy, shrub, or ground stratum = 8, dominated by native species; b) invasive exotics or other invasive plant species = 8, minimal coverage; c) regeneration and recruitment = 8, typical for assessment area; d) age & size distribution = 8, mixed age & size typical of community type; e) density and quality of coarse woody debris, snag, den, and cavity = 7, adequate for system type; f) plant condition = 9, no indication of poor health or low productivity; g) land management practices = 7, slightly reduced due to fire suppression; h) topographic features = 8, typical for community type; i) siltation or algal growth in submerged aquatic plant communities = N/A.		
	With: The community structure variable is slightly increased due to invasive/exotic vegetation control and preservation of the mitigation site. Individual parameter scores: a) plant community species in the canopy, shrub, or ground stratum = 9, dominated by native species; b) invasive exotics or other invasive plant species = 9, site to be managed to control invasive/exotic vegetation; c) regeneration and recruitment = 8, typical for assessment area; d) age & size distribution = 8, mixed age & size typical of community type; e) density and quality of coarse woody debris, snag, den, and cavity = 7, adequate for system type; f) plant condition = 9, no indication of poor health or low productivity; g) land management practices = 9, slightly increased due to preservation and use of prescribed fire; h) topographic features = 8, typical for community type; i) siltation or algal growth in submerged aquatic plant communities = N/A.		
w/o pres or current	8	with	9

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.73	0.80

Delta = [with-current]
0.07

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) = 1.03 (2 years)*
Risk factor = 1.25; T x R = 1.2875

For impact assessment areas
FL = delta x acres =

For mitigation assessment areas
RFG = delta/(t-factor x risk) = 0.054

*USACE t-factor = 1.017; T x R = 1.2713

97.47 acres x 0.054 = 5.26 credits

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center		Application Number		Assessment Area Name or Number Wet Prairies	
FLUCCs code 643		Further classification (optional)		Impact or Mitigation Site? Mitigation	Assessment Area Size 3.95
Basin/Watershed Name/Number Upper St. John's / HUC 03080101		Affected Waterbody (Class)		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Freshwater prairie wetland within and adjacent to unimproved pasture and mitigation area access pathway, connected to forested wetlands and shrub and brushland					
Assessment area description Approximately 4 acres of wet prairie occur adjacent to unimproved pasture along the western edge of the mitigation area. These are areas of hydric soil that support low-growing herbaceous wetland vegetation but typically are not inundated. Common species include yellow-eyed grass (<i>Xyris</i> sp.), St. Johns wort (<i>Hypericum</i> sp.), mermaidweed (<i>Proserpinaca pectinata</i>), bushy bluestem (<i>Andropogon glomeratus</i>), marsh pennywort (<i>Hydrocotyle umbellata</i>), blue maidencane (<i>Amphicarpum muhlenbergianum</i>), sedges (<i>Cyperus</i> sp.), and sundews (<i>Drosera</i> sp.).					
Significant nearby features Fort Drum Marsh Conservation Area, undeveloped uplands and wetlands, pasture, citrus groves, transmission line right-of-way		Uniqueness (considering the relative rarity in relation to the regional landscape.) Not rare in relation to regional landscape			
Functions Wildlife habitat, grazing, water treatment and storage		Mitigation for previous permit/other historic use N/A			
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Wading birds, herpetofauna		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Possible occasional use by wading birds such as sandhill crane (T), white ibis (SSC), little blue heron (SSC), snowy egret (SSC), and tricolor heron (SSC).			
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): Swallow-tailed kite, feral pig					
Additional relevant factors:					
Assessment conducted by: M. Arrants, K. Bullock, A. Zions, C. Brookshire		Assessment date(s): December 2014 through July 2015			

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center	Application Number	Assessment Area Name or Number Wet Prairie
Impact or Mitigation Mitigation	Assessment conducted by: Arrants, Bullock, Zions, Brookshire	Assessment date: Dec 2014 through August 2015

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10) Condition is optimal and fully supports wetland/surface water functions	Moderate(7) Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal (4) Minimal level of support of wetland/surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
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.500(6)(a) Location and Landscape Support	Current: Location and landscape support variable is reduced due to adjacent improved pasture and access pathways. Individual parameter scores: a) Support to wildlife listed in Part 1 by outside habitats = 6, slightly reduced due to adjacent agricultural landuse ; b) Invasive exotic species = 8, minimal coverage; c) Wildlife access to and from outside = 6, minimally decreased due to limitations imposed by adjacent agricultural landuse; proximity of Fort Drum Conservation Area provides benefit; d) functions that benefit fish & wildlife downstream-distance or barriers = 6, moderate benefit to downstream systems; e) Impacts to wildlife listed in Part 1 by outside land uses = 6, slightly reduced due to adjacent agricultural areas, fire suppression in adjacent natural uplands; f) Hydrologically connected areas downstream of assessment area = 5, limited connection to downstream wetlands and ditches; g) Dependency of downstream areas on assessment area = 6, moderate benefit to downstream areas.	
	With: Location and landscape support variable increased slightly due to preservation of mitigation site and improved land management practices. Individual parameter scores: a) Support to wildlife listed in Part 1 by outside habitats = 7, increased due to improvement of surrounding habitats; b) Invasive exotic species = 8, decreased coverage due to invasive/exotic vegetation control; c) Wildlife access to and from outside = 7, due to improvement of surrounding habitats; d) functions that benefit fish & wildlife downstream-distance or barriers = 7, due to improvement in surrounding habitats; e) Impacts to wildlife listed in Part 1 by outside land uses = 7; f) Hydrologically connected areas downstream of assessment area = 5, similar to existing condition; g) Dependency of downstream areas on assessment area = 6, similar to existing condition.	
w/o pres or current	6	with
		7
.500(6)(b)Water Environment (n/a for uplands)	Current: The water environment score is reduced due to historical hydrologic modifications resulting from ditching, conversion to pasture, and off road vehicle access pathways. Individual parameter scores: a) water levels and flows = 7, typical for community type; b) water level indicators = 6, occasional seasonal inundation; c) soil moisture = 7, typical for community type; d) soil erosion or deposition = 6, some areas of erosion, primarily due to access pathways; e) evidence of fire history = 6, less than typical for community type; f) vegetation community zonation = 6, typical, but slightly altered due to upland species encroachment; g) hydrologic stress on vegetation = 7, none noted; h) use by animal species with specific hydrological requirements = 5; i) vegetative species tolerant of and associated with water quality degradation = 8, minimal; j) direct observation of water quality = 7, no discoloration, turbidity, or sheen; k) existing water quality data = N/A; l) water depth wave, wave energy, currents and light penetration = N/A.	
	With: No change. The water environment variable may be slightly increased due to preservation and ongoing land management, but no specific hydrologic improvements are proposed, therefore the water environment variable score is same as current score.	
w/o pres or current	6	with
		6
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	Current: The community structure variable score is slightly reduced due to conversion to unimproved pasture adjacent to wet prairies, access pathways, and minimal presence of invasive exotic species. Individual parameter scores: a) plant community species in the canopy, shrub, or ground stratum = 7, dominated by native species; b) invasive exotics or other invasive plant species = 7, minimal coverage; c) regeneration and recruitment = 8, typical for assessment area; d) age & size distribution = 7, mixed age & size typical of community type; e) density and quality of coarse woody debris, snag, den, and cavity = 7, typical for system type; f) plant condition = 7, some indication of low productivity within area adjacent to unimproved pasture; g) land management practices = 7, slightly reduced due to fire suppression; h) topographic features = 6, slightly reduced compared to typical for community type; i) siltation or algal growth in submerged aquatic plant communities = N/A.	
	With: The community structure variable is slightly increased due to invasive/exotic vegetation control and preservation of the mitigation site. Individual parameter scores: a) plant community species in the canopy, shrub, or ground stratum = 9, dominated by native species; b) invasive exotics or other invasive plant species = 9, site to be managed to control invasive/exotic vegetation; c) regeneration and recruitment = 8, typical for assessment area; d) age & size distribution = 8, mixed age & size typical of community type; e) density and quality of coarse woody debris, snag, den, and cavity = 7, adequate for system type; f) plant condition = 9, no indication of poor health or low productivity; g) land management practices = 9, slightly increased due to preservation and use of prescribed fire; h) topographic features = 8, typical for community type; i) siltation or algal growth in submerged aquatic plant communities = N/A.	
w/o pres or current	7	with
		8

Score = sum of above scores/30 (if uplands, divide by 20)	
current	with
0.63	0.70

Delta = [with-current]
0.07

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) = 1.03 (2 years)*
Risk factor = 1.25; T x R = 1.2875

*USACE t-factor = 1.017; T x R = 1.2713

For impact assessment areas
FL = delta x acres =

For mitigation assessment areas
RFG = delta/(t-factor x risk) = 0.054

3.95 acres x 0.054 = 0.21 credits

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center		Application Number		Assessment Area Name or Number Upland Enhancement - Shrub and Brushland, Pine Flatwoods, Hardwood-Conifer Mixed Forest	
FLUCCs code Shrub and Brushland (320), Pine Flatwoods (411), Hardwood-Conifer Mixed Forest (434)		Further classification (optional)		Impact or Mitigation Site? Mitigation - Preservation	Assessment Area Size 165.81 acres
Basin/Watershed Name/Number	Affected Waterbody (Class)		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance) none		
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Native uplands adjacent to freshwater marsh, wetland shrub, and forested wetland systems.					
Assessment area description Native upland forest and shrub and brushland communities adjacent to wetland systems. Shrub and brushland (approximately 98 acres) is dominated by saw palmetto (<i>Serenoa repens</i>), with a variety of subdominant shrub species include gallberry (<i>Ilex glabra</i>), rusty lyonia (<i>Lyonia ferruginea</i>), fetterbush (<i>Lyonia lucida</i>), wax myrtle (<i>Myrica cerifera</i>), American beautyberry (<i>Callicarpa americana</i>), and running oak (<i>Quercus pumila</i>), as well as occasional trees including cabbage palm (<i>Sabal palmetto</i>), laurel oak (<i>Quercus laurifolia</i>), slash pine (<i>Pinus elliottii</i>), and persimmon (<i>Diospyros virginiana</i>). Areas of pine flatwoods (approximately 13.5 acres) are dominated by slash pine, with occasional laurel oak and an understory dominated by saw palmetto with additional shrub species include wax myrtle, gallberry, running oak, fetterbush, and rusty lyonia. A total of approximately 54 acres of mature upland hardwood-coniferous forest are located within the mitigation area, with canopy dominated by slash pine, cabbage palm, and live oak, with occasional water oak and laurel oak also present.					
Significant nearby features Freshwater marsh, wetland shrubs, forested wetlands within mitigation site; agricultural areas, transmission line ROW, and Fort Drum Marsh Conservation Area adjacent to site.			Uniqueness (considering the relative rarity in relation to the regional landscape.) Not unique		
Functions Wildlife habitat, water treatment, threatened and endangered species foraging			Mitigation for previous permit/other historic use no		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Gopher tortoise, bald eagle, white tailed deer, feral pig			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Suitable habitat for gopher tortoise (T), Sherman's fox squirrel (SSC), and gopher tortoise burrow commensal species, including gopher frog (SSC), Florida mouse (SSC), and Eastern indigo snake (T).		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): Armadillo (<i>Dasypus novemcinctus</i>), feral pig (<i>Sus scrofa</i>), black vulture (<i>Coragyps atratus</i>), bald eagle (<i>Haliaeetus leucocephalus</i>), turkey (<i>Meleagris gallopavo</i>), swallow-tailed kite (<i>Elanoides forficatus</i>), red shouldered hawk (<i>Buteo lineatus</i>), red tailed hawk (<i>Buteo jamaicensis</i>).					
Additional relevant factors: Preservation of native upland habitat adjacent to wetlands will facilitate improvement in vegetative community, preserve threatened species habitat, and support regional conservation/restoration goals.					
Assessment conducted by: M. Arrants, K. Bullock, A. Zions, C. Brookshire			Assessment date(s): December 2014 through July 2015		

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name FPL Okeechobee Clean Energy Center	Application Number	Assessment Area Name or Number Upland Enhancement
Impact or Mitigation Mitigation	Assessment conducted by: Arrants, Bullock, Zions, Brookshire	Assessment date: Dec 2014 through August 2015

Scoring Guidance
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current 7 with 7	No increase in location and landscape support variable for upland enhancement and preservation is proposed, although preservation of upland buffers coupled with enhancement activities will increase functions of wildlife habitat and native vegetation to surrounding landscape.
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current with 	Upland enhancement and preservation - N/A
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current 6 with 7	Proposed exotic vegetation control will enhance native vegetative communities. Preservation will ensure continued protection of threatened species habitat and wetland buffers in perpetuity.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.65	0.70

Delta = [with-current]
0.05

If preservation as mitigation,
Preservation adjustment factor = 0.6
Adjusted mitigation delta = 0.03

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =

For mitigation assessment areas
RFG = delta x preservation adjustment factor = 0.03

165.81 acres x 0.03 = 4.97 credits

APPENDIX B
SITE PHOTOGRAPHS



Photograph 1. Unimproved pasture (FLUCFCS 212), southern portion of mitigation area



Photograph 2. Shrub and brushland (FLUCFCS 320), central portion of mitigation area



Photograph 3. Pine flatwoods (FLUCFCS 411), northern portion of mitigation area



Photograph 4. Mixed hardwood/conifer upland forest (FLUCFCS 434), located within the southern portion of mitigation area



Photograph 5. Ditch (FLUCFCS 511) along western edge of mitigation area



Photograph 6. Mixed wetland hardwood forest (FLUCFCS 617) dominated by pop ash (*Fraxinus caroliniana*), northeast portion of mitigation area



Photograph 7. Mixed wetland hardwoods (FLUCFCS 617) dominated by mixture of red maple (*Acer rubrum*) and blackgum (*Nyssa sylvatica*), west-central portion of mitigation area



Photograph 8. Hydric pine flatwoods (FLUCFCS 625), located in west-central portion of mitigation area



Photograph 9. Mixed hardwood/conifer wetland forest (FLUCFCS 630), western portion of mitigation area



Photograph 10. Wetland shrub (FLUCFCS 631), located in eastern portion of mitigation area



Photograph 11. Wetland shrub (FLUCFCS 631) with St. John's wort (*Hypericum* sp.) in foreground, eastern portion of mitigation area



Photograph 12. Freshwater marsh (FLUCFCS 641) located in northeastern portion of mitigation area



Photograph 13. Freshwater marsh (FLUCFCS 641) dominated by arrowhead (*Sagittaria lancifolia*), east-central portion of mitigation area



Photograph 14. Wet prairie (FLUCFCS 643) located in western portion of mitigation area



SUBMITTED TO:
Florida Department of Environmental Protection
Southeast District
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April 2017
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FDEP Permit # PA 15-58

"To the best of the undersigned's knowledge, this report represents a true, accurate, and representative description of the site conditions present at the time of the monitoring."

Karl Buller

TABLE OF CONTENTS

TABLE OF CONTENTS	I
1.0 INTRODUCTION.....	2
2.0 MAINTENANCE AND MONITORING SCHEDULE.....	4
3.0 SUCCESS CRITERIA	5
4.0 METHODOLOGY	6
5.0 QUALITATIVE SITE ASSESSMENT	6
6.0 QUANTITATIVE MONITORING RESULTS.....	7
6.1 Herbaceous Monitoring Plots	7
6.2 Tree Monitoring Plots.....	8
6.3 Quantitative Monitoring Summary	10
7.0 CONCLUSIONS	15

TABLES:

Table 1	Mitigation Ledger (from FDEP Permit No. PA 15-58)
Table 2	FPL OCEC Mitigation Site – Acreage by Habitat Type (Florida Land Use, Forms and Codes Classification System)
Table 3	Summary of Acreage by Habitat Type, Functional Lift, and Mitigation Credits Generated
Table 4	Maintenance and Monitoring Schedule
Table 5	Summary of Community Composition within Herbaceous Monitoring Stations
Table 6	Summary of Canopy Species within Canopy Monitoring Stations
Table 7	Summary of Shrub Species within Canopy Monitoring Stations.
Table 8	Summary of Groundcover Species within Canopy Monitoring Stations.

FIGURES:

Figure 1	Site Location Map
Figure 2	Monitoring Station Locations

APPENDICES:

Appendix A	Panoramic Photographs
Appendix B	Monitoring Station Photographs
Appendix C	Monitoring Data

1.0 INTRODUCTION

The FPL Okeechobee Clean Energy Center (OCEC) is a natural gas fired combined cycle power plant and associated linear facilities (Project) located in rural NE Okeechobee County (Figure 1). The Project was certified by the FDEP in June 2016 subject to the Conditions of Certification (PA 15-58). Condition of Certification (COC) XXVIII.C.2 references the compensatory wetland mitigation plan submitted with the Environmental Resource Permit application included with the Site Certification Application:

“Proposed mitigation plans submitted with the DEP ERP Application forms required in Condition A.1.a. above, or submitted and approved as part of an amendment, modification, or certification, and that are deemed acceptable by DEP, shall include applicable construction conditions, success criteria and monitoring plans, and shall be incorporated into these Conditions as Attachment C (Wetland Mitigation Plans).”

Wetland mitigation requirements include completion of a baseline monitoring report prior to construction of the Project, invasive/exotic species control and prescribed fire, submittal of a “time zero” monitoring report upon completion of initial invasive/exotic vegetation control and prescribed fire, and five years of annual monitoring reports documenting compliance with the mitigation success criteria.

This report presents the results of the baseline monitoring event conducted March 9th-16th, 2017 to document conditions within forested and herbaceous communities within the Mitigation Site.

The Project has been designed to avoid and minimize impacts to jurisdictional wetlands through maximizing utilization of previously-disturbed upland improved pasture and citrus grove areas for construction of the power block and associated facilities. The Project design resulted in 19.99 acres of unavoidable impact to citrus irrigation ditches and 4.71 acres of impact to mixed hardwood wetlands, requiring a total of 12.6 credits of mitigation as calculated according to the Florida Department of Environmental Protection (FDEP) Uniform Mitigation Assessment Method (UMAM), as detailed below (Table 1).

Table 1. FPL Okeechobee Clean Energy Center – Wetland Impact Summary

Wetland Type (FLUCFCS Code)	Acreage		UMAM Score	Functional Loss
	Permanent (Fill)	Temporary		
Citrus and Pasture Ditches (511)	19.52	0.10	0.47	9.17
Linear Facilities Corridor Ditches (511)	0.47	0.01	0.50	0.24
Mixed Wetland Hardwoods (617)	4.71		0.67	3.16
TOTAL	24.70	0.11		12.6

The loss of wetland functions associated with construction of the Project will be replaced through onsite mitigation in the form of enhancement and preservation of an approximately 376 acre undeveloped parcel (Mitigation Site) located in the northeastern portion of the 2,341-acre OCEC Site (Figure 1) adjacent to the Fort Drum Marsh Conservation Area. Mitigation focused upon removal of nuisance/exotic species of vegetation, enhancement of the native vegetative community through prescribed fire, and preservation of significant acreage of enhanced habitat through a conservation easement provides a regional increase in the functional value of wetland and upland habitats to offset the functional loss associated with construction of the Project.

The approximately 376-acre Mitigation Site is located within the undeveloped northeastern portion of the OCEC Site, bounded on the west and south by existing drainage ditches and on the east and north by the Site boundary. Approximately 50% of the existing vegetative communities within the Mitigation Site are high-quality wetlands, including mixed wetland hardwoods (FLUCFCS 617), mixed hardwood-conifer forested wetlands (FLUCFCS 630), wetland shrubs (FLUCFCS 631), freshwater marsh (FLUCFCS 641), and wet prairie (FLUCFCS 643), with ditches (FLUCFCS 511) along the western and southern perimeter (Figure 2). Upland communities are dominated by shrub and brushland (FLUCFCS 320), mixed hardwood-conifer forest (FLUCFCS 434), pine flatwoods (FLUCFCS 411), and unimproved pasture (FLUCFCS 212). A summary of acreage by habitat is provided in Table 2.

Table 2. FPL Okeechobee Clean Energy Center Mitigation Site – Acreage by Habitat Types [(Florida Land Use, Cover and Forms Classification System (FLUCFCS) and Florida Natural Areas Inventory Guide to Natural Communities of Florida (FNAI)]

FLUCFCS Code	Habitat Type		Acreage	Percent
	FLUCFCS	FNAI		
212	Unimproved Pasture	Unimproved Pasture	22.75	6.0
320	Shrub and Brushland	Dry Prairie	98.1	26.1
411	Pine Flatwoods	Mesic Flatwoods	13.48	3.6
434	Hardwood-Conifer Mixed	Mesic Hammock	54.23	14.4
511	Ditches	Ditches	6.9	1.8
617	Mixed Wetland Hardwoods	Basin Swamp	35.0	9.3
625	Hydric Pine	Wet Flatwoods	18.97	5.0
630	Wetland Forested Mixed	Hydric Hammock	25.63	6.8
631	Wetland Scrub	Wetland Scrub	41.92	11.1
641	Freshwater Marsh	Depression Marsh	55.55	14.8
643	Wet Prairie	Wet Prairie	3.95	1.0
TOTAL			376.5	100

As detailed below (Table 3), onsite wetland and upland enhancement and preservation will generate 14.4 credits of functional lift, resulting in an overall net increase in wetland functions compared to the Project's unavoidable wetland impacts. Functional lift in excess of Project impacts may be used to offset unavoidable wetland impacts associated with the potential construction of future solar generation within the OCEC Site. Any future solar generation within the site would be permitted through a separate authorization from the current OCEC Project.

Table 3. Summary of acreage by habitat type, functional lift, and mitigation credits generated

Habitat Type (FLUCFCS Code)	Acres	Existing UMAM	Functional Lift		Time Lag (TL) x Risk (R) or Preservation Factors (PF)	Lift per Acre	Mitigation Credits
			Enhance	Preserve			
Unimproved Pasture (212)	22.75						N/A
Shrub and Brushland (320)	98.1	0.70		0.05	PF = 0.6	0.03	2.94
Pine Flatwoods (411)	13.48	0.70		0.05	PF = 0.6	0.03	0.40
Hardwood-Conifer Mixed (434)	54.23	0.70		0.05	PF = 0.6	0.03	1.63
Ditches (511)	6.9	0.53	0.04		TLxR = 1.2875	0.031	0.21
Mixed Wetland Hardwoods (617)	35	0.77	0.06		TLxR = 1.2875	0.047	1.65
Hydric Pine (625)	18.97	0.77	0.06		TLxR = 1.2875	0.047	0.89
Wetland Forested Mixed (630)	25.63	0.77	0.06		TLxR = 1.2875	0.047	1.20
Wetland Scrub (631)	41.92	0.73	0.07		TLxR = 1.2876	0.054	2.26
Freshwater Marsh (641)	55.55	0.73	0.07		TLxR = 1.2875	0.054	3.00
Wet Prairie (643)	3.95	0.70	0.07		TLxR = 1.2875	0.054	0.21
Total	376.5						14.4

2.0 MAINTENANCE AND MONITORING SCHEDULE

The enhancement of native vegetative communities will be achieved through nuisance/exotic vegetation control and use of prescribed fire. Enhancement of the native vegetative community through control of the nuisance/exotic species Brazilian pepper, old world climbing fern, Wright's nutrush, and other Category I and II species on the Florida Exotic Pest Plant Council's 2015 List of Invasive Plant Species will be conducted throughout the Mitigation Site, improving wildlife habitat conditions and preventing further spread of exotic vegetation within the region. In addition to exotic vegetation control, areas of upland shrub and brushland and pine flatwoods (approximately 111 acres) will be enhanced through use of prescribed fire.

The five-year schedule of enhancement activities and monitoring events is provided in Table 4, in accordance with Condition of Certification XXVIII.C.2:

Table 4. Maintenance and Monitoring Schedule

YEAR	MONTH	ACTIVITY
1 (2017)	March	Baseline monitoring event
	April/May	Herbicide treatment; mechanical/hand removal of exotic species; controlled burn of shrub and brushland and pine flatwoods
	May	Time Zero monitoring of herbaceous and forested wetland vegetative community
	June	Semiannual monitoring of herbaceous and forested wetland vegetative community
	October	Semiannual monitoring of herbaceous and forested wetland vegetative community; spot herbicide treatment/mechanical or hand removal of exotic vegetation as necessary
2 (2018)	May	Spot herbicide treatment/mechanical or hand removal of exotic vegetation as necessary
	October	Annual monitoring of herbaceous and forested wetland vegetative community; spot herbicide treatment/mechanical or hand removal of exotic vegetation as necessary
3 (2019)	October	Annual monitoring of herbaceous and forested wetland vegetative community
4 (2020)	October	Annual monitoring of herbaceous and forested wetland vegetative community
5 (2021)	May/June	Controlled burn of shrub and brushland and pine flatwoods (4 year rotation)
	October	Annual monitoring of herbaceous and forested wetland vegetative community

Monitoring activities include identification and percent cover of herbaceous and canopy species, tree diameters, water depths, panoramic photographs of the enhancement area as well photographs of each individual herbaceous and canopy plot, wildlife observations, and status of exotic/nuisance species eradication.

3.0 SUCCESS CRITERIA

As described in Attachment C of the Conditions of Certification (OCEC Wetland Mitigation Plan), the wetland enhancement area shall be deemed successful when DEP staff have verified the total contribution to percent cover by category 1 and 2 invasive exotic species (Florida Exotic Pest Plant Council's 2015 List of Invasive Plant Species) has been maintained at less than 5% within the overall enhancement area and each of the various community types for a period of at least one year without intervention, and the species composition and coverage for each community type is indicative of that community.

Following achievement of success criteria and release from mitigation monitoring, it is FPL's intention to manage the mitigation site to enhance habitat quality in perpetuity under a conservation easement. Long-term management will include use of prescribed fire on an approximately two to four year rotation, based on fuel loading.

4.0 METHODOLOGY

Five transects were established throughout the Mitigation Site, with five herbaceous monitoring stations established at regular intervals upon each transect. Four of the herbaceous monitoring transects are located within freshwater marsh and wetland shrub communities, while one transect is located within upland shrub and brushland habitat. In addition, ten canopy plots were established within representative forested areas of the Mitigation Site, with eight plots located within forested wetlands and two plots within forested uplands. Transect locations, monitoring stations, and canopy plots are illustrated on Figure 2.

The locations of monitoring stations were permanently established with rebar and PVC pipes. At each of the 25 herbaceous monitoring stations, a 1-meter square quadrat was placed to determine composition of the herbaceous strata. All plant species within the 1-meter square quadrat were identified and their corresponding percent cover recorded, including coverage of bare ground and open water. Canopy plots of 10 m x 10 m (100 m²) in size were established to measure canopy and sub-canopy vegetation. Within the ten canopy plots, all trees and shrubs were identified; percent cover recorded by species, individual diameter at breast height measured (DBH), and survival noted. In addition, the herbaceous community within the canopy plots was generally described to further document the overall species composition within the Mitigation Site and identify those plants that may not be present within the 1-meter square herbaceous quadrats.

Plants less than 3 feet in height were considered herbaceous vegetation, while shrubs were classified as greater than 3ft in height but with DBH of less than 1 inch and trees were considered as part of the canopy strata if they were greater than 1 inch in DBH. Percent cover was measured in the field and converted to Daubenmire cover classes as follows:

Daubenmire Cover Class	Percent Cover Range	Midpoint of Range
1	0-5	2.5
2	6-25	15
3	26-50	37.5
4	51-75	62.5
5	76-95	85
6	96-100	97.5

Water depth was recorded to the nearest centimeter at four locations within each canopy plot and at one location within each herbaceous monitoring station. Panoramic photographic documentation is provided in Appendix A and includes views of the Mitigation Site from fixed locations on the north, south, east, and west boundaries. Photographic documentation of each herbaceous monitoring station and canopy plot is provided in Appendix B.

5.0 QUALITATIVE SITE ASSESSMENT

The Mitigation Site supports a mosaic of upland and wetland communities, including large areas of freshwater marsh, forested wetlands, and wetland shrubs dominated by desirable native wetland species of vegetation. Invasive/exotic species observed during the baseline monitoring event included Brazilian pepper (*Schinus terebinthifolia*), caesarweed (*Urena lobata*), Wright's nutrush (*Scleria lacustris*), and Japanese climbing fern (*Lygodium japonicum*). These species will be targeted during invasive species treatment and maintenance events.

The Site provides high quality undisturbed upland and wetland wildlife habitat. A variety of wildlife were observed during the baseline monitoring event within the Mitigation Site or flying overhead, including marsh rabbit (*Sylvilagus palustris*), five-lined skink (*Plestiodon inexpectatus*), black racer (*Coluber constrictor priapus*), mourning dove (*Zenaida macroura*), red-shouldered hawk (*Buteo lineatus*), blue-gray gnatcatcher (*Polioptila caerulea*), barred owl (*Strix varia*), black-and-white warbler (*Mniotilta varia*), prairie warbler (*Setophaga discolor*), yellow-bellied sapsucker

(*Sphyrapicus varius*), swallow-tailed kite (*Elanoides forficatus*), sedge wren (*Cistothorus platensis*), white-eyed vireo (*Vireo griseus*) and Carolina wren (*Thryothorus ludovicianus*). Extensive hog rooting from feral hog (*Sus scrofa*) was observed throughout the site.

6.0 QUANTITATIVE MONITORING RESULTS

Adam Zions and Gina Shumate of Golder Associates Inc. conducted the baseline monitoring event on March-9th-16th, 2017. Table 5 contains a summary of the 1-m² herbaceous quadrat data from each monitoring station, including taxonomic identification, percent cover, and FDEP wetland indicator status; the raw data for each monitoring station is included in Appendix C. The 100-m² canopy monitoring station data is presented according to strata; canopy coverage is presented in Table 6, shrub coverage in Table 7 and groundcover species in Table 8. A brief summary of results for each herbaceous wetland and upland canopy monitoring station is provided below.

6.1 Herbaceous Monitoring Plots

Monitoring Transect H-1, Plots H-1 Q-1 – H1 Q5:

No standing water was present along monitoring transect H-1. The monitoring transect traversed upland shrub and bushland dominated by saw palmetto (*Serenoa repens*) at an average of approximately 47% cover. Gallberry (*Illex glabra*) comprised an average cover of approximately 7% and running oak (*Quercus pumila*), fetterbush (*Lyonia lucida*), wax myrtle (*Myrica cerifera*), shiny blueberry (*Vaccinium myrsinites*), rusty staggerbush (*Lyonia ferruginea*), red maple (*Acer rubrum*), wiregrass (*Aristida stricta*), dog fennel (*Eupatorium capillifolium*), flattop goldenrod (*Euthamia caroliniana*) and wild pennyroyal (*Piloblephis rigida*) each made up an average of less than 5% cover. Bare ground and dead vegetation had an average of approximately 25% cover. (Appendix B, Photographs 1-5).

Monitoring Transect H-2, Plots H-2 Q-1 – H-2 Q-2:

Transect H-2 spans a freshwater marsh dominated by marsh St. John's wort (*Hypericum fasciculatum*) at an average of approximately 11% cover. Additional vegetation observed within the monitoring plots includes blue maidencane (*Amphicarpum muehlenbergianum*), dog fennel (*Eupatorium capillifolium*), tenangle pipewort (*Eriocaulon decangulare*), Carolina redroot (*Lachnanthes caroliniana*), coast cockspur (*Echinochloa walteri*), switchgrass (*Panicum virgatum*), red maple, broomsedge bluestem (*Andropogon virginicus*), lemon bacopa (*Bacopa caroliniana*), Elliott's lovegrass (*Eragrostis elliottii*), bogbutton (*Lachnocaulon anceps*), sweetscent (*Pluchea odorata*), pickerelweed (*Pontederia cordata*), combleaf mermaid weed (*Proserpinaca pectinata*) and beaksedge (*Rhynchospora sp.*) each averaging less than five percent cover. No standing water was present throughout transect H-2 and much of the grasses had died back due to dry conditions. Bare ground and dead vegetation made up an average of 20% cover throughout the monitoring plots (Appendix B, Photographs 6-10)

Monitoring Transect H-3, Plots H-3 Q-1 – H-3 Q-5:

Monitoring Transect H-3 traverses through wetland shrub habitat dominated by marsh St. John's Wort with an average cover of approximately 14% and blue maidencane and swamp fern (*Blechnum serrulatum*) each with an average cover of 7.5%. Witchgrass (*Dichanthelium sp.*) comprised an average cover of approximately 6% and Carolina redroot, meadowbeauty (*Rhexia sp.*), switchgrass, broomsedge bluestem, dogfennel, tenangle pipewort, red maple, bogbutton, sweetscent, running oak, netted pawpaw (*Asimina reticulata*), big carpetgrass (*Axonopus furcatus*), downy milkpea (*Galactia regularis*), laurel greenbrier (*Smilax laurifolia*), and yelloweyed grass (*Xyris sp.*) each had an average cover of less than five percent. Dead vegetation and bare ground comprised an average of approximately 43% cover. Extensive hog rooting throughout transect H-3 has disturbed much of the herbaceous vegetation. No standing water was present within the

monitoring plots and dry conditions has caused for much of the vegetation to die back (Appendix B, Photographs 11-15).

Monitoring Transect H-4, Plots H-4 Q-1 – H-4 Q-5:

Monitoring Transect H-4 begins in a freshwater marsh and continues into wetland shrub. There was no standing water present throughout the monitoring transect and much of the herbaceous vegetation had died back due to dry conditions. Dead vegetation and bare ground comprised an average of approximately 72% cover. Broomsedge bluestem made up an average of 6% cover and Carolina redroot, beaksedge, fourpetal St. John's wort (*Hypericum tetrapetalum*), blue maidencane, red maple, coast cockspur, marsh St. John's-wort, dogfennel, goldenrod (*Solidago* sp.), meadowbeauty, bogbutton, big carpetgrass, alligator flag (*Thalia geniculata*), Brazilian pepper and bulltongue arrowhead (*Sagittaria lancifolia*) each had an average cover of less than 5%. Extensive hog rooting towards the end of the transect has disturbed much of the herbaceous vegetation. (Appendix B, Photographs 16-20).

Monitoring Transect H-5, Plots H-5 Q-1 – H-5 Q-5:

Monitoring Transect H-5 begins in wetland shrub and continues into freshwater marsh. The vegetative community was dominated by marsh St. John's Wort with an average of approximately 11% cover and fourpetal St. John's wort with an average of approximately 8% cover. Blue maidencane, switchgrass, flattened pipewort (*Eriocaulon compressum*), witchgrass, sweetscent, yelloweyed grass, combleaf mermaid weed, spadeleaf (*Centella asiatica*), Carolina redroot, dogfennel, meadowbeauty, wax myrtle and sundew (*Drosera* sp.) each averaged less than five percent cover. Dead vegetation and bare ground made up an average of approximately 62% cover. There was no standing water within the transect and much of the vegetation had died back due to dry conditions (Appendix B, Photograph 21-25).

6.2 Tree Monitoring Plots

Monitoring Station T-1:

No standing water was present at monitoring station T-1. Tree species included cabbage palm (*Sabal palmetto*), red mulberry (*Morus rubra*) and Brazilian pepper. The red mulberry was 5.3 inches in diameter and comprised approximately 15% of the canopy cover, the Brazilian pepper was 2.5 inches in diameter and contributed less than 5% of the canopy cover and the seven cabbage palms made up approximately 63% of the canopy cover and had an average DBH of 13.3 inches. Cabbage palm, Carolina willow (*Salix caroliniana*) and red maple shrub species contributed approximately 15% cover, 38% cover and less than 5% cover respectively to the shrub layer. The majority of the groundcover (85%) was dead vegetation, leaf litter and bare ground (Appendix B, Photograph 26).

Monitoring Station T-2:

No standing water was present at monitoring station T-2. The canopy consisted of 15% cover of red maple, which had an average DBH of 4.2 inches. Approximately 38% cover of the shrub strata was comprised of Carolina willow and red maple, wax myrtle and groundsel tree (*Baccharis halimifolia*) each made up less than 5% of the shrub strata. The ground cover was dominated by sawgrass (*Cladium jamaicense*) at approximately 38% cover, while golden canna (*Canna flaccida*) made up approximately 15% cover and red maple, lemon bacopa, spadeleaf, marsh St. John's wort, climbing hempvine (*Mikania scandens*), goldenrod and Virginia chain fern (*Woodwardia virginica*) each contributed less than 5% cover (Appendix B, Photograph 27).

Monitoring Station T-3:

No standing water was present at monitoring station T-3. Canopy cover was comprised of 20 red maple individuals which had approximately 15% cover and a Carolina willow which contributed less than 5% cover. The red maples had an average DBH of 2.5 in and the Carolina willow had a DBH of 4.3 inches. The shrub strata was comprised of Carolina willow and red maple saplings each contributing less than 5% cover. Ground cover was dominated by sawgrass and swamp fern each at approximately 38% cover, while red maple and alligator flag each provided less than 5% cover (Appendix B, Photograph 28).

Monitoring Station T-4:

No standing water was present at monitoring station T-4. The canopy was comprised of 18 slash pines (*Pinus elliottii*) providing approximately 15% cover. The slash pines had an average DBH of 3.9 in. Wax myrtle made up approximately 15% cover of the shrub strata while slash pine seedlings and cabbage palm each comprised less than 5% cover. The groundcover was dominated by blue maidencane at approximately 38% cover, while broomsedge bluestem, bogbutton, wax myrtle, slash pine, cabbage palm, laurel greenbrier and yelloweyed grass each provided less than 5% cover (Appendix B, Photograph 29).

Monitoring Station T-5:

No standing water was present at monitoring station T-5. The canopy was dominated by slash pine with 15 individuals within the monitoring plot averaging 3.8 inches in diameter and making up approximately 15% of the canopy cover. Within the shrub strata slash pine and marsh St. John's wort each were estimated to less than 5% cover. The groundcover was dominated by blue maidencane and broomsedge bluestem each at approximately 15% cover, while bogbutton, wax myrtle, and slash pine seedlings each provided less than 5% cover (Appendix B, Photograph 30).

Monitoring Station T-6:

No standing water was present at monitoring station T-6. The canopy, within monitoring station T-6, was dominated by red maple. Seven red maple individuals, averaging 11.1 inches in diameter, were observed within the monitoring plot and made up approximately 38% canopy coverage. Red maple saplings, within the shrub layer, contributed less than 5% cover. The ground cover was dominated by sawgrass which comprised approximately 38% cover. Swamp smartweed (*Persicaria hydropiperoides*) contributed approximately 15% cover, while red maple seedlings, golden canna, climbing hempvine, goldenrod, Virginia chain fern, pickerelweed, creeping primrosewillow (*Ludwigia repens*), smallfruit beggarticks (*Bidens mitis*), common buttonbush (*Cephalanthus occidentalis*), spikerush (*Eleocharis sp.*), dogfennel, cinnamon fern (*Osmunda cinnamomea*), soft rush (*Juncus effusus*) and Japanese climbing fern were each present at less than 5% cover (Appendix B, Photograph 31).

Monitoring Station T-7:

No standing water was present at monitoring station T-7. Approximately 63% cover of pop ash (*Fraxinus caroliniana*), and less than 5% cover of blackgum (*Nyssa sylvatica*) and cabbage palm made up the canopy within monitoring station T-7. The pop ash trees had an average diameter of 10.3 in, the blackgum trees had an average diameter of 14.6 inches and the cabbage palm had a diameter of 10.5 inches. There were no shrubs present. Pop ash seedlings made up approximately 15% of the groundcover and Virginia creeper and Brazilian pepper were each present at less than 5% cover (Appendix B, Photograph 32).

Monitoring Station T-8:

No standing water was present at monitoring station T-8. The canopy is composed of 63% coverage of pop ash and less than 5% cover of red maple and cabbage palm. There were 19 pop ash individuals with an average DBH of 10.5in, two cabbage palms with an average DBH of 11.9in and one red maple with a DBH of 5.2in. No species were present within the shrub strata. The majority of the groundcover was bare ground, dead vegetation or leaf litter. Pop ash seedlings, Brazilian pepper, cabbage palm seedlings and marshpennywort (*Hydrocotyle umbellata*) each contributing less than 5% cover (Appendix B, Photograph 33).

Monitoring Station T-9:

No standing water was present at monitoring station T-9. Canopy coverage was composed of approximately 38% cover of slash pine, with an average DBH of 4.7in. The shrub coverage was made up of 15% cover of saw palmetto and less than 5% cover of slash pine saplings and rusty staggerbush. Species observed within the ground cover strata included broomsedge bluestem, slash pine, blackroot (*Pterocaulon pycnostachyum*), running oak, cat greenbrier (*Smilax glauca*), wiregrass, flattop goldenrod, tall elephantsfoot (*Elephantopus elatus*), and saw palmetto each accounting for less than 5% cover (Appendix B, Photograph 34).

Monitoring Station T-10:

No standing water was present at monitoring station T-10. Within monitoring station T-10, five pop ash individuals had an average DBH of 22.1 inches and made up approximately 63% of the canopy. Two cabbage palms had an average DBH of 11.7 inches and accounted for approximately 15% of the canopy cover and two backgum trees had an average DBH of 16.9in and comprised less than 5% of the canopy cover. Within the shrub strata, pop ash saplings made up approximately 15% cover and cabbage palm contributed less than 5% cover. The majority of the groundcover was swamp fern at approximately 38% cover, while Pop ash seedlings, Brazilian pepper, caesarweed, sedges (*Carex sp.*), poison ivy (*Toxicodendron radicans*), and sword fern (*Nephrolepis exaltata*) each contributing less than 5% cover (Appendix B, Photograph 35).

6.3 Quantitative Monitoring Summary**Herbaceous Monitoring Stations:**

Quantitative estimation of groundcover vegetation was calculated by converting the percent cover to the Daubenmier cover class midpoint and then averaging total vegetative coverage values within the five 1-m² quadrants for each transect. The average total vegetation coverage was 42% across all transects. Much of the vegetation within the herbaceous transects had died back due to dry conditions or was disturbed by hog rooting. Brazilian Pepper was the only invasive/exotic species observed within herbaceous monitoring plots at an average coverage of less than 5%. Qualitative groundcover data is summarized below (Table 5) and raw data for each transect is presented in Appendix C.

Table 5. Summary of Community Composition within Herbaceous Monitoring Stations

Species	Common Name	Wetland Indicator (FDEP)	Invasive/ Exotic	Average % Cover	# of Quadrats Present (/10)	Standard Dev
Leaf Litter/ Bare Ground	N/A	N/A	N/A	44.2	24	27.84
<i>Serenoa repens</i>	Saw palmetto	FACU	N	9.4	4	13.64
<i>Hypericum fasciculatum</i>	Marsh St. John's Wort	OBL	N	7.3	12	13.34
<i>Amphicarpum muehlenbergianum</i>	Blue Maidencane	FACW	N	3.4	10	8.82
<i>Hypericum tetrapetalum</i>	Fourpetal St. John's-wort	FAC	N	2.2	3	8.64
<i>Dichanthelium sp.</i>	Witchgrass	FAC	N	1.5	5	4.48
<i>Lachnanthes carolina</i>	Carolina Redroot	FAC	N	1.5	10	3.27
<i>Andropogon virginicus</i>	Broomsedge Bluestem	FAC	N	1.5	6	4.48
<i>Blechnum serrulatum</i>	Swamp Fern	FACW	N	1.5	1	8.18
<i>Ilex glabra</i>	Gallberry	FACW	N	1.4	4	3.27
<i>Panicum virgatum</i>	Switchgrass	FACW	N	1.1	6	3.32
<i>Eupatorium capillifolium</i>	Dogfennel	FAC	N	1.1	6	3.32
<i>Rhynchospora sp.</i>	Beaksedge	FACW	N	0.9	4	3.31
<i>Quercus pumila</i>	Running Oak	FACU	N	0.8	3	0.55
<i>Myrica cerifera</i>	Wax Myrtle	FAC	N	0.7	2	0.55
<i>Eriocaulon compressum</i>	Flattened Pipewort	OBL	N	0.6	1	3.27
<i>Acer rubrum</i>	Red Maple	FACW	N	0.6	6	1.16
<i>Lyonia lucida</i>	Fetterbush	FACW	N	0.6	2	0.00
<i>Vaccinium myrsinites</i>	Shiny Blueberry	FACU	N	0.6	1	0.00
<i>Rhexia sp.</i>	Meadowbeauty	FACW	N	0.5	5	1.09
<i>Echinochloa walteri</i>	Coast Cockspur	FACW	N	0.5	5	1.09
<i>Pluchea odorata</i>	Sweetscent	FACW	N	0.4	4	1.01
<i>Eriocaulon decangulare</i>	Tenangle Pipewort	OBL	N	0.4	4	1.01
<i>Xyris sp.</i>	Yelloweyed grass	OBL	N	0.3	3	0.90
<i>Proserpinaca pectinata</i>	Combleaf Mermaid weed	OBL	N	0.3	3	0.90
<i>Lachnocaulon anceps</i>	Bogbutton	FACW	N	0.3	4	0.90
<i>Aristida stricta</i>	Wiregrass	FAC	N	0.3	3	0.75
<i>Lyonia ferruginea</i>	Rusty Staggerbush	FACU	N	0.3	3	0.00
<i>Centella asiatica</i>	Spadeleaf	FACW	N	0.2	2	0.75
<i>Solidago sp.</i>	Goldenrod	FACW	N	0.2	2	0.75
<i>Axonopus furcatus</i>	Big Carpetgrass	FAC	N	0.2	3	0.75
<i>Drosera sp.</i>	Sundew	FACW	N	0.1	1	0.55
<i>Thalia geniculata</i>	Alligator Flag	OBL	N	0.1	1	0.55
<i>Schinus terebinthifolia</i>	Brazilian Pepper	FAC	EPPC(I)	0.1	1	0.55

<i>Sagittaria lancifolia</i>	Bulltongue Arrowhead	OBL	N	0.1	1	0.55
<i>Asimina reticulata</i>	Netted Pawpaw	FACU	N	0.1	1	0.55
<i>Galactia regularis</i>	Downy Milkpea	-	N	0.1	1	0.55
<i>Smilax laurifolia</i>	Laurel Greenbrier	FACW	N	0.1	1	0.55
<i>Bacopa caroliniana</i>	Lemon Bacopa	OBL	N	0.1	1	0.55
<i>Eragrostis elliotii</i>	Elliott's Lovegrass	FAC	N	0.1	1	0.55
<i>Pontederia cordata</i>	Pickerelweed	OBL	N	0.1	1	0.55
<i>Euthamia caroliniana</i>	Flattop Goldenrod	FAC	N	0.1	1	0.00
<i>Piloblephis rigida</i>	Wild Pennyroyal	-	N	0.1	1	0.00

Canopy Monitoring Stations:

Quantitative estimation of canopy cover was calculated by converting the percent cover to the Daubenmier cover class midpoint and then averaging coverage values within the 100-m² canopy monitoring stations. The average canopy cover, across all canopy monitoring stations, was 43%. Pop ash contributed the greatest average amount to the canopy at approximately 19% cover, followed by cabbage palm at 8% cover and red maple and slash pine each at approximately 7% cover. Additional canopy cover data is presented in Table 6. On average approximately 14 trees were located within each canopy monitoring station.

The average shrub coverage within the canopy monitoring stations was calculated to be approximately 17%. Carolina willow made up the greatest average coverage of shrubs at approximately 8% cover. All other shrub species had less than 5% cover. No invasive/exotic species were observed within the shrub strata of canopy plots. Additional data depicting the shrub strata within the canopy monitoring stations is in Table 7.

Quantitative estimation of average vegetative ground cover, within the 100-m² canopy monitoring stations, is currently approximately 44%. Sawgrass accounted for the greatest average cover at approximately 11%, followed by swamp fern at approximately 8% cover (Table 8). Invasive/exotic vegetation contributing to the groundcover of the canopy monitoring stations included Brazilian Pepper, caesarweed and Japanese climbing fern each at less than 5% cover. The total average cover of invasive/exotic vegetation was less than 5% within the groundcover strata of the canopy monitoring stations (Table 8).

Quantitative canopy cover and survival data is summarized below:

Table 6. Summary of Canopy Species within Canopy Monitoring Stations

Species	Common Name	Wetland Status	Invasive/ Exotic	# of Quadrats Present	Ave trees/plot	Ave % cover	Standard Dev (% cover)	Average DBH
<i>Fraxinus caroliniana</i>	Pop Ash	OBL	N	3	4.1	18.75	30.19	14.3
<i>Sabal palmetto</i>	Cabbage Palm	FAC	N	4	1.2	8.25	19.62	11.8
<i>Acer rubrum</i>	Red Maple	FACW	N	4	3.4	7	12.35	5.7
<i>Pinus elliotii</i>	Slash Pine	FACW	N	3	4.8	6.75	12.47	4.1
<i>Morus rubra</i>	Red Mulberry	FAC	N	1	0.1	1.5	4.74	5.3
<i>Nyssa sylvatica</i>	Blackgum	FAC	N	2	0.4	0.5	1.05	15.7
<i>Schinus terebinthifolia</i>	Brazilian Pepper	FAC	EPPEC(I)	1	0.1	0.25	0.79	2.5
<i>Salix caroliniana</i>	Carolina Willow	OBL	N	1	0.1	0.25	0.79	4.3

Table7. Summary of Shrub Species within Canopy Monitoring Stations

Species	Common Name	Wetland Status	Invasive/Exotic	Number of Quadrats	Average %Cover	Standard Deviation
<i>Salix caroliniana</i>	Carolina Willow	OBL	N	3	7.75	15.70
<i>Sabal palmetto</i>	Cabbage Palm	FAC	N	3	2	4.68
<i>Myrica cerifera</i>	Wax Myrtle	FAC	N	2	1.75	4.72
<i>Serenoa repens</i>	Saw palmetto	FACU	N	1	1.5	4.74
<i>Fraxinus caroliniana</i>	Pop Ash	OBL	N	1	1.5	4.74
<i>Acer rubrum</i>	Red Maple	FACW	N	4	1	1.29
<i>Pinus elliotii</i>	Slash Pine	FACW	N	3	0.75	1.21
<i>Baccharis halimifolia</i>	Groundsel tree	FAC	N	1	0.25	0.79
<i>Hypericum fasciculatum</i>	Marsh St. John's Wort	OBL	N	1	0.25	0.79
<i>Lyonia ferruginea</i>	Rusty Staggerbush	FACU	N	1	0.25	0.79

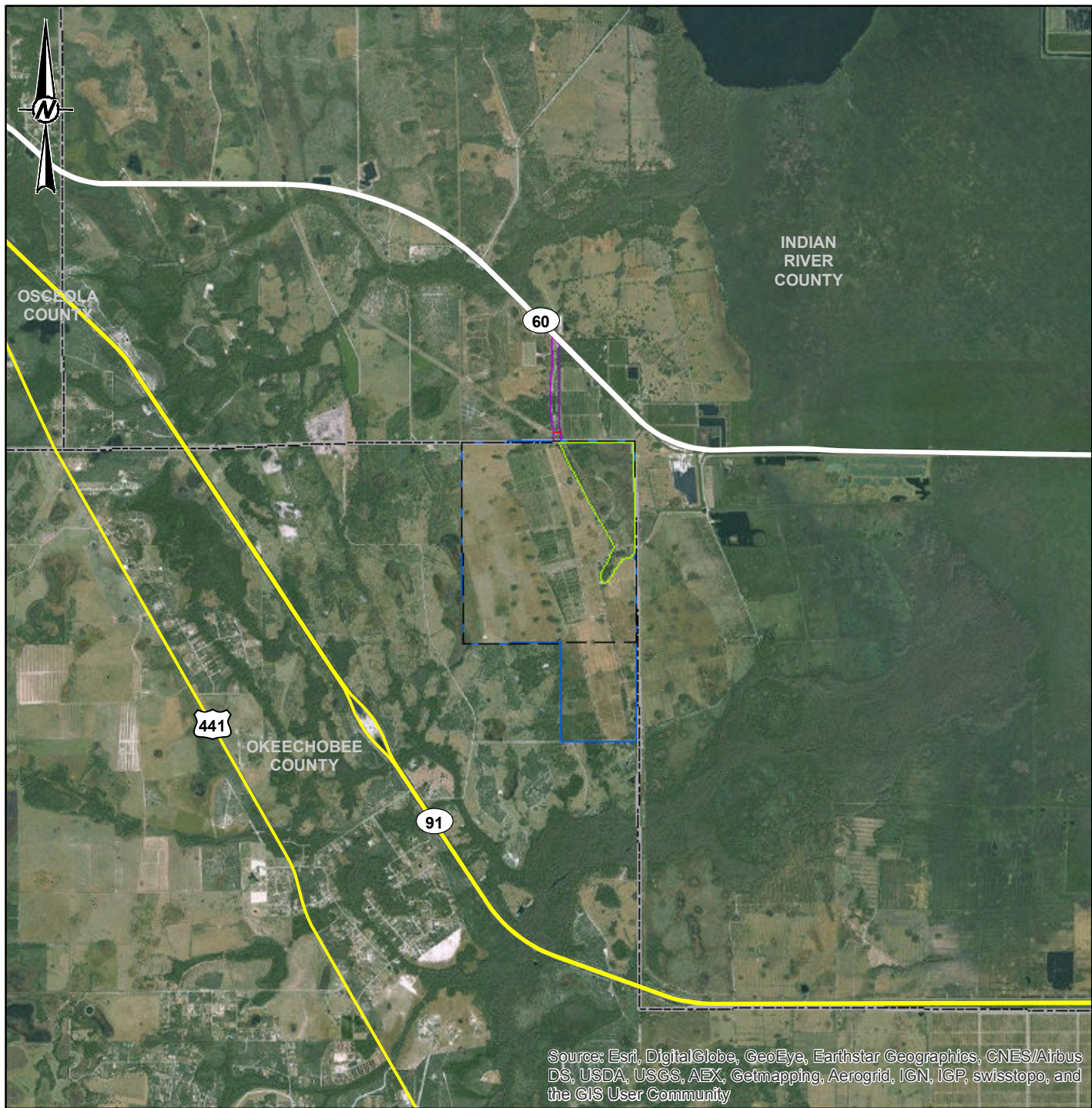
Table 8. Percent cover of Groundcover Species within Canopy Monitoring Stations.

Species	Common Name	Wetland Status (FDEP)	Invasive/ Exotic	Average % Cover	# of Quadrats Present (/10)	Standard Deviation
Leaf Litter/ Bare Ground	N/A	N/A	N/A	48.75	10	31.61
<i>Cladium jamaicense</i>	Sawgrass	OBL	N	11.25	3	18.11
<i>Blechnum serrulatum</i>	Swamp Fern	FACW	N	7.5	2	15.81
<i>Amphicarpum muehlenbergianum</i>	Blue Maidencane	FACW	N	5.25	2	12.27
<i>Fraxinus caroliniana</i>	Pop Ash	OBL	N	2	3	4.68
<i>Andropogon virginicus</i>	Broomsedge Bluestem	FAC	N	2	3	4.68
<i>Canna flaccida</i>	Golden Canna	OBL	N	1.75	2	4.72
<i>Persicaria hydropiperoides</i>	Swamp Smartweed	OBL	N	1.5	1	4.74
<i>Schinus terebinthifolia</i>	Brazilian Pepper	FAC	EPPEC(I)	0.75	3	1.21

<i>Pinus elliottii</i>	Slash Pine	FACW	N	0.75	3	1.21
<i>Acer rubrum</i>	Red Maple	FACW	N	0.75	3	1.21
<i>Sabal palmetto</i>	Cabbage Palm	FAC	N	0.5	2	1.05
<i>Mikania scandens</i>	Climbing Hempvine	FACW+	N	0.5	2	1.05
<i>Solidago sp.</i>	Goldenrod	FACW	N	0.5	2	1.05
<i>Woodwardia virginica</i>	Virginia Chain Fern	FACW	N	0.5	2	1.05
<i>Lachnocaulon anceps</i>	Bogbutton	FACW	N	0.5	2	1.05
<i>Myrica cerifera</i>	Wax Myrtle	FAC	N	0.5	2	1.05
<i>Urena lobata</i>	Caesarweed	FAC	EPPC(I)	0.25	1	0.79
<i>Carex. sp.</i>	Sedge	-	N	0.25	1	0.79
<i>Toxicodendron radicans</i>	Poison Ivy	FAC	N	0.25	1	0.79
<i>Nephrolepis exaltata</i>	Sword Fern	FAC	N	0.25	1	0.79
<i>Pterocaulon pycnostachyum</i>	Blackroot	FACU	N	0.25	1	0.79
<i>Quercus pumila</i>	Running Oak	FACU	N	0.25	1	0.79
<i>Smilax glauca</i>	Cat Greenbrier	FAC	N	0.25	1	0.79
<i>Aristida stricta</i>	Wiregrass	FAC	N	0.25	1	0.79
<i>Euthamia caroliniana</i>	Flattop Goldenrod	FAC	N	0.25	1	0.79
<i>Elephantopus elatus</i>	Tall Elephantsfoot	FACU	N	0.25	1	0.79
<i>Serenoa repens</i>	Saw palmetto	FACU	N	0.25	1	0.79
<i>Hydrocotyle umbellata</i>	Marshpennywort	FACW	N	0.25	1	0.79
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	FAC	N	0.25	1	0.79
<i>Pontederia cordata</i>	Pickrelweed	OBL	N	0.25	1	0.79
<i>Ludwigia repens</i>	Creeping Primrosewillow	OBL	N	0.25	1	0.79
<i>Bidens mitis</i>	Smallfruit beggarticks	OBL	N	0.25	1	0.79
<i>Cephalanthus occidentalis</i>	Common buttonbush	OBL	N	0.25	1	0.79
<i>Eleocharis sp.</i>	Spikerush	OBL	N	0.25	1	0.79
<i>Eupatorium capillifolium</i>	Dogfennel	FAC	N	0.25	1	0.79
<i>Osmunda cinnamomea</i>	Cinnamon Fern	FACW	N	0.25	1	0.79
<i>Juncus effusus</i>	Soft Rush	OBL	N	0.25	1	0.79
<i>Lygodium japonicum</i>	Japanese Climbing Fern	FAC	EPPC(I)	0.25	1	0.79
<i>Smilax laurifolia</i>	Laurel Greenbrier	FACW	N	0.25	1	0.79
<i>Xyris sp.</i>	Yelloweyed grass	OBL	N	0.25	2	0.79
<i>Thalia geniculata</i>	Alligator Flag	OBL	N	0.25	1	0.79
<i>Bacopa caroliniana</i>	Lemon Bacopa	OBL	N	0.25	1	0.79
<i>Centella asiatica</i>	Spadeleaf	FACW	N	0.25	2	0.79
<i>Hypericum fasciculatum</i>	Marsh St. John's Wort	OBL	N	0.25	1	0.79

7.0 CONCLUSIONS

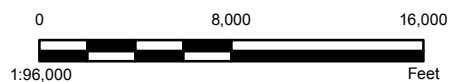
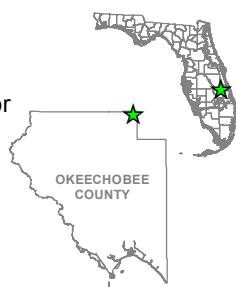
This report presents results of the baseline monitoring event and documents conditions at the mitigation site as required by the Condition of Certification XXVIII.C.2. Results from the baseline monitoring event indicate an average of less than 5% invasive exotic vegetation within the herbaceous monitoring stations and canopy monitoring stations. Exotic species that were observed within the monitoring stations include Brazilian pepper, caesarweed, and Japanese climbing fern. These species will be targeted during the next exotic/invasive treatment event, as well as Wright's nutrush which is also known to occur within the Mitigation Site. Wildlife utilization of the mitigation site is evident. Continued treatment of exotic/invasive vegetation is expected to increase wildlife utilization and overall functional value of both upland and wetlands on the mitigation site. The time zero monitoring event is anticipated to occur in May 2017 following the initial herbicide treatment.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

LEGEND

- FPL Owned Property
- Linear Facility Corridor
- Transmission Interconnection Corridor
- Certified Site Boundary
- County Boundary
- Mitigation Site



REFERENCE(S)

PROPERTY, LINEAR FACILITY CORRIDOR, CERTIFIED BOUNDARY, FPL & GOLDER ASSOCIATES INC., 2015

CLIENT
FPL

PROJECT
OKEECHOBEE CLEAN ENERGY CENTER

TITLE
**GENERAL LOCATION
MAP**

CONSULTANT



YYYY-MM-DD 2015-09-08

DESIGNED NRL

PREPARED NRL

REVIEWED KAB

APPROVED KFK

PROJECT NO.
1414979

CONTROL
B023

REV.
0

FIGURE
1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A 25mm

G:\PROJECTS\FPL\Okeechobee 99\PROJECTS\1414979\8_SCA\Project02_PRODUCTION\XD\1414979_B023_GeneralLocation.mxd



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

- LEGEND**
- 10m x 10 m Canopy Monitoring Stations (10)
 - Herbaceous Vegetation Monitoring Stations (25)
 - Photo Stations
 - Mitigation Site
 - Herbaceous Vegetation Monitoring Transects (5)
 - Habitat Classification
 - 211 - Improved Pastures
 - 212 - Unimproved Pastures
 - 320 - Shrub And Brushland
 - 411 - Pine Flatwoods
 - 434 - Hardwood-Coniferous Mixed
 - 511 - Ditches
 - 617 - Mixed Wetland Hardwoods
 - 625 - Hydric Pine Flatwoods
 - 630 - Wetland Forested Mixed
 - 631 - Wetland Shrub
 - 641 - Freshwater Marshes
 - 643 - Wet Prairies
 - 646 - Treeless Hydric Savanna
 - 740 - Disturbed Land

REFERENCE(S)

MITIGATION SITE, GOLDBERG ASSOCIATES INC., 2017
LAND USE, SJRWMD, 2009 UPDATED BY GOLDBERG ASSOCIATES 2017

MITIGATION SITE LAND USE		
FLUCFCS CODE	HABITAT DESCRIPTION	ACREAGE
212	Unimproved Pastures	22.75
320	Shrub And Brushland	98.10
411	Pine Flatwoods	13.48
434	Hardwood-Coniferous Mixed	54.23
511	Ditches	6.90
617	Mixed Wetland Hardwoods	35.00
625	Hydric Pine Flatwoods	18.97
630	Wetland Forested Mixed	25.63
631	Wetland Shrub	41.92
641	Freshwater Marshes	55.55
643	Wet Prairies	3.95
GRAND TOTAL		376.48



CLIENT
FPL

PROJECT
OKEECHOBEE SCA

TITLE
MITIGATION SITE AND MONITORING LOCATIONS

CONSULTANT	YYYY-MM-DD	2017-04-19
	DESIGNED	JW
	PREPARED	GS
	REVIEWED	KAB
	APPROVED	KAB

PROJECT NO. 1414979 CONTROL B120 REV. 0 FIGURE 2

APPENDIX A

PANORAMIC PHOTOS



Photograph 1. View of Site from PS-E looking West



Photograph 2. View of Site from PS-W looking East



Photograph 3. View of Site from PS-S looking North.



Photograph 4. View of Site from PS-N looking South.

APPENDIX B

MONITORING STATION PHOTOGRAPHS



Photograph 1. Monitoring Station H-1 Q-1, Herbaceous Quadrat



Photograph 2. Monitoring Station H-1 Q-2, Herbaceous Quadrat



Photograph 3. Monitoring Station H-1 Q-3, Herbaceous Quadrat



Photograph 4. Monitoring Station H-1 Q-4, Herbaceous Quadrat



Photograph 5. Monitoring Station H-1 Q-5, Herbaceous Quadrat



Photograph 6. Monitoring Station H-2 Q-1, Herbaceous Quadrat



Photograph 7. Monitoring Station H-2 Q-2, Herbaceous Quadrat



Photograph 8. Monitoring Station H-2 Q-3, Herbaceous Quadrat



Photograph 9. Monitoring Station H-2 Q-4, Herbaceous Quadrat



Photograph 10. Monitoring Station H-2 Q-5, Herbaceous Quadrat



Photograph 11. Monitoring Station H-3 Q-1, Herbaceous Quadrat



Photograph 12. Monitoring Station H-3 Q-2, Herbaceous Quadrat



Photograph 13. Monitoring Station H-3 Q-3, Herbaceous Quadrat



Photograph 14. Monitoring Station H-3 Q-4, Herbaceous Quadrat



Photograph 15. Monitoring Station H-3 Q-5, Herbaceous Quadrat



Photograph 16. Monitoring Station H-4 Q-1, Herbaceous Quadrat



Photograph 17. Monitoring Station H-4 Q-2, Herbaceous Quadrat



Photograph 18. Monitoring Station H-4 Q-3, Herbaceous Quadrat



Photograph 19. Monitoring Station H-4 Q-4, Herbaceous Quadrat



Photograph 20. Monitoring Station H-4 Q-5, Herbaceous Quadrat



Photograph 21. Monitoring Station H-5 Q-1, Herbaceous Plot



Photograph 22. Monitoring Station H-5 Q-2, Herbaceous Plot



Photograph 23. Monitoring Station H-5 Q-3, Herbaceous Plot



Photograph 24. Monitoring Station H-5 Q-4, Herbaceous Plot



Photograph 25. Monitoring Station H-5 Q-5, Herbaceous Plot



Photograph 26. Monitoring Station T-1, Tree Plot



Photograph 27. Monitoring Station T-2, Tree Plot



Photograph 28. Monitoring Station T-3, Tree Plot



Photograph 29. Monitoring Station T-4, Tree Plot



Photograph 30. Monitoring Station T-5, Tree Plot



Photograph 31. Monitoring Station T-6, Tree Plot



Photograph 32. Monitoring Station T-7, Tree Plot



Photograph 33. Monitoring Station T-8, Tree Plot



Photograph 34. Monitoring Station T-9, Tree Plot



Photograph 35. Monitoring Station T-10, Tree Plot

APPENDIX C

MONITORING DATA

Percent Cover within Herbaceous Plot H-1			Station	H1-Q1		H1-Q2		H1-Q3		H1-Q4		H1-Q5				
			Ave Depth (In)	0		0		0		0		0				
			Total Veg Coverage	97.5		62.5		57.5		52.5		82.5		Average Veg Cover		70.5
Species	Common Name	Wetland Indicator (FDEP)	Invasive/ Exotic	Percent Cover	Daubenmi re MP	Percent Cover	Daubenmi re MP	Percent Cover	Daubenmi re MP	Percent Cover	Daubenmi re MP	Percent Cover	Daubenmi re MP	Average % Cover	# of Quadrats Present (/10)	Standard Dev
Leaf Litter/ Bare Ground	N/A	N/A	N/A		0	50	37.5	40	37.5	42.5	37.5	10	15	25.5	4	17.27
Serenoa repens	Saw palmetto	FACU	N	100	97.5	30	37.5	40	37.5		0	60	62.5	47	4	35.99
Ilex glabra	Gallberry	FACW	N		0	2.5	2.5	5	2.5	15	15	25	15	7	4	7.37
Quercus pumila	Running Oak	FACU	N		0	2.5	2.5		0	15	15		0	3.5	2	6.52
Myrica cerifera	Wax Myrtle	FAC	N		0	10	15		0		0		0	3	1	6.71
Lyonia lucida	Fetterbush	FACW	N		0	0	0	10	15		0		0	3	2	6.71
Vaccinium myrsinites	Shiny Blueberry	FACU	N		0		0		0	20	15		0	3	1	6.71
Lyonia ferruginea	Rusty Staggerbush	FACU	N		0	2.5	2.5	5	2.5	2.5	2.5		0	1.5	3	1.37
Eupatorium capillifolium	Dogfennel	FAC	N		0		0		0		0	2.5	2.5	0.5	1	1.12
Acer rubrum	Red Maple	FACW	N		0		0		0		0	2.5	2.5	0.5	1	1.12
Aristida stricta	Wiregrass	FAC	N		0	2.5	2.5		0		0		0	0.5	1	1.12
Euthamia caroliniana	Flattop Goldenrod	FAC	N		0		0		0	2.5	2.5		0	0.5	1	1.12
Piloblephis rigida	Wild Pennyroyal	-	N		0		0		0	2.5	2.5		0	0.5	1	1.12

Percent Cover within Herbaceous Plot H-2			Station	H2-Q1		H2-Q2		H2-Q3		H2-Q4		H2-Q5				
			Ave Depth (in)	0		0		0		0		0				
			Total Veg Coverage	52.5		5		35		10		40		Average Veg Cover		28.5
Species	Common Name	Wetland Indicator (FDEP)	Invasive/ Exotic	Percent Cover	Daubenmir e MP	Percent Cover	Daubenmir e MP	Percent Cover	Daubenmir e MP	Percent Cover	Daubenmir e MP	Percent Cover	Daubenmir e MP	Average % Cover	# of Quadrats Present (/10)	Standard Dev
Leaf Litter/ Bare Ground	N/A	N/A	N/A	27.5	37.5	92.5	0	25	0	52.5	62.5	65	0	20	5	28.78
Hypericum fasciculatum	Marsh St. John's Wort	OBL	N	50	37.5		0	5	2.5	35	0	15	15	11	4	16.07
Amphicarpum muehlenbergianum	Blue Maidencane	FACW	N		0		0		0	5	2.5	10	15	3.5	2	6.52
Eupatorium capillifolium	Dogfennel	FAC	N		0		0	10	15		0		0	3	1	6.71
Lachnanthes caroliana	Carolina Redroot	FAC	N	2.5	2.5		0	5	2.5		0	2.5	2.5	1.5	3	1.37
Eriocaulon decangulare	Tenangle Pipewort	OBL	N	2.5	2.5		0		0	2.5	2.5	2.5	2.5	1.5	3	1.37
Panicum virgatum	Switchgrass	FACW	N	2.5	2.5		0		0		0	2.5	2.5	1	2	1.37
Rhynchospora sp.	Beaksedge	FACW	N	5	2.5		0	2.5	2.5		0		0	1	2	1.37
Echinochloa walteri	Coast Cockspur	FACW	N		0	5	2.5	2.5	2.5		0		0	1	2	1.37
Aristida stricta	Wiregrass	FAC	N		0		0		0	2.5	2.5	2.5	2.5	1	2	1.37
Pluchea odorata	Sweetscent	FACW	N		0		0	2.5	2.5		0		0	0.5	1	1.12
Proserpinaca pectinata	Combleaf Mermaid weed	OBL	N		0		0	2.5	2.5		0		0	0.5	1	1.12
Andropogon virginicus	Broomsedge Bluestem	FAC	N	5	2.5		0	40	0		0		0	0.5	2	1.12
Acer rubrum	Red Maple	FACW	N		0		0		0	2.5	2.5		0	0.5	1	1.12
Lachnocaulon anceps	Bogbutton	FACW	N		0		0	2.5	2.5		0		0	0.5	1	1.12
Bacopa caroliniana	Lemon Bacopa	OBL	N		0		0	2.5	2.5		0		0	0.5	1	1.12
Eragrostis elliotii	Elliott's Lovegrass	FAC	N	5	2.5		0		0		0		0	0.5	1	1.12
Pontederia cordata	Pickernelweed	OBL	N		0	2.5	2.5		0		0		0	0.5	1	1.12

Percent Cover within Herbaceous Plot H-3			Station	H3-Q1		H3-Q2		H3-Q3		H3-Q4		H3-Q5				
			Ave Depth (In)	0		0		0		0		0				
			Total Veg Coverage	42.5		32.5		50		45		57.5		Average Veg Cover		45.5
Species	Common Name	Wetland Indicator (FDEP)	Invasive/ Exotic	Percent Cover	Daubenmire MP	Percent Cover	Daubenmire MP	Percent Cover	Daubenmire MP	Percent Cover	Daubenmire MP	Percent Cover	Daubenmire MP	Average % Cover	# of Quadrats Present (/10)	Standard Dev
Leaf Litter/ Bare Ground	N/A	N/A	N/A	45	37.5	60	62.5	40	37.5	50	37.5	35	37.5	42.5	5	11.18
Hypericum fasciculatum	Marsh St. John's Wort	OBL	N		0	5	2.5	45	37.5	10	15	10	15	14	4	14.85
Amphicarpum muehlenbergianum	Blue Maidencane	FACW	N		0		0		0		0	50	37.5	7.5	1	16.77
Blechnum serrulatum	Swamp Fern	FACW	N	50	37.5		0		0		0		0	7.5	1	16.77
Dichanthelium sp.	Witchgrass	FAC	N		0	15	15		0	20	15		0	6	2	8.22
Lachnanthes carolina	Carolina Redroot	FAC	N		0	5	2.5		0	2.5	2.5	2.5	2.5	1.5	3	1.37
Rhexia sp.	Meadowbeauty	FACW	N		0	5	2.5	2.5	2.5	2.5	2.5		0	1.5	3	1.37
Panicum virgatum	Switchgrass	FACW	N		0		0	2.5	2.5		0	2.5	2.5	1	2	1.37
Andropogon virginicus	Broomsedge Bluestem	FAC	N		0	2.5	2.5	5	2.5		0		0	1	2	1.37
Pluchea odorata	Sweetscent	FACW	N		0		0		0	2.5	2.5		0	0.5	1	1.12
Xyris sp.	Yelloweyed grass	OBL	N		0	2.5	2.5		0		0		0	0.5	1	1.12
Eupatorium capillifolium	Dogfennel	FAC	N		0		0		0	2.5	2.5		0	0.5	1	1.12
Acer rubrum	Red Maple	FACW	N		0	2.5	2.5		0		0		0	0.5	1	1.12
Lachnocaulon anceps	Bogbutton	FACW	N		0		0	2.5	2.5		0		0	0.5	1	1.12
Axonopus furcatus	Big Carpetgrass	FAC	N		0	2.5	2.5		0	5	0		0	0.5	2	1.12
Eriocaulon decangulare	Tenangle Pipewort	OBL	N		0		0	2.5	2.5		0		0	0.5	1	1.12
Quercus pumila	Running Oak	FACU	N		0		0		0	2.5	2.5		0	0.5	1	1.12
Asimina reticulata	Netted Pawpaw	FACU	N	2.5	2.5		0		0		0		0	0.5	1	1.12
Galactia regularis	Downy Milkpea	-	N	2.5	2.5		0		0		0		0	0.5	1	1.12
Smilax laurifolia	Laurel Greenbrier	FACW	N		0		0		0	2.5	2.5		0	0.5	1	1.12

Percent Cover within Herbaceous Plot H-4			Station	H4-Q1		H4-Q2		H4-Q3		H4-Q4		H4-Q5				
			Ave Depth (In)	0		0		0		0		0				
			Total Veg Coverage	7.5		25		25		45		32.5		Average Veg Cover		27
Species	Common Name	Wetland Indicator (FDEP)	Invasive/ Exotic	Percent Cover	Daubenmi re MP	Percent Cover	Daubenmi re MP	Percent Cover	Daubenmi re MP	Percent Cover	Daubenmi re MP	Percent Cover	Daubenmi re MP	Average % Cover	# of Quadrats Present (/10)	Standard Dev
Leaf Litter/ Bare Ground	N/A	N/A	N/A	90	85	77.5	85	75	62.5	60	62.5	65	62.5	71.5	5	12.32
Andropogon virginicus	Broomsedge Bluestem	FAC	N		0		0		0	10	15	15	15	6	2	8.22
Lachnanthes caroliana	Carolina Redroot	FAC	N		0		0	15	15	2.5	2.5	2.5	2.5	4	3	6.27
Rhynchospora sp.	Beaksedge	FACW	N		0	10	15	2.5	2.5		0		0	3.5	2	6.52
Hypericum tetrapetalum	Fourpetal St. John's-wort	FAC	N		0		0		0	15	15		0	3	1	6.71
Amphicarpum muehlenbergianum	Blue Maidencane	FACW	N		0	5	2.5	2.5	2.5		0	2.5	2.5	1.5	3	1.37
Acer rubrum	Red Maple	FACW	N		0	2.5	2.5		0	2.5	2.5	2.5	2.5	1.5	3	1.37
Echinochloa walteri	Coast Cockspur	FACW	N	2.5	2.5	2.5	2.5	2.5	2.5		0		0	1.5	3	1.37
Hypericum fasciculatum	Marsh St. John's Wort	OBL	N		0		0		0	2.5	2.5	5	2.5	1	2	1.37
Eupatorium capillifolium	Dogfennel	FAC	N		0		0		0	2.5	2.5	2.5	2.5	1	2	1.37
Solidago sp.	Goldenrod	FACW	N		0	2.5	2.5		0	2.5	2.5		0	1	2	1.37
Rhexia sp.	Meadowbeauty	FACW	N		0		0		0		0	2.5	2.5	0.5	1	1.12
Lachnocaulon anceps	Bogbutton	FACW	N		0		0	0	0	2.5	2.5		0	0.5	2	1.12
Axonopus furcatus	Big Carpetgrass	FAC	N		0		0		0		0	2.5	2.5	0.5	1	1.12
Thalia geniculata	Alligator Flag	OBL	N	5	2.5		0		0		0		0	0.5	1	1.12
Schinus terebinthifolia	Brazilian Pepper	FAC	EPPC(I)	2.5	2.5		0		0		0		0	0.5	1	1.12
Sagittaria lancifolia	Bulltongue Arrowhead	OBL	N		0		0	2.5	2.5		0		0	0.5	1	1.12

Percent Cover within Herbaceous Plot H-5			Station	H5-Q1		H5-Q2		H5-Q3		H5-Q4		H5-Q5				
			Ave Depth (In)	0		0		0		0		0				
			Total Veg Coverage	17.5		70		57.5		25		17.5		Average Veg Cover		37.5
Species	Common Name	Wetland Indicator (FDEP)	Invasive/ Exotic	Percent Cover	Daubenmi re MP	Percent Cover	Daubenmi re MP	Percent Cover	Daubenmi re MP	Percent Cover	Daubenmi re MP	Percent Cover	Daubenmi re MP	Average % Cover	# of Quadrats Present (/10)	Standard Dev
Leaf Litter/ Bare Ground	N/A	N/A	N/A	85	85	37.5	37.5	35	37.5	65	62.5	85	85	61.5	5	23.76
Hypericum fasciculatum	Marsh St. John's Wort	OBL	N		0		0	40	37.5	20	15		0	10.5	2	16.43
Hypericum tetrapetalum	Fourpetal St. John's-wort	FAC	N		0	35	37.5		0		0	5	2.5	8	2	16.53
Amphicarpum muehlenbergianum	Blue Maidencane	FACW	N	10	15	2.5	2.5	5	2.5	5	2.5		0	4.5	4	5.97
Panicum virgatum	Switchgrass	FACW	N		0	2.5	2.5		0		0	10	15	3.5	2	6.52
Eriocaulon compressum	Flattened Pipewort	OBL	N		0	10	15		0		0		0	3	1	6.71
Dichanthelium sp.	Witchgrass	FAC	N	5	2.5		0	2.5	2.5	2.5	2.5		0	1.5	3	1.37
Pluchea odorata	Sweetscent	FACW	N		0	2.5	2.5	5	2.5		0		0	1	2	1.37
Xyris sp.	Yelloweyed grass	OBL	N		0	2.5	2.5	2.5	2.5		0		0	1	2	1.37
Proserpinaca pectinata	Combleaf Mermaid weed	OBL	N		0		0	2.5	2.5	2.5	2.5		0	1	2	1.37
Centella asiatica	Spadeleaf	FACW	N		0		0	2.5	2.5	5	2.5		0	1	2	1.37
Lachnanthes caroliana	Carolina Redroot	FAC	N		0	2.5	2.5		0		0		0	0.5	1	1.12
Eupatorium capillifolium	Dogfennel	FAC	N		0	2.5	2.5		0		0		0	0.5	1	1.12
Rhexia sp.	Meadowbeauty	FACW	N		0		0	2.5	2.5		0		0	0.5	1	1.12
Myrica cerifera	Wax Myrtle	FAC	N		0		0	2.5	2.5		0		0	0.5	1	1.12
Drosera sp.	Sundew	FACW	N		0	2.5	2.5		0		0		0	0.5	1	1.12

Canopy Tree Data								
Monitoring Station	ID	Species	Common Name	Wetland Status	Invasive/Exotic	Identifier	DBH (in)	Notes
T-1	1	Morus rubra	Red Mulberry	FAC	N	MR-1	5.25	
T-1	2	Sabal palmetto	Cabbage Palm	FAC	N	SP-1	13	
T-1	2	Sabal palmetto	Cabbage Palm	FAC	N	SP-2	14	
T-1	2	Sabal palmetto	Cabbage Palm	FAC	N	SP-3	12.75	
T-1	2	Sabal palmetto	Cabbage Palm	FAC	N	SP-4	10.1	
T-1	2	Sabal palmetto	Cabbage Palm	FAC	N	SP-5	13.7	
T-1	2	Sabal palmetto	Cabbage Palm	FAC	N	SP-6	12.3	
T-1	3	Schinus terebin	Brazilian Pepper	FAC	EPPC(I)	BP-1	11.7	Split Trunk
T-1	2	Sabal palmetto	Cabbage Palm	FAC	N	SP-7	17.3	
T-2	4	Acer rubrum	Red Maple	FACW	N	AR-1	3.6	Split Trunk
T-2	4	Acer rubrum	Red Maple	FACW	N	AR-2	1.8	
T-2	4	Acer rubrum	Red Maple	FACW	N	AR-3	1.2	
T-2	4	Acer rubrum	Red Maple	FACW	N	AR-4	1.6	
T-2	4	Acer rubrum	Red Maple	FACW	N	AR-5	2.7	
T-2	4	Acer rubrum	Red Maple	FACW	N	AR-6	14.2	Split Trunk
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-1	1.6	
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-2	3.7	
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-3	1.7	
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-4	2.9	
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-5	1.4	
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-6	1.2	
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-7	2.1	Split Trunk
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-8	3.9	Split Trunk
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-9	2	Split Trunk
T-3	5	Salix caroliniana	Carolina Willow	OBL	N	SC-1	4.3	Split Trunk
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-10	2.7	Split Trunk
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-11	1.7	
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-12	3.4	
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-13	4.8	Split Trunk
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-14	1.1	
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-15	1.1	
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-16	2.6	
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-17	2.8	
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-18	4	Split Trunk
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-19	2.9	
T-3	4	Acer rubrum	Red Maple	FACW	N	AR-20	1.8	Split Trunk
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-1	5.9	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-2	4.6	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-3	2	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-4	1.1	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-5	1.9	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-6	1.4	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-7	1.9	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-8	13.5	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-9	4.8	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-10	2.9	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-11	7.5	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-12	2.1	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-13	3.9	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-14	5.4	

T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-15	2.1	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-16	1.4	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-17	2.5	
T-4	6	Pinus elliottii	Slash Pine	FACW	N	PE-18	5.9	
T-5	6	Pinus elliottii	Slash Pine	FACW	N	PE-1	2.7	
T-5	6	Pinus elliottii	Slash Pine	FACW	N	PE-2	2.1	
T-5	6	Pinus elliottii	Slash Pine	FACW	N	PE-3	1.9	
T-5	6	Pinus elliottii	Slash Pine	FACW	N	PE-4	5.8	
T-5	6	Pinus elliottii	Slash Pine	FACW	N	PE-5	1.8	
T-5	6	Pinus elliottii	Slash Pine	FACW	N	PE-6	2	
T-5	6	Pinus elliottii	Slash Pine	FACW	N	PE-7	2.7	
T-5	6	Pinus elliottii	Slash Pine	FACW	N	PE-8	3	
T-5	6	Pinus elliottii	Slash Pine	FACW	N	PE-9	2.5	
T-5	6	Pinus elliottii	Slash Pine	FACW	N	PE-10	6.3	
T-5	6	Pinus elliottii	Slash Pine	FACW	N	PE-11	1	
T-5	6	Pinus elliottii	Slash Pine	FACW	N	PE-12	6.9	
T-5	6	Pinus elliottii	Slash Pine	FACW	N	PE-13	5.6	
T-5	6	Pinus elliottii	Slash Pine	FACW	N	PE-14	2.2	
T-5	6	Pinus elliottii	Slash Pine	FACW	N	PE-15	10.2	
T-6	4	Acer rubrum	Red Maple	FACW	N	AR-1	3	
T-6	4	Acer rubrum	Red Maple	FACW	N	AR-2	16.5	Split Trunk
T-6	4	Acer rubrum	Red Maple	FACW	N	AR-3	10	
T-6	4	Acer rubrum	Red Maple	FACW	N	AR-4	11.2	Split Trunk
T-6	4	Acer rubrum	Red Maple	FACW	N	AR-5	21.5	Split Trunk
T-6	4	Acer rubrum	Red Maple	FACW	N	AR-6	7.6	
T-6	4	Acer rubrum	Red Maple	FACW	N	AR-7	7.9	Split Trunk
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-1	11.6	
T-7	37	Nyssa sylvatica	Blackgum	FAC	N	NS-1	10.6	
T-7	2	Sabal palmetto	Cabbage Palm	FAC	N	SP-1	10.5	
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-2	16.1	Split Trunk
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-3	6.6	
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-4	5	
T-7	37	Nyssa sylvatica	Blackgum	FAC	N	NS-2	18.5	
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-5	11.3	Split Trunk
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-6	5	
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-7	14.6	Split Trunk
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-8	5.9	
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-9	4.2	
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-10	5.1	
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-11	37.6	Split Trunk
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-12	15.1	Split Trunk
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-13	3.5	
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-14	13.7	Split Trunk
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-15	7.2	
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-16	11	
T-7	36	Fraxinus carolin	Pop Ash	OBL	N	FC-17	2.4	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-1	6.9	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-2	21.7	Split Trunk
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-3	48.3	Split Trunk
T-8	2	Sabal palmetto	Cabbage Palm	FAC	N	SP-1	12	
T-8	2	Sabal palmetto	Cabbage Palm	FAC	N	SP-2	11.7	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-4	7.5	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-5	7.5	

T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-6	5.9	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-7	19.6	Split Trunk
T-8	4	Acer rubrum	Red Maple	FACW	N	AR-1	5.2	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-8	2.4	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-9	2.3	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-10	5	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-11	8.6	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-12	7	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-13	4.1	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-14	4.7	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-15	3.2	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-16	5.7	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-17	8.5	
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-18	15	Split Trunk
T-8	36	Fraxinus carolin	Pop Ash	OBL	N	FC-19	15.8	Split Trunk
T-9	6	Pinus elliottii	Slash Pine	FACW	N	PE-1	12.2	
T-9	6	Pinus elliottii	Slash Pine	FACW	N	PE-2	10.7	
T-9	6	Pinus elliottii	Slash Pine	FACW	N	PE-3	10	
T-9	6	Pinus elliottii	Slash Pine	FACW	N	PE-4	1.9	
T-9	6	Pinus elliottii	Slash Pine	FACW	N	PE-5	1.3	
T-9	6	Pinus elliottii	Slash Pine	FACW	N	PE-6	6.7	
T-9	6	Pinus elliottii	Slash Pine	FACW	N	PE-7	1.4	
T-9	6	Pinus elliottii	Slash Pine	FACW	N	PE-8	1.7	
T-9	6	Pinus elliottii	Slash Pine	FACW	N	PE-9	2	
T-9	6	Pinus elliottii	Slash Pine	FACW	N	PE-10	13.4	
T-9	6	Pinus elliottii	Slash Pine	FACW	N	PE-11	3.7	
T-9	6	Pinus elliottii	Slash Pine	FACW	N	PE-12	1.4	
T-9	6	Pinus elliottii	Slash Pine	FACW	N	PE-13	1.5	
T-9	6	Pinus elliottii	Slash Pine	FACW	N	PE-14	1.3	
T-9	6	Pinus elliottii	Slash Pine	FACW	N	PE-15	1	
T-10	36	Fraxinus carolin	Pop Ash	OBL	N	FC-1	5	Split Trunk
T-10	2	Sabal palmetto	Cabbage Palm	FAC	N	SP-1	12.4	
T-10	36	Fraxinus carolin	Pop Ash	OBL	N	FC-2	34.9	Split Trunk
T-10	36	Fraxinus carolin	Pop Ash	OBL	N	FC-3	36.3	Split Trunk
T-10	36	Fraxinus carolin	Pop Ash	OBL	N	FC-4	11.9	Split Trunk
T-10	36	Fraxinus carolin	Pop Ash	OBL	N	FC-5	22.4	Split Trunk
T-10	37	Nyssa sylvatica	Blackgum	FAC	N	NS-1	14.5	
T-10	2	Sabal palmetto	Cabbage Palm	FAC	N	SP-2	11	
T-10	37	Nyssa sylvatica	Blackgum	FAC	N	NS-2	19.2	

Species within Canopy Strata		Station		T-1				T-2				T-3			
		Daubenmier Cover		80				15				18			
		Total Count		9				6				21			
Species	Common Name	Wetland Status	Invasive/ Exotic	Count	% cover	Daubenmier MP	Ave DBH (In)	Count	% cover	Daubenmier MP	Ave DBH (In)	Count	% cover	Daubenmier MP	Ave DBH (In)
<i>Fraxinus caroliniana</i>	Pop Ash	OBL	N		0	0			0	0			0	0	
<i>Sabal palmetto</i>	Cabbage Palm	FAC	N	7	75	62.5	13.3		0	0			0	0	
<i>Acer rubrum</i>	Red Maple	FACW	N		0	0		6	15	15	4.2	20	15	15	2.5
<i>Pinus elliotii</i>	Slash Pine	FACW	N		0	0			0	0			0	0	
<i>Morus rubra</i>	Red Mulberry	FAC	N	1	10	15	5.3		0	0			0	0	
<i>Nyssa sylvatica</i>	Blackgum	FAC	N		0	0			0	0			0	0	
<i>Schinus terebinthifolia</i>	Brazilian Pepper	FAC	EPPC(I)	1	5	2.5	2.5		0	0			0	0	
<i>Salix caroliniana</i>	Carolina Willow	OBL	N		0	0			0	0		1	1	2.5	4.3

Species within Canopy Strata		Station		T-4				T-5				T-6				T-7			
		Daubenmier Cover		15				15				38				68			
		Total Count		18				15				7				20			
Species	Common Name	Wetland Status	Invasive/ Exotic	Count	% cover	Daubenmier MP	Ave DBH (In)	Count	% cover	Daubenmier MP	Ave DBH (In)	Count	% cover	Daubenmier MP	Ave DBH (In)	Count	% cover	Daubenmier MP	Ave DBH (In)
<i>Fraxinus caroliniana</i>	Pop Ash	OBL	N		0	0			0	0			0	0		17	75	63	10.3
<i>Sabal palmetto</i>	Cabbage Palm	FAC	N		0	0			0	0			0	0		1	2.5	2.5	10.5
<i>Acer rubrum</i>	Red Maple	FACW	N		0	0			0	0		7	40	37.5	11.1		0	0	
<i>Pinus elliotii</i>	Slash Pine	FACW	N	18	25	15	3.9	15	20	15	3.8		0	0			0	0	
<i>Morus rubra</i>	Red Mulberry	FAC	N		0	0			0	0			0	0			0	0	
<i>Nyssa sylvatica</i>	Blackgum	FAC	N		0	0			0	0			0	0		2	2.5	2.5	14.6
<i>Schinus terebinthifolia</i>	Brazilian Pepper	FAC	EPPC(I)		0	0			0	0			0	0			0	0	
<i>Salix caroliniana</i>	Carolina Willow	OBL	N		0	0			0	0			0	0			0	0	

Species within Canopy Strata		Station		T-8				T-9				T-10			
		Daubenmier Cover		68				38				80			
		Total Count		22				15				9			
Species	Common Name	Wetland Status	Invasive/ Exotic	Count	% cover	Daubenmier MP	Ave DBH (In)	Count	% cover	Daubenmier MP	Ave DBH (In)	Count	% cover	Daubenmier MP	Ave DBH (In)
<i>Fraxinus caroliniana</i>	Pop Ash	OBL	N	19	75	63	10.5		0	0		5	70	63	22.1
<i>Sabal palmetto</i>	Cabbage Palm	FAC	N	2	5	2.5	11.9		0	0		2	15	15	11.7
<i>Acer rubrum</i>	Red Maple	FACW	N	1	5	2.5	5.2		0	0			0	0	
<i>Pinus elliotii</i>	Slash Pine	FACW	N		0	0		15	30	37.5	4.7		0	0	
<i>Morus rubra</i>	Red Mulberry	FAC	N		0	0			0	0			0	0	
<i>Nyssa sylvatica</i>	Blackgum	FAC	N		0	0			0	0		2	1	2.5	16.9
<i>Schinus terebinthifolia</i>	Brazilian Pepper	FAC	EPPC(I)		0	0			0	0			0	0	
<i>Salix caroliniana</i>	Carolina Willow	OBL	N		0	0			0	0			0	0	

Species within Canopy Strata		Station						
		Daubenmier Cover		Average Canopy Cover (Daubenmier)			43	
		Total Count		Average Trees/Plot			14.2	
Species	Common Name	Wetland Status	Invasive/ Exotic	# of Quadrats Present	Ave trees/plot	Ave % cover	Standard Dev (% cover)	Average DBH
<i>Fraxinus caroliniana</i>	Pop Ash	OBL	N	3	4.1	18.75	30.19	14.3
<i>Sabal palmetto</i>	Cabbage Palm	FAC	N	4	1.2	8.25	19.62	11.8
<i>Acer rubrum</i>	Red Maple	FACW	N	4	3.4	7	12.35	5.7
<i>Pinus elliotii</i>	Slash Pine	FACW	N	3	4.8	6.75	12.47	4.1
<i>Morus rubra</i>	Red Mulberry	FAC	N	1	0.1	1.5	4.74	5.3
<i>Nyssa sylvatica</i>	Blackgum	FAC	N	2	0.4	0.5	1.05	15.7
<i>Schinus terebinthifolia</i>	Brazilian Pepper	FAC	EPPC(I)	1	0.1	0.25	0.79	2.5
<i>Salix caroliniana</i>	Carolina Willow	OBL	N	1	0.1	0.25	0.79	4.3

Strub Strata of Canopy Plot			Station	T-1		T-2		T-3		T-4		T-5	
			Daubenmier cover	55		45		5		20		5	
Species	Common Name	Wetland Status	Invasive/Exotic	Cover (%)	Daubenmier MP	Cover (%)	Daubenmier MP	Cover (%)	Daubenmier MP	Cover (%)	Daubenmier MP	Cover (%)	Daubenmier MP
Salix caroliniana	Carolina Willow	OBL	N	30	37.5	30	37.5	2.5	2.5		0		0
Sabal palmetto	Cabbage Palm	FAC	N	10	15		0		0	2.5	2.5		0
Myrica cerifera	Wax Myrtle	FAC	N		0	5	2.5		0	20	15		0
Serenoa repens	Saw palmetto	FACU	N		0		0		0		0		0
Fraxinus caroliniana	Pop Ash	OBL	N		0		0		0		0		0
Acer rubrum	Red Maple	FACW	N	5	2.5	5	2.5	5	2.5		0		0
Pinus elliottii	Slash Pine	FACW	N		0		0		0	2.5	2.5	5	2.5
Baccharis halimifolia	Groundsel tree	FAC	N		0	5	2.5		0		0		0
Hypericum fasciculatum	Marsh St. John's W	OBL	N		0		0		0		0	2.5	2.5
Lyonia ferruginea	Rusty Staggerbush	FACU	N		0		0		0		0		0

Strub Strata of Canopy Plot			Station	T-6		T-7		T-8		T-9		T-10	
			Daubenmier cover	2.5		0		0		20		17.5	
Species	Common Name	Wetland Status	Invasive/Exotic	Cover (%)	Daubenmier MP	Cover (%)	Daubenmier MP	Cover (%)	Daubenmier MP	Cover (%)	Daubenmier MP	Cover (%)	Daubenmier MP
Salix caroliniana	Carolina Willow	OBL	N		0		0		0		0		0
Sabal palmetto	Cabbage Palm	FAC	N		0		0		0		0	5	2.5
Myrica cerifera	Wax Myrtle	FAC	N		0		0		0		0		0
Serenoa repens	Saw palmetto	FACU	N		0		0		0	20	15		0
Fraxinus caroliniana	Pop Ash	OBL	N		0		0		0		0	10	15
Acer rubrum	Red Maple	FACW	N	5	2.5		0		0		0		0
Pinus elliottii	Slash Pine	FACW	N		0		0		0	5	2.5		0
Baccharis halimifolia	Groundsel tree	FAC	N		0		0		0		0		0
Hypericum fasciculatum	Marsh St. John's W	OBL	N		0		0		0		0		0
Lyonia ferruginea	Rusty Staggerbush	FACU	N		0		0		0	2.5	2.5		0

Strub Strata of Canopy Plot			Station	Average Cover		Standard Deviation
			Daubenmier cover			
Species	Common Name	Wetland Status	Invasive/Exotic	Number of Quadrats	Average %Cover	
Salix caroliniana	Carolina Willow	OBL	N	3	7.75	15.70
Sabal palmetto	Cabbage Palm	FAC	N	3	2	4.68
Myrica cerifera	Wax Myrtle	FAC	N	2	1.75	4.72
Serenoa repens	Saw palmetto	FACU	N	1	1.5	4.74
Fraxinus caroliniana	Pop Ash	OBL	N	1	1.5	4.74
Acer rubrum	Red Maple	FACW	N	4	1	1.29
Pinus elliotii	Slash Pine	FACW	N	3	0.75	1.21
Baccharis halimifolia	Groundsel tree	FAC	N	1	0.25	0.79
Hypericum fasciculatum	Marsh St. John's W	OBL	N	1	0.25	0.79
Lyonia ferruginea	Rusty Staggerbush	FACU	N	1	0.25	0.79

Percent Cover of Ground Cover Species within Canopy Plots		Station		T-1		T-2		T-3		T-4		T-5	
		Ave. Water Depth (in)		0		0		0		0		0	
		Daubenmier cover		0		70		80		55		37.5	
Species	Common Name	Wetland Status (FDEP)	Invasive/ Exotic	Percent Cover	Daubenmier Class	Percent Cover	Daubenmier Class	Percent Cover	Daubenmier Class	Percent Cover	Daubenmier Class	Percent Cover	Daubenmier Class
Leaf Litter/ Bare Ground	N/A	N/A	N/A	95	85	7.5	15	5	2.5	37.5	37.5	67.5	62.5
<i>Cladium jamaicense</i>	Sawgrass	OBL	N		0	50	37.5	40	37.5		0		0
<i>Blechnum serrulatum</i>	Swamp Fern	FACW	N		0		0	50	37.5		0		0
<i>Amphicarpum muehlenbergianum</i>	Blue Maidencane	FACW	N		0		0		0	45	37.5	10	15
<i>Fraxinus caroliniana</i>	Pop Ash	OBL	N		0		0		0		0		0
	Broomsedge												
<i>Andropogon virginicus</i>	Bluestem	FAC	N		0		0		0	2.5	2.5	15	15
<i>Canna flaccida</i>	Golden Canna	OBL	N		0	25	15		0		0		0
<i>Persicaria hydropiperoides</i>	Swamp Smartweed	OBL	N		0		0		0		0		0
<i>Schinus terebinthifolia</i>	Brazilian Pepper	FAC	EPPC(I)		0		0		0		0		0
<i>Pinus elliotii</i>	Slash Pine	FACW	N		0		0		0	2.5	2.5	2.5	2.5
<i>Acer rubrum</i>	Red Maple	FACW	N		0	2.5	2.5	2.5	2.5		0		0
<i>Sabal palmetto</i>	Cabbage Palm	FAC	N		0		0		0	2.5	2.5		0
<i>Mikania scandens</i>	Climbing Hempvine	FACW+	N		0	2.5	2.5		0		0		0
<i>Solidago sp.</i>	Goldenrod	FACW	N		0	2.5	2.5		0		0		0
<i>Woodwardia virginica</i>	Virginia Chain Fern	FACW	N		0	2.5	2.5		0		0		0
<i>Lachnocaulon anceps</i>	Bogbutton	FACW	N		0		0		0	2.5	2.5	2.5	2.5
<i>Myrica cerifera</i>	Wax Myrtle	FAC	N		0		0		0	2.5	2.5	2.5	2.5
<i>Urena lobata</i>	Caesarweed	FAC	EPPC(I)		0		0		0		0		0
<i>Carex. sp.</i>	Sedge	-	N		0		0		0		0		0
<i>Toxicodendron radicans</i>	Poison Ivy	FAC	N		0		0		0		0		0
<i>Nephrolepis exaltata</i>	Sword Fern	FAC	N		0		0		0		0		0
<i>Pterocaulon pycnostachyum</i>	Blackroot	FACU	N		0		0		0		0		0
<i>Quercus pumila</i>	Running Oak	FACU	N		0		0		0		0		0
<i>Smilax glauca</i>	Cat Greenbrier	FAC	N		0		0		0		0		0
<i>Aristida stricta</i>	Wiregrass	FAC	N		0		0		0		0		0
<i>Euthamia caroliniana</i>	Flattop Goldenrod	FAC	N		0		0		0		0		0
<i>Elephantopus elatus</i>	Tall Elephantsfoot	FACU	N		0		0		0		0		0
<i>Serenoa repens</i>	Saw palmetto	FACU	N		0		0		0		0		0
<i>Hydrocotyle umbellata</i>	Marshpennywort	FACW	N		0		0		0		0		0
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	FAC	N		0		0		0		0		0
<i>Pontederia cordata</i>	Pickerelweed	OBL	N		0		0		0		0		0
	Creeping												
<i>Ludwigia repens</i>	Primrosewillow	OBL	N		0		0		0		0		0
<i>Bidens mitis</i>	Smallfruit beggarticks	OBL	N		0		0		0		0		0
<i>Cephalanthus occidentalis</i>	Common buttonbush	OBL	N		0		0		0		0		0
<i>Eleocharis sp.</i>	Spikerush	OBL	N		0		0		0		0		0
<i>Eupatorium capillifolium</i>	Dogfennel	FAC	N		0		0		0		0		0
<i>Osmunda cinnamomea</i>	Cinnamon Fern	FACW	N		0		0		0		0		0
<i>Juncus effusus</i>	Soft Rush	OBL	N		0		0		0		0		0
<i>Lygodium japonicum</i>	Japanese Climbing Fern	FAC	EPPC(I)		0		0		0		0		0
<i>Smilax laurifolia</i>	Laurel Greenbrier	FACW	N		0		0		0	2.5	2.5		0
<i>Xyris sp.</i>	Yelloweyed grass	OBL	N		0		0		0	2.5	2.5		0
<i>Thalia geniculata</i>	Alligator Flag	OBL	N		0		0	2.5	2.5		0		0
<i>Bacopa caroliniana</i>	Lemon Bacopa	OBL	N		0	2.5	2.5		0		0		0
<i>Centella asiatica</i>	Spadeleaf	FACW	N		0	2.5	2.5		0		0		0
<i>Hypericum fasciculatum</i>	Marsh St. John's Wort	OBL	N		0	2.5	2.5		0		0		0

Percent Cover of Ground Cover Species within Canopy Plots		Station		T-6		T-7		T-8		T-9		T-10	
		Ave. Water Depth (in)		0		0		0		0		0	
		Daubenmier cover		87.5		20		10		22.5		52.5	
Species	Common Name	Wetland Status (FDEP)	Invasive/ Exotic	Percent Cover	Daubenmier Class	Percent Cover	Daubenmier Class	Percent Cover	Daubenmier Class	Percent Cover	Daubenmier Class	Percent Cover	Daubenmier Class
Leaf Litter/ Bare Ground	N/A	N/A	N/A	15	15	85	85	90	85	70	62.5	42.5	37.5
<i>Cladium jamaicense</i>	Sawgrass	OBL	N	35	37.5		0		0		0		0
<i>Blechnum serrulatum</i>	Swamp Fern	FACW	N		0		0		0		0	40	37.5
<i>Amphicarpum muehlenbergianum</i>	Blue Maidencane	FACW	N		0		0		0		0		0
<i>Fraxinus caroliniana</i>	Pop Ash	OBL	N		0	10	15	2.5	2.5		0	2.5	2.5
<i>Andropogon virginicus</i>	Broomsedge	FAC	N		0		0		0	5	2.5		0
<i>Canna flaccida</i>	Golden Canna	OBL	N	2.5	2.5		0		0		0		0
<i>Persicaria hydropiperoides</i>	Swamp Smartweed	OBL	N	10	15		0		0		0		0
<i>Schinus terebinthifolia</i>	Brazilian Pepper	FAC	EPPC(I)		0	2.5	2.5	2.5	2.5		0	2.5	2.5
<i>Pinus elliotii</i>	Slash Pine	FACW	N		0		0		0	5	2.5		0
<i>Acer rubrum</i>	Red Maple	FACW	N	2.5	2.5		0		0		0		0
<i>Sabal palmetto</i>	Cabbage Palm	FAC	N		0		0	2.5	2.5		0		0
<i>Mikania scandens</i>	Climbing Hempvine	FACW+	N	2.5	2.5		0		0		0		0
<i>Solidago sp.</i>	Goldenrod	FACW	N	2.5	2.5		0		0		0		0
<i>Woodwardia virginica</i>	Virginia Chain Fern	FACW	N	2.5	2.5		0		0		0		0
<i>Lachnocaulon anceps</i>	Bogbutton	FACW	N		0		0		0		0		0
<i>Myrica cerifera</i>	Wax Myrtle	FAC	N		0		0		0		0		0
<i>Urena lobata</i>	Caesarweed	FAC	EPPC(I)		0		0		0		0	2.5	2.5
<i>Carex. sp.</i>	Sedge	-	N		0		0		0		0	5	2.5
<i>Toxicodendron radicans</i>	Poison Ivy	FAC	N		0		0		0		0	2.5	2.5
<i>Nephrolepis exaltata</i>	Sword Fern	FAC	N		0		0		0		0	2.5	2.5
<i>Pterocaulon pycnostachyum</i>	Blackroot	FACU	N		0		0		0	2.5	2.5		0
<i>Quercus pumila</i>	Running Oak	FACU	N		0		0		0	5	2.5		0
<i>Smilax glauca</i>	Cat Greenbrier	FAC	N		0		0		0	2.5	2.5		0
<i>Aristida stricta</i>	Wiregrass	FAC	N		0		0		0	2.5	2.5		0
<i>Euthamia caroliniana</i>	Flattop Goldenrod	FAC	N		0		0		0	2.5	2.5		0
<i>Elephantopus elatus</i>	Tall Elephantsfoot	FACU	N		0		0		0	2.5	2.5		0
<i>Serenoa repens</i>	Saw palmetto	FACU	N		0		0		0	2.5	2.5		0
<i>Hydrocotyle umbellata</i>	Marshpennywort	FACW	N		0		0	2.5	2.5		0		0
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	FAC	N		0	2.5	2.5		0		0		0
<i>Pontederia cordata</i>	Pickernelweed	OBL	N	5	2.5		0		0		0		0
<i>Ludwigia repens</i>	Creeping Primrosewillow	OBL	N	5	2.5		0		0		0		0
<i>Bidens mitis</i>	Smallfruit beggarticks	OBL	N	2.5	2.5		0		0		0		0
<i>Cephalanthus occidentalis</i>	Common buttonbush	OBL	N	2.5	2.5		0		0		0		0
<i>Eleocharis sp.</i>	Spikerush	OBL	N	2.5	2.5		0		0		0		0
<i>Eupatorium capillifolium</i>	Dogfennel	FAC	N	2.5	2.5		0		0		0		0
<i>Osmunda cinnamomea</i>	Cinnamon Fern	FACW	N	2.5	2.5		0		0		0		0
<i>Juncus effusus</i>	Soft Rush	OBL	N	2.5	2.5		0		0		0		0
<i>Lygodium japonicum</i>	Japanese Climbing Fern	FAC	EPPC(I)	2.5	2.5		0		0		0		0
<i>Smilax laurifolia</i>	Laurel Greenbrier	FACW	N		0		0		0		0		0
<i>Xyris sp.</i>	Yelloweyed grass	OBL	N	0	0		0		0		0		0
<i>Thalia geniculata</i>	Alligator Flag	OBL	N		0		0		0		0		0
<i>Bacopa caroliniana</i>	Lemon Bacopa	OBL	N		0		0		0		0		0
<i>Centella asiatica</i>	Spadeleaf	FACW	N	0	0		0		0		0		0
<i>Hypericum fasciculatum</i>	Marsh St. John's Wort	OBL	N		0		0		0		0		0

Percent Cover of Ground Cover Species within Canopy Plots		Station				
		Ave. Water Depth (in)				
		Daubenmier cover		Average Veg Cover		43.5
Species	Common Name	Wetland Status (FDEP)	Invasive/ Exotic	Average % Cover	# of Quadrats Present (/10)	Standard Deviation
<i>Leaf Litter/ Bare Ground</i>	N/A	N/A	N/A	48.75	10	31.61
<i>Cladium jamaicense</i>	Sawgrass	OBL	N	11.25	3	18.11
<i>Blechnum serrulatum</i>	Swamp Fern	FACW	N	7.5	2	15.81
<i>Amphicarpum muehlenbergianum</i>	Blue Maidencane	FACW	N	5.25	2	12.27
<i>Fraxinus caroliniana</i>	Pop Ash	OBL	N	2	3	4.68
<i>Andropogon virginicus</i>	Broomsedge	FAC	N	2	3	4.68
<i>Canna flaccida</i>	Golden Canna	OBL	N	1.75	2	4.72
<i>Persicaria hydropiperoides</i>	Swamp Smartweed	OBL	N	1.5	1	4.74
<i>Schinus terebinthifolia</i>	Brazilian Pepper	FAC	EPPC(I)	0.75	3	1.21
<i>Pinus elliotii</i>	Slash Pine	FACW	N	0.75	3	1.21
<i>Acer rubrum</i>	Red Maple	FACW	N	0.75	3	1.21
<i>Sabal palmetto</i>	Cabbage Palm	FAC	N	0.5	2	1.05
<i>Mikania scandens</i>	Climbing Hempvine	FACW+	N	0.5	2	1.05
<i>Solidago sp.</i>	Goldenrod	FACW	N	0.5	2	1.05
<i>Woodwardia virginica</i>	Virginia Chain Fern	FACW	N	0.5	2	1.05
<i>Lachnocaulon anceps</i>	Bogbutton	FACW	N	0.5	2	1.05
<i>Myrica cerifera</i>	Wax Myrtle	FAC	N	0.5	2	1.05
<i>Urena lobata</i>	Caesarweed	FAC	EPPC(I)	0.25	1	0.79
<i>Carex. sp.</i>	Sedge	-	N	0.25	1	0.79
<i>Toxicodendron radicans</i>	Poison Ivy	FAC	N	0.25	1	0.79
<i>Nephrolepis exaltata</i>	Sword Fern	FAC	N	0.25	1	0.79
<i>Pterocaulon pycnostachyum</i>	Blackroot	FACU	N	0.25	1	0.79
<i>Quercus pumila</i>	Running Oak	FACU	N	0.25	1	0.79
<i>Smilax glauca</i>	Cat Greenbrier	FAC	N	0.25	1	0.79
<i>Aristida stricta</i>	Wiregrass	FAC	N	0.25	1	0.79
<i>Euthamia caroliniana</i>	Flattop Goldenrod	FAC	N	0.25	1	0.79
<i>Elephantopus elatus</i>	Tall Elephantfoot	FACU	N	0.25	1	0.79
<i>Serenoa repens</i>	Saw palmetto	FACU	N	0.25	1	0.79
<i>Hydrocotyle umbellata</i>	Marshpennywort	FACW	N	0.25	1	0.79
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	FAC	N	0.25	1	0.79
<i>Pontederia cordata</i>	Pickernelweed	OBL	N	0.25	1	0.79
<i>Ludwigia repens</i>	Creeping Primrosewillow	OBL	N	0.25	1	0.79
<i>Bidens mitis</i>	Smallfruit beggarticks	OBL	N	0.25	1	0.79
<i>Cephalanthus occidentalis</i>	Common buttonbush	OBL	N	0.25	1	0.79
<i>Eleocharis sp.</i>	Spikerush	OBL	N	0.25	1	0.79
<i>Eupatorium capillifolium</i>	Dogfennel	FAC	N	0.25	1	0.79
<i>Osmunda cinnamomea</i>	Cinnamon Fern	FACW	N	0.25	1	0.79
<i>Juncus effusus</i>	Soft Rush	OBL	N	0.25	1	0.79
<i>Lygodium japonicum</i>	Japanese Climbing Fern	FAC	EPPC(I)	0.25	1	0.79
<i>Smilax laurifolia</i>	Laurel Greenbrier	FACW	N	0.25	1	0.79
<i>Xyris sp.</i>	Yelloweyed grass	OBL	N	0.25	2	0.79
<i>Thalia geniculata</i>	Alligator Flag	OBL	N	0.25	1	0.79
<i>Bacopa caroliniana</i>	Lemon Bacopa	OBL	N	0.25	1	0.79
<i>Centella asiatica</i>	Spadeleaf	FACW	N	0.25	2	0.79
<i>Hypericum fasciculatum</i>	Marsh St. John's Wort	OBL	N	0.25	1	0.79