

Appendix A

List of Reviewed Permits

1. Nonphosphate Mine Permits

Operator	Project Name	Permit Number	Date Issued
Alico Land Development, Inc.	Keri Road Sand Mine	300373-001	November 9, 2012
Black Gold Compost Company	Gator Pond Peat Mine	299580-001	March 1, 2013
Dial One, LC	Nature Coast Mine	283664-001	June 15, 2010
E.I. du Pont de Nemours and Company, Inc.	North Maxville Mine	169603-017	December 21, 2009
FFD Land Co., Inc.	FFD MEPD Mine	293270-001	August 23, 2011
Florida Rock Industries, Inc.	East Naples Mine	258805-001	December 4, 2012
Sumter Cement Company, LLC	Sumter Cement Mine	271152-001	September 20, 2011
Sunshine Peat, Inc.	Hurley Peat Mine	242621-001	May 5, 2006
Tarmac America, LLC	King Road Mine	244771-002	November 1, 2010

2. Phosphate Mine Permits

Operator	Project Name	Permit Number	Date Issued
CF Industries, Inc.	South Pasture Extension	294666-001	June 30, 2012
Mosaic Fertilizer, LLC	Mining Unit R, Kingsford Mine	133996-001	May 26, 1999
Mosaic Fertilizer, LLC	Mining Unit T, Kingsford Mine	133996-004	March 2, 2000
Mosaic Fertilizer, LLC	Altman Tract	0155875-009/010	June 13, 2006
Mosaic Fertilizer, LLC	Lambe Tract	155875-019	September 16, 2008
Mosaic Fertilizer, LLC	Ona-Ft. Green Extension	169281-001	June 8, 2009
Mosaic Fertilizer, LLC	South Ft. Meade, Hardee Co. Mine	221122-004	February 27, 2009
PCS Phosphate-White Springs	Loncala Tract	144913-021	November 30, 2012

3. Mitigation Bank Permits

Mitigation Banker	Mitigation Bank (MB) Name	Permit Number	Date Issued (original)
Bear Creek Timber, LLC	Bear Creek MB	294280-001	6/12/12
Buckeye Florida, L.P.	San Pedro Bay MB	169184-020	9/14/12 (2/12/02)
Dennis Benbow and Jack Spillane	Florida MB	138562-001	5/28/1997
Everglades National Park	“Hole in the Donut”	257597-001	2/15/1995
Florida Power & Light Company	Everglades, Phase I MB	136876-001	10/21/1996
Florida Power & Light Company	Everglades, Phase II MB	193232-001	10/17/03
Garcon Peninsula Mitigation Bank	Garcon Peninsula MB	170880-001	4/16/01
Heather Island Mitigation Bank, LLC	Heather Island MB	293579-001	7/30/13
ITT	Graham Swamp MB	214686-001	9/5/1996
James Maulden	Sweetwater MB	281744-001	11/9/11
Mariner Properties Development, Inc.	Corkscrew Regional MB	198035-001	6/4/04 (11/8/06)
Mariner Properties Development, Inc.	Little Pine Island MB	198719-082	12/18/12 (2/6/96)
MC Davis 2006 Trust	Nokuse Plantation MB	283695-001	7/8/08
Northwest Florida WMD	Sandhill Lakes MB	227351-001	8/4/05
Sam Oosterhoudt	Bayfield MB	288852-001	4/19/11
St. Joe Company	Breakfast Point MB	227473-011	4/8/2011 (10/11/04)
St. Joe Company	Devils Swamp MB	227475-005	9/17/10 (10/11/04)
St. Lucie County	Bear Point MB	175246-001	7/25/03
TetraTech EC, Inc.	Loxahatchee MB	140969-096	12/1/11 (2/18/00)
Wekiva River Mitigation Bank, LLC	Wekiva River MB	234803-013	12/4/08 (6/1/05)
Westervelt	Pensacola Bay MB	284438-001	3/26/09
Westervelt	St Marks MB	295847-001	8/5/11

Appendix B

Common Permit Parameters

Success Criteria Parameters	Site-wide Success Criteria Language
Period of non-intervention	“Wetland creation, restoration and enhancement sites shall be successful when all of the following criteria have been continuously met for a period of at least one growing season, without intervention in the form of irrigation, dewatering, removal of undesirable vegetation, or replanting of appropriate vegetation.” (Nonphosphate) “The 0.3 acres of forested wetlands and 46.7 acres of nonforested wetlands shall be released when the mitigation wetlands have been constructed in accordance with the permit requirements, the following conditions have been met, and no intervention in the form of irrigation, dewatering, or replanting of desirable vegetation has occurred for a period of two consecutive years unless approved in writing by the Department.” (Mosaic Lambe Tract) “The bank shall be deemed successful when all of the following criteria have been met for a period of at least one full year without intervention in the form of artificial manipulation of water levels, prescribed burns, eradication of undesirable vegetation or replanting of desirable vegetation.” (Breakfast Point) “The Bank shall be deemed successful when the following criteria are met without intervention (in the form of irrigation, changes in the water control outfall structure elevation, removal of undesirable vegetation, or replanting of desirable vegetation) and that no such intervention has occurred for a period of at least three years.” (Florida Mitigation Bank)
Plants are healthy and reproductive	“Plants are reproducing naturally, either by normal or typical vegetative reproduction or through seedling establishment, growth, and survival” (Breakfast Point) “Non-nuisance, native wetland ground, shrub, and tree species are healthy and exhibiting the cover and diversity typical of the habitat as described in Attachment F or other scientific literature, such as found in Florida Natural Areas Inventory natural community descriptions. The plants are reproducing naturally, either by normal, healthy vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth, and survival.” (Wekiva River Mitigation Bank) “... plants are reproducing naturally, either by normal, healthy, vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth and survival.” (Non-phosphate) “Desirable ground cover plant species shall be reproducing naturally, either by normal vegetative spread or through seedling establishment, growth, and survival” and “desirable canopy and shrub species shall be reproducing naturally, as evidenced by the presence of saplings that are greater than one foot in height.” (PCS Loncala)

	“Desirable canopy and shrub species shall be reproducing naturally, as evidenced by the presence of fruit, cones or seedlings.”(Mosaic South Ft. Meade Hardee)									
Target Communities	“The bank shall enhance, restore or create the following communities: hydric and upland pine flatwoods, marsh and wet prairie, cypress heads and mixed wetland hardwoods.” (Corkscrew Regional Mitigation Bank) “The overall goal of the mitigation bank is to restore the native mesic flatwoods, wet prairie/flatwoods, and cypress basin swamp communities” (Bear Creek Mitigation Bank) “The overall goal of the Heather Island Mitigation Bank is to establish viable and sustainable mesic flatwoods and oak hammock upland communities; mixed wetland forests and transitional/ecotone shrub communities; and sawgrass marsh and small depression marsh communities.” (Heather Island Mitigation Bank) Wetland Mitigation Summary. The mitigation to be implemented as part of the reasonable assurances for this project consists of: <table><tr><td>Wetland ID</td><td>FLUCCS</td><td>Habitat Type</td><td>Acres</td></tr><tr><td>Wetland 1</td><td>617</td><td>Mixed Wetland Hardwoods Enhance/Preserve</td><td>25.9</td></tr></table> (Nonphosphate)	Wetland ID	FLUCCS	Habitat Type	Acres	Wetland 1	617	Mixed Wetland Hardwoods Enhance/Preserve	25.9	
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Acres of Target Communities	“The communities listed above shall be enhanced or restored in the approximate configuration and acreage shown in Figure 5, with at least 530 acres determined to be wetlands or other surface waters pursuant to Chapter 62-340, F.A.C.” (Corkscrew Regional Mitigation Bank) “Updated maps based on aerial photography, qualitative data, and reference descriptions that distinguish the four wetland types (including FLUCCS descriptions, ground-truthing, data and site inspections) indicate that the acreage and configuration of these restored wetland community types is within 10% of permit values. Any greater deviation from the permitted values shall be addressed in a modification request to re-map the resulting communities” (Little Pine Island Mitigation Bank) “The ~1,225 acres of wetlands within the perimeter berms shall be determined to be jurisdictional pursuant to Rule 62-340, F.A.C., and the herbaceous and forested community types are within 10% of their target of 870 acres and 355 acres, respectively.” (Loxahatchee Mitigation Bank) The bank shall enhance or restore an estimated acreage of the following community types within the associated polygons: <table><tr><th>Community^a</th><th>Associated Polygon(s)</th><th>Acres</th></tr><tr><td>Hydric Hammock</td><td>Polygon 1R, Polygon 1E, Polygon 1P, and Polygon 2</td><td>1,256.6</td></tr><tr><td>Sandhill</td><td>Polygon 5E</td><td>165.6</td></tr></table>	Community ^a	Associated Polygon(s)	Acres	Hydric Hammock	Polygon 1R, Polygon 1E, Polygon 1P, and Polygon 2	1,256.6	Sandhill	Polygon 5E	165.6
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Sandhill	Polygon 5E	165.6								

	Mesic Flatwoods	Polygon 6	81.7								
	Wet Prairie	Polygon 8	12.2								
	(Wekiva River Mitigation Bank) “The permittee shall create as mitigation 1,476.3 acres of wetlands and 234.5 acres of other surface waters, including 43,838 linear feet of natural stream channels, as shown on Figures EN-15a, EN-16, EN-17. The mitigation wetlands to be constructed include 7.6 acres of vegetated non-forested wetlands, 894.1 acres of freshwater marsh, 86.0 acres of wet prairie, 3.5 acres of bay swamp, 4.0 acres of gum swamp, 15.5 acres of inland ponds and sloughs, 284.5 acres of mixed wetland hardwood forest, 17.5 acres of hydric pine flatwoods, 47.1 acres of hydric pine savanna, 11.0 acres of slash pine swamp forest, and 105.5 acres of hardwood-conifer mixed wetland forest.” (CF South Pasture Extension) Wetland Mitigation Summary. The mitigation to be implemented as part of the reasonable assurances for this project consists of: <table> <tr> <th>Wetland ID</th><th>FLUCCS</th><th>Habitat Type</th><th>Acres</th></tr> <tr> <td>Wetland 1</td><td>617</td><td>Mixed Wetland Hardwoods Enhance/Preserve</td><td>25.9</td></tr> </table> (Nonphosphate)			Wetland ID	FLUCCS	Habitat Type	Acres	Wetland 1	617	Mixed Wetland Hardwoods Enhance/Preserve	25.9
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Wetlands Are Jurisdictional	“All wetland target communities shall meet wetland delineation criteria as defined by Ch. 62-340, F.A.C.” (Breakfast Point) “...with at least 530 acres determined to be wetlands or other surface waters pursuant to Chapter 62-340, F.A.C., based on as-built drawings, QMS certification and Department concurrence.” (Corkscrew Regional Mitigation Bank) “A minimum of 9,000 acres shall be determined to be wetlands or other surface waters, as delineated pursuant to Section 373.421, F.S.” (Everglades Mitigation Bank, Phase II) “The Department has determined that the required minimum acreage of the mitigation site is jurisdictional pursuant to section 373.421, F.S. Specific Condition No. [XX] lists each mitigation site, the minimum required acreage for each site, and the target habitat.” (Nonphosphate) “Mine wide, not less than 357.4 acres of forested wetlands, 253.1 acres of herbaceous wetlands, 29.9 acres of other surface waters and 67,397 linear feet of stream channels shall be determined to be wetlands or other surface waters. The minimum acreage for each wetland or other surface water identified on Map C-26 shall be achieved as indicated on Table E-7. At least the average lengths of each stream segment identified on Map C-28 shall be achieved as indicated on Table 4 of the Stream Creation Design Guidance Document. However, minor changes in the size, shape, or location of individual wetlands, streams and other surface waters may be acceptable subject to review and written approval from the Bureau of Mining and Minerals Regulation. The acreage of wetlands and other surface waters shall be determined pursuant to Chapter 62-340, F.A.C. Stream lengths shall be determined based on GPS mapping of the channel thalweg.” (Mosaic SFMH)										

Invasive Species	“Nuisance exotic species listed in FLEPPC are restricted to less than 1% cover in any one acre.” (Nokuse Mitigation Bank) “Coverage by category I and II invasive exotic plant species (pursuant to the most current list established by the Florida Exotic Pest Council at www.fleppc.org) shall not exceed 1% total coverage per acre” (Bayfield Mitigation Bank) “Invasive exotic species cover is less than 1% cover in any one acre and nuisance native species are less than 5% cover in any one acre.” (Sandhill Lakes Mitigation Bank) “The bank shall maintain less than 2% coverage with invasive exotics vegetation (as listed in the FEPPC Category I, 2003 plant list) and less than 5% coverage of nuisance vegetation (including, but not limited to <i>Typha</i> spp., <i>Mikania scandens</i>, and <i>Trema micranthum</i>) in any acre, bank-wide for at least 3 years, with no herbicidal treatment conducted within the 12 months prior to success determination.” (Everglades Mitigation Bank, Phase II) “Exotic and nuisance species are limited to five percent or less of the total cover.” (Nonphosphate) “Invasive exotic vegetation such as <i>Melaleuca quinquenervia</i> (melaleuca), <i>Sapium sebiferum</i> (Chinese tallow) and <i>Schinus terebinthifolius</i> (Brazilian pepper) shall not be considered an acceptable component of the vegetative community.” (Mosaic Ona-Ft. Green) “Invasive exotic vegetation including, but not limited to Cogon grass (<i>Imperata cylindrica</i>), melaleuca (<i>Melaleuca quinquenervia</i>), Climbing fern (<i>Lygodium</i> spp.), Chinese tallow (<i>Sapium sebiferum</i>), primrose willow (<i>Ludwigia peruviana</i>), and Brazilian pepper (<i>Schinus terebinthifolius</i>) shall not be considered an acceptable component of the vegetative community. Invasive exotic species shall mean those species listed on the Florida Exotic Pest Plant Council’s 2011 list of invasive exotic plant species.” (PCS Loncala) “The bank shall be deemed successful when all of the following criteria have been met for a period of at least one full year without intervention in the form of artificial manipulation of water levels, prescribed burns, eradication of undesirable vegetation or replanting of desirable vegetation. The bank shall enhance or restore the following four wetland polygon types: wet prairie, wet flatwoods, stream/bayou and cypress/hardwood swamp as shown on Figure 2 of 27. a. Site-wide: • <i>S. sebiferum</i> shall not exceed 1% cover in any polygon, except for seedlings that may have sprouted in the 12 months previous to the success determination when artificial manipulation is prohibited. • Bahiagrass shall not exceed 10% cover in any polygon, or, if greater than 10%, shall display a trend over two or more years that strongly indicates that its cover will decrease below 10% under the permitted management plan. • The collective cover of all other exotic species (excepting <i>S. sebiferum</i> and bahiagrass) shall not exceed 1% in any polygon.” (Garcon Peninsula Mitigation Bank)
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Nuisance Species	“Nuisance species including, but not limited to <i>Typha</i>, <i>Rubus</i>, and viney species such <i>Vitis</i> and <i>Smilax</i>, are <5% cover per acre (10% in uplands)” (Bayfield Mitigation Bank) “Invasive exotic species cover is less than 1% cover in any one acre and nuisance native species are less than 5% cover in any one acre.” (Sandhill Lakes Mitigation Bank) “Exotic and nuisance species are limited to five percent or less of the total cover.” (Nonphosphate) “Cover by nuisance vegetation species, including, but not limited to <i>Typha</i> spp. (cattail), <i>Ludwigia peruviana</i> (primrose willow), and <i>Mikania</i> spp. (climbing hemp vine) shall be limited to less than 10% of the total wetland area.” (Mosaic Ona-Fort Green) “Cover by nuisance vegetation species, including cattail (<i>Typha</i> spp.), climbing hemp vine (<i>Mikania</i> spp.), saltbush (<i>Baccharis</i> spp.), and willow (<i>Salix</i> spp.), shall be limited to less than 10% relative cover. However, any member of the species listed above shall not be considered a nuisance species in cases where it individually contributes less than 3% to the relative vegetation cover and does not dominate any patches greater than ½-acre in size.” (PCS Loncala)
Hydrology	All low water crossings and ditch fill areas have been installed to the satisfaction of the Department, are stabilized and showing no signs of erosion, and have operated as designed, without the need of repairs for a period of at least three years.” (Pensacola Bay Mitigation Bank) “Bank area is inundated for seven consecutive days or saturated for at least 20 consecutive days in a year approximating “normal” hydrologic conditions.” (Graham Swamp Mitigation Bank) “Plants appear healthy with no stress resulting from an improper hydroperiod” (Corkscrew Regional Mitigation Bank) “All hydrology construction areas have been completed to the satisfaction of the Department, are stabilized showing no signs of erosion, and have operated as designed without repair for a period of two years; There is no evidence of unnatural channelized flow wash outs or erosion; and Staff gauges show an equalized water elevation balance for at least two years” (Bayfield Mitigation Bank) “...soils are inundated through wet season and water table is no more than 10" below ground surface in dry season. This target is intended to reflect natural conditions in healthy sawgrass and is expected to be met for each of these polygons as a whole, regardless of some expected variations in water levels at different sampling locations. Although the water level criteria must be met over time, any year when exceptional drought conditions are demonstrated, such that criteria water levels cannot be expected, the drought year will not be considered in the analysis for final success, provided that water levels again meet criteria when normal precipitation conditions return” (Florida Mitigation Bank) “Each created wetland shall have hydroperiods and depths of inundation sufficient to support wetland vegetation and that are within the range of conditions occurring in the

	reference wetlands of the applicable community type for the same time period as determined based on the monitoring data.” (CF South Pasture Extension) “Each site shall have hydroperiods and depths of inundation based on field measurements that are within the range of conditions for the target community type. The headwater wetlands should be storing and releasing water to the downstream wetlands and to the tributary in a manner approximating that of the reference wetlands of that community type.” (Nonphosphate)
Soils	Soil sampling or monitoring shows “Development of hydric soil characteristics, soil moisture” (Mosaic South Fort Meade Hardee, Lambe and Altman Tracts, CF South Pasture Extension, PCS Loncala) “Water level recorder data and random soil core samples representing each wetland community shall indicate appropriate water levels and appropriate hydric soils to support the community.” (Bear CreekMitigation Bank) “Each wetland polygon shall demonstrate appropriate hydric soils.” (Bayfield Mitigation Bank)

Success Criteria Parameters	Wet Flatwoods
Ground cover /herbaceous - Percent cover	“At least 70% relative cover with herbaceous species” (Breakfast Point Mitigation Bank) “Minimum of 70% cover by native herbaceous species listed as OBL, FACW, or FAC” (Corkscrew Regional Mitigation Bank) “Fire-adapted, native, wet flatwoods/wet prairie herbaceous species shall average at least 55% cover” (Sandhill Lakes Mitigation Bank) “The average cover/density of herbaceous groundcover (including graminoids, forbs and ferns) shall be 70% or greater, with no one monitoring quadrat having less than 50% cover/density” (Nokuse Plantation Mitigation Bank) “The average cover of herbaceous groundcover (including graminoids, forbs, and ferns) shall be 75% or greater, with no one monitoring quadrat having less than 50% cover, and the collective cover of pioneer <i>Andropogon</i> spp. (except <i>A. liebmannii</i>) shall not exceed 10% in any quadrat” (Pensacola Bay Mitigation Bank) Percent cover by all appropriate species is 80 percent or more ... Appropriate species are those species that are identified as obligate or facultative wet plant species, as defined by Chapter 62-340, F.A.C., that commonly occur in the target habitat type, and are native to [XXXXX] County (Nonphosphate) “Total cover by non-nuisance, non-exotic FAC, FACW, and/or OBL species listed in rule 62-340.450, F.A.C., (desirable species) in the ground cover shall be at least 80%. Relative cover by non-nuisance, non-exotic FAC, FACW, or OBL species listed in rule 62-340.450, F.A.C., in the ground cover shall also be at least 80%. Non-nuisance, non-exotic facultative species will be considered desirable only provided that their contributions to the vegetative community structure are within the range of values documented within the reference wetlands of the target community type, the target community type is established as described in the Appendix 7 (Reclamation Plan), and the mitigation site is jurisdictional in accordance with Rule 62-340, F.A.C. In no case shall temporary dominance by transient facultative species such as dogfennell (<i>Eupatorium capillifolium</i>), sesbania (<i>Sesbania</i> spp.), wax myrtle (<i>Myrica cerifera</i>), shyleaf (<i>Aeschynomene americana</i>), or similar species be used to demonstrate achievement of vegetation community performance standards.” (CF South Pasture Extension) “Cover by non-nuisance, non-exotic wetland species (FACW or OBL) listed in rule 62-340.450, F.A.C., in the ground cover shall be at least 80% of the total wetland area or shall be within the range of values documented within the reference wetlands of the target community type.” (Mosaic South Fort Meade Hardee)
Groundcover/ herbaceous - Species diversity/community composition	“At least 40 native, non-canopy, wetland (FACW or OBL) species per transect” (Breakfast Point Mitigation Bank) “There is an average of at least of 40 species typical of wet flatwoods” (Nokuse Plantation Mitigation Bank) “The average cover of graminoids is 60 % or greater of the herbaceous groundcover, and the collective cover of pioneer <i>Andropogon</i> spp. (except <i>A. liebmannii</i>) does not exceed 25% of the graminoids” (Sandhill Lakes Mitigation Bank)

	“Each sampling quadrat... shall contain at least 80% of the total <i>number</i> of species identified in the reference wetland sampling (described below), and at least 75% of the quadrat’s species shall be also be found in the reference wetland sampling. Species not found at the reference site shall be species appropriate to the community” (Pensacola Bay Mitigation Bank) “... <50% relative cover by ruderal species; and Wiregrass plus Curtis’ dropseed shall rank among the top 5 herbaceous species in dominance.” and “≥45 appropriate species/transect” (Bayfield Mitigation Bank) “Each quantitative sampling transect shall contain at least 40* native, non-nuisance species appropriate to wet prairie/ wet flatwoods, wiregrass and other fine fuel grasses are among the dominant species, and the cumulative total of appropriate species from qualitative and quantitative transects is >60” (St Marks Mitigation Bank) The plant species and coverage is similar to what would be expected for the target habitat type. (Nonphosphate) “Ground cover within hydric pine flatwoods shall be dominated by native species typical of reference hydric pine flatwoods. At least 10% of the relative cover shall be derived from wiregrass (<i>Aristida stricta</i> var. <i>beyrichiana</i>). Species richness and dominance regimes shall be within the range of values documented within the reference hydric pine flatwoods. Cumulative total cover by range grasses, such as Bahia grass (<i>Paspalum notatum</i>) and Bermuda grass (<i>Cynodon dactylon</i>), shall be less than 10%.” (CF South Pasture Extension)
Bare ground, leaf litter, open water	“Less than 20% bare ground, leaf litter and water (combined)” (Breakfast Point Mitigation Bank) “≤20% bare ground or leaf litter” (Bayfield Mitigation Bank) “Non-vegetated open water and/or bare ground shall cumulatively be limited to less than 10% of the wetland area.” (CF South Pasture Extension)
Shrub cover, height (coppice)	“Gallberry, Yaupon, Wax Myrtle, Titi, and other woody shrubs shall be no taller than the coppice sprouts that could have arisen from root crowns following the most recent fire.” (Garcon Mitigation Bank) “less than 30% relative cover with woody shrubs” and “At least 80% shrubs reduced to coppice <2m in height” (Breakfast Point Mitigation Bank) “Gallberry, Wax Myrtle, Titi, and other woody shrubs are no taller than the coppice sprouts that could have arisen from root crowns following the most recent fire” (Sandhill Lakes Mitigation Bank) “Gallberry, yaupon, wax myrtle, fetterbush, titi and other woody shrubs shall be no taller than the coppice sprouts that could have arisen from root crowns following the most recent successful fire. Areas dominated by woody shrubs (i.e. areas with shrubs averaging 1.5 meters in height and a collective canopy coverage of over 50%) shall be limited to random spots of 1 ac. or less where fire did not burn and shall represent an insignificant feature in this community type” (Nokuse Plantation Mitigation Bank)

	For wet prairies and flatwoods with fire management: Gallberry, yaupon, wax myrtle, titi, and other woody shrubs shall be no taller than the coppice sprouts that could have arisen from root crowns following the most recent fire. (Nonphosphate) “The shrub layer shall contain at least 3 of the species listed for the target community type on Table FDEP-1 and shall have an average of at least 50 shrubs per acre.” (PCS Loncalla) “The shrub layer shall contain at least 5 of the species listed for the target community type on Appendix 7 - Table RP-2 and shall have an average of at least 300 shrubs per acre.” (CF South Pasture Extension) “Hydric pine flatwoods areas shall have an average density of 350/shrubs acres to be composed primarily of saw palmetto (<i>Serenia repens</i>), gallberry (<i>Ilex glabra</i>), fetterbush (<i>Lyonia lucida</i>), and other species typical of hydric pine flatwoods.” (Mosaic Ona-Fort Green)
Canopy – tree density	“An average of less than 30 trees per acre, excluding cypress” (Breakfast Point Mitigation Bank) “Long leaf pine averages 100-200/ trees per acre. If long leaf pine densities are greater than 200 tree/acre, the pines shall be thinned to achieve the target stocking rate prior to a final determination of success” (Sandhill Lakes Mitigation Bank) “Less than 75 trees/acre canopy pines (<i>Pinus</i> spp.) with a d.b.h. ≥ 4” (from pine plantation) (Nokuse Plantation Mitigation Bank) “Less than 35 trees/acre canopy pines (<i>Pinus</i> spp.) with a d.b.h. ≥ 4.” (enhancement area) (Nokuse Plantation Mitigation Bank) “The combined canopy (>4” d.b.h.) of slash pine and loblolly pine shall not exceed 15 live trees/acre on average, and in no monitoring quadrat should the tree density be greater than 20 trees/acre.” And “Canopy and subcanopy (>1” d.b.h.) longleaf pine shall average between 5 and 100 trees/acre, with no monitoring plot having more than 110 trees/acres.” (Pensacola Bay Mitigation Bank) “Pine flatwoods areas shall have an average of 50 trees per acre.” (Mosaic Ona-Fort Green) “shall have an average of at least 150 live trees per acre that are at least 12 feet tall. No area greater than an acre in size shall have less than 50 trees per acre” (CF South Pasture Extension)
Canopy - Composition, diversity	“Total slash pine saplings and trees are <75 trees per acre, with an average of 50 longleaf pine/ ac. taller than grass stage and increasing in height” (St Marks Mitigation Bank) “The canopy layer shall be dominated by (meaning that $> 50\%$ of all trees are) slash pine (<i>Pinus elliottii</i>)” and “At least 5 of the tree species on Appendix 7 - Table RP-2 shall be present.” (CF South Pasture Extension)
Hydrology	“Minimum of 90 days of soil saturation (water levels within 6 in of surface) or inundation during June-Oct. of a typical rainfall year” (Corkscrew Regional Mit Bank)

Prescribed fire, frequency	“Prescribed fire routinely carries over a minimum of 70% of the community type after each burn.” (Nokuse Plantation Mitigation Bank) “At least 3 successful prescribed fires have been conducted in this community” (St Marks Mitigation Bank) “At least 3 successful prescribed burns have been completed in accordance with Specific Condition 12”(Bayfield Mitigation Bank) Prescribed Fire. a. Prescribed Fire shall be used for habitat enhancement within the following areas: <i>[describe by FLUCC and habitat type]</i> b The fire management plan to be used is detailed in Attachment <i>[XX]</i> to this permit. The permittee shall obtain appropriate state and local approvals prior to starting the burns. Within <i>[XX]</i> months after permit issuance, or as soon thereafter that the appropriate climatic conditions exist, the initial burn shall be conducted in a manner to optimize fuel management, enhancement of appropriate vegetation and eradication of nuisance or inappropriate woody shrubs. Thereafter, prescribed burns shall be conducted in accordance with the fire management plan during early summer growing season every 1 to 7 years (depending on fuel and climatic conditions) to promote the reproduction and establishment of appropriate species. c. A prescribed fire will be defined as “successful” if at least 80 percent of the appropriate areas within a burn unit are burned. (Nonphosphate) “Prior to release request, all mitigation sites which involve the creation of fire-dependent communities, including freshwater marshes and hydric pine flatwoods, shall have in place a long-term management plan that includes prescribed burning at ecologically appropriate intervals. For the purposes of this condition, ecologically appropriate fire return interval shall be determined through consultation of the Florida Natural Areas Inventory’s <u>Guide to the Natural Communities of Florida (2010 Edition)</u>, the Soil Conservation Service’s <u>26 Ecological Communities of Florida (February, 1981)</u>, or other published literature documenting natural fire return intervals in the appropriate community type. “ (PCS Loncalla)
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Success Criteria Parameters	Forested Wetlands
Ground Cover, Herbaceous Percent Cover	“A minimum of 15 non-nuisance, native wetland plant species are present, contribute to a minimum of 60 percent total cover, and remains the same or is increasing in percent total cover. Percent cover shall be reported for the aggregate of these wetland species, relative to the total area, including a measure of percent cover by non wetland species, bare ground and water” (Little Pine Island Mitigation Bank) “OBL and FACW species > 90% of relative ground cover and UPL and FAC species constitute < 10% of relative ground cover and the total ground cover shall not decrease” (Florida Mitigation Bank) “Ground cover shall consist of appropriate native, non-nuisance SAV, OBL, or FACW herbaceous species, appropriate shrub species including, but not limited to, buttonbush (<i>Cephalanthus occidentalis</i>), <i>Myrsine guianensis</i> or wax myrtle (<i>Myrica cerifera</i>) <1.5 m overall height, or canopy seedlings. Groundcover density will vary depending on canopy cover, but combined canopy and groundcover shall exceed 80% (i.e., <20% open water or un-vegetated area)” (Loxahatchee Mitigation Bank) “Non-nuisance, native wetland groundcover species cover is 75% or greater (except in open water area) and is reproducing naturally. Vegetation trends over at least three years show increasing cover.” (Garcon Peninsula Mitigation Bank) “Fresh water tree islands and forested riverine areas shall have at least 80% canopy cover with at least 6 tree or shrub species with no one species representing more than 50% cover, and at least 25% ground cover, reproducing naturally. (FPL Everglades Mitigation Bank, Phase 2) Minimum of 75% cover by native species listed as OBL, FACW or FAC (Corkscrew Regional Mitigation Bank) “Groundcover and emergent species cover are 70% or greater (except in open water area) when canopy cover is less than 30% cover, due to immature trees. As canopy matures, lower percentage groundcover may be appropriate due to shading, and this decrease will not preclude a success determination” (Sandhill Lakes Mitigation Bank) “Combined ground, shrub and tree cover of FACW and OBL species is $\geq$80% relative cover (i.e., FAC or UP species such as redroot, dog fennel, blackberry, are <20% relative cover; gallberry, <i>Ilex glabra</i> and vines may be considered neutral – i.e., not counted in the cover)” (Bayfield Mitigation Bank) “Percent cover by all appropriate species is 80 percent or more. Appropriate species are those species that are identified as obligate or facultative wet plant species, as defined by Chapter 62-340, F.A.C., that commonly occur in the target habitat type, and are native to [XXXXXX] County” (Nonphosphate) “Total cover by non-nuisance, non-exotic FAC, FACW, and/or OBL species listed in rule 62-340.450, F.A.C., (desirable species) in the ground cover shall be at least 80%. Relative cover by non-nuisance, non-exotic FAC, FACW, or OBL species

	listed in rule 62-340.450, F.A.C., in the ground cover shall also be at least 80%. Non-nuisance, non-exotic facultative species will be considered desirable only provided that their contributions to the vegetative community structure are within the range of values documented within the reference wetlands of the target community type, the target community type is established as described in the Appendix 7 (Reclamation Plan), and the mitigation site is jurisdictional in accordance with Rule 62-340, F.A.C. In no case shall temporary dominance by transient facultative species such as dogfennell (<i>Eupatorium capillifolium</i>), sesbania (<i>Sesbania</i> spp.), wax myrtle (<i>Myrica cerifera</i>), shyleaf (<i>Aeschynomene americana</i>), or similar species be used to demonstrate achievement of vegetation community performance standards.” (CF South Pasture Extension) “Cover by non-nuisance, non-exotic wetland species (FACW or OBL) listed in rule 62-340.450, F.A.C., in the ground cover shall be at least 80% of the total wetland area or shall be within the range of values documented within the reference wetlands of the target community type.” (Mosaic South Fort Meade Hardee)
Ground Cover, Herbaceous - Species Diversity	“The plant species richness is a minimum of 75 percent of the richness of either the identified reference wetland or published literature values” (Little Pine Island Mitigation Bank) “10 or more native, non-canopy, wetland (FACW or OBL) species per transect (trees, shrubs, herbs combined)” (Breakfast Point Mitigation Bank) “A minimum of 15 non-nuisance, native wetland plant species are present...” (Little Pine Island Mitigation Bank) “Non-nuisance, native wetland ground and shrub species are healthy, reproducing naturally and exhibiting the cover and diversity typical of the habitat as described in Attachment C and reference wetland data, such as found in Florida Natural Areas Inventory or other such literature.” (Sandhill Lakes Mitigation Bank) “The plant species and coverage is similar to what would be expected for the target habitat type.” (Nonphosphate) “Species richness and dominance regimes for herbaceous vegetation shall be within the range of values documented within the reference wetlands of the target community type. The relative age of the mitigation site when compared to mature systems shall be considered in the evaluation.” (Mosaic South Fort Meade Hardee) “Ground cover within mixed hardwood-coniferous forests shall be dominated by native species typical of reference mixed hardwood-coniferous forests. Species richness and dominance regimes shall be within the range of values documented within the reference mixed hardwood-coniferous forests. Cumulative total cover by range grasses, such as Bahia grass (<i>Paspalum notatum</i>) and Bermuda grass (<i>Cynodon dactylon</i>), shall be less than 10%.” (CF South Pasture Extension) “Herbaceous ground cover in the hardwood wetland forest areas shall be 80%, and shall include a mixture of at least five of the species listed in Chapter 62-340, F.A.C., with no one species comprising more than 33% cover. Three of the following species must be present: Lizards tail (<i>Saururus cemus</i>), Cinnamon fern (<i>Osmunda cinnamonea</i>), Royal fern (<i>Osmunda regalis</i>), Shield fern (<i>Thelypteris</i>

	sp.), Swamp lily (<i>Crinum americanum</i>), Smartweed (<i>Carex spp.</i>), and Knotweed (<i>Polygonum spp.</i>)." (Mosaic Mining Unit R) "For the remaining (ground cover) plants, the 23 primary species/genera identified in reference riverine forests of the Alafia River system (identified in the Appendix of Clewell et al., 1982) are: <i>Andropogon sp.</i>, <i>Axonopus sp.</i>, <i>Bidens sp.</i>, <i>Carex sp.</i>, <i>Commelina diffusa</i>, <i>Cyperus sp.</i>, <i>Dichanthelium sp.</i>, <i>Drymaria cordata</i>, <i>Eleocharis sp.</i>, <i>Hydrocotyle sp.</i>, <i>Juncus sp.</i>, <i>Lycopus rubellus</i>, <i>Micranthemum glomeratum</i>, <i>Osmunda cinnamomea</i>, <i>Osmunda regalis</i>, <i>Panicum sp.</i>, <i>Paspalum sp.</i>, <i>Polygonum sp.</i>, <i>Pontederia sp.</i>, <i>Rhynchospora sp.</i>, <i>Saururus cernuus</i>, <i>Thelypteris sp.</i>, and <i>Woodwardia sp.</i> Of these primary ground cover plants, at least 15 species/genera must be present within every 5-acre area of the restored forest by the time of release." (Mosaic Mining Unit T)
Bare Ground, Leaf Litter, Open Water	"Bare ground is 25% or less cover" (Garcon Mitigation Bank) "Non vegetated open water area shall be less than 20%" (Sandhill Lakes Mitigation Bank, slough area) "Non-vegetated open water and/or bare ground shall cumulatively be limited to less than 10% of the wetland area.' (CF South Pasture Extension, Mixed Hardwood-Coniferous Forest, Hydric Pine Savannah, Slash Pine forest)
Shrub Cover	"Titi, gallberry and fetterbush cover shall not exceed 25%." (Pensacola Bay Mitigation Bank, Bay/titi and cypress/gum swamp enhancement areas) "Woody shrub cover (excluding sapling canopy species) shall be <30% total cover or demonstrate an annual decreasing trend, either by fire in the ecotone or shading from canopy tree cover, and titi is <30% relative cover." (St Marks Mitigation Bank) "At least 70% of shrubs in ecotone reduced to coppice." (Sweetwater Mitigation Bank; basin swamp preservation area) "There is $\leq$ 50% total aerial cover (all strata) of woody shrubs as estimated from a line intercept methodology, qualitative transects and inspection; Woody shrubs are reduced to coppice along the community margins" (Bear Creek Mitigation Bank) "Canopy and shrub measurements shall be limited to those indigenous species that contribute to the shrub, sub canopy, and canopy strata of the mature forested wetlands in the Peace River basin. Desirable canopy and shrub species shall be reproducing naturally, as evidenced by the presence of saplings that are greater than one foot in height. The shrub layer shall contain at least 5 of the species listed for the target community type on Appendix 7 - Table RP-2 and shall have an average of at least 100 shrubs per acre." (CF South Pasture Extension) "The shrub layer shall contain at least 3 of the shrub species listed for the appropriate community type on Table FDEP-1 and shall have an average of at least 50 shrubs per acre." (PCS Loncalla) "The shrub layer shall have an average of at least 100 live shrubs per acre or shall meet or exceed the range of shrub densities in the reference wetlands. Early successional species such as <i>Salix caroliniana</i> (Carolina willow), <i>Baccharis spp.</i>

	(saltbush), <i>Myrica cerifera</i> (wax myrtle), and <i>Sambucus canadensis</i> (elderberry) do not count toward meeting this requirement” (Mosaic South Fort Meade Hardee) “The plant species and coverage is similar to what would be expected for the target habitat type.” (Nonphosphate) “For the shrub layer, the 9 primary species identified in reference riverine forests of the Alafia River system (identified in the Appendix of Clewell et al., 1982) are: <i>Callicarpa americana</i>, <i>Cephalanthus occidentalis</i>, <i>Comus foemina</i>, <i>Hypericum hypericoides</i>, <i>Ilex glabra</i>, <i>Itea virginica</i>, <i>Rhododendron viscosum</i>, <i>Vaccinium corymbosum</i>, and <i>Viburnum nudum</i>. Of these primary shrub species, at least 7 species must be present within every 5-acre area of the restored forest by the time of release. Furthermore, for these primary species, at least 80% of the 100 shrubs per acre required, i.e. at least 80 shrubs per acre, must be present. The 18 secondary shrub species identified in the Alafia River system by Clewell et al. (1982) are: <i>Aralia spinosa</i>, <i>Asimina parvifolia</i>, <i>Bumelia reclinata</i>, <i>Erythrina herbacea</i>, <i>Euonymus americana</i>, <i>Hamamelis virginiana</i>, <i>Ilex decidua</i>, <i>Lyonia ligustrina</i>, <i>Lyonia lucida</i>, <i>Myrica cerifera</i>, <i>Pyrus arbutifolia</i>, <i>Rhaphidophyllum hystrix</i>, <i>Sambucus canadensis</i>, <i>Serenoa repens</i>, <i>Styrax americana</i>, <i>Vaccinium arboreum</i>, <i>Viburnum obovatum</i>, and <i>Ximenia americana</i>. Of these secondary shrub species, at least 12 species must be present within every 5-acre area of the restored forest by the time of release. Furthermore, for these secondary species, at least 20% of the 100 shrubs per acre required, i.e. at least 20 shrubs per acre, must be present.” (Mosaic Mining Unit T)
Canopy – Tree Density, Cover	“An average of 10 or more trees per acre” (Breakfast Point Mitigation Bank) “There shall be less than 10% mortality of planted trees” and “Planted trees have doubled in height and have a 30% canopy coverage at the end of the growing season” (Garcon Peninsula Mitigation Bank) “Fresh water tree islands and forested riverine areas shall have at least 80% canopy cover with at least 6 tree or shrub species with no one species representing more than 50% cover, and at least 25% ground cover, reproducing naturally.” (FPL Everglades Mitigation Bank, Phase 2) Minimum average of 400 canopy trees/shrubs (>1 “ dbh) appropriate trees per acre, Minimum average tree height of 6 ft., 20% of which are 10 ft or greater in height. (Corkscrew Regional Mitigation Bank) “Monitoring documents increasing growth and density of appropriate canopy trees” (dome swamp, mostly preservation, Devils Swamp Mitigation Bank) “The desirable canopy tree cover is increasing annually, and determined to be successful when at least 30% canopy cover has been achieved, not including shrub species, such as titi” (Sandhill Lakes Mitigation Bank, slough area) “There shall be at least 20 trees per 600 linear feet of the excavated roadway [and within Polygon 1E] that are at least 6 feet tall and have a 3 foot diameter healthy canopy or greater.” (Wekiva River Mitigation Bank, hydric hammock planted areas) “Planted and volunteer tree cover is increasing annually, with a minimum of 30%

	canopy cover (i.e. >4" d.b.h.), excluding titi, and with a species mix consistent with the community descriptions in Attachment B and the planting mix described in Specific Condition 10. Total cover of combined tree, shrub and ground strata shall be greater than 70%.”(Pensacola Bay Mitigation Bank) “For any areas of restoration from rutting or ORV activity within this community, the desirable tree cover is increasing annually, with a minimum of 50% cover. Within these restoration zones the total cover shall be greater than 70% through a combination of canopy, shrubs and ground cover.” (Pensacola Bay Mitigation Bank, baygall preservation area) “Planted and volunteer aerial canopy cover is >80%, or is increasing annually and has a minimum of 30% canopy cover with appropriate tree species consistent with the community descriptions in Attachment C and the planting mix described in Attachment D. For target communities designated as “cypress dominated”, pond cypress shall comprise >70% of the tree canopy or tree counts per acre, Planted trees appear healthy, have attained an average height ≥10 feet; and, Total aerial cover of combined non-nuisance, native tree, shrub and ground strata shall be greater than 70% (i.e., <30% bare ground, leaf litter or water), with woody shrub cover <30% relative cover compared with either the canopy or groundcover” (Bayfield Mitigation Bank) Combined ground, shrub and tree cover of FACW and OBL species is ≥80% relative cover (i.e., FAC or UP species such as redroot, dog fennel, blackberry, are <20% relative cover; gallberry, <i>Ilex glabra</i> and vines may be considered neutral – i.e., not counted in the cover) (Bayfield Mitigation Bank) “Native FAC, FACW or OBL tree species canopy cover is ≥ 70% and qualitative assessment indicates FAC species are less than 30% of the relative canopy cover. In areas where trees were planted, the canopy tree species cover demonstrates an annual increase with a minimum of 30% canopy cover. Canopy cover to be estimated from observations in qualitative transects, and supported by extrapolation of quantitative plot data. Planted trees appear healthy, and have attained an average of 8-10 feet. Combined ground, shrub and tree cover is ≥80% total cover, and FACW and OBL species are ≥80% relative cover (i.e., FAC and UP species including blackberry, redroot, dog fennel or other indicators of disturbance are ≤ 20% relative cover).” (St Marks Mitigation Bank) “Slash pine is <20 stems per acre and an insignificant portion of canopy; and Aerial cover of canopy (>4” dbh) and subcanopy (1-4” dbh) wetland tree species (not woody shrub species) is ≥60%, or is increasing annually and has a minimum of 30% cover, with cypress as the dominate tree species” (Bear Creek Mitigation Bank, cypress basin swamp) “Appropriate tree species (Attachment C) canopy cover is ≥ 80%, except in planted areas and previously cleared perimeter areas of AA-6 and AA-7, which shall
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	demonstrate an annual increase in cover with a minimum of 30% canopy cover. Canopy to be estimated from observations in qualitative transects, supported by densitometer readings described in the Monitoring Plan (Attachment J); Planted trees appear healthy, and have attained an average height ≥ 10 feet; Combined ground, shrub and tree cover is $\geq 80\%$ total cover, with $\geq 80\%$ relative cover by FACW and OBL species” (Heather Island mitigation bank) “For forested wetlands, an average of at least 400 appropriate trees per acre shall be growing above the herbaceous and shrub stratum. The canopy cover by appropriate trees exceeds 33 percent of the mitigation wetland area and in no area of an acre in size is the canopy tree cover less than 20 percent total cover. Appropriate tree species are those tree species that are identified as obligate or facultative wet species, as defined by Chapter 62-340, F.A.C., that commonly occur in the target habitat type and are native to [XXXXX] County.” (NonPhosphate) “The forested canopy shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage Palm (<i>Sabal palmetto</i>), which shall have a leaf at least three (3) feet long including the stalk), or shall meet or exceed the range of canopy and subcanopy tree densities in the reference wetlands. No area greater than an acre in size shall have less than 200 trees per acre.” (Mosaic Ona-Fort Green)
Canopy - Composition, Diversity	“Freshwater forested wetland types shall either have $\geq 30\%$ canopy cover with native tree species (dahoon holly will be considered a ‘tree’ for this permit) or a minimum of 75 healthy, established ($>3'$ tall) planted or recruited trees or saplings per acre of <i>Pinus elliottii</i> var. <i>densa</i>, <i>Ilex cassine</i> or <i>Sable palmetto</i>” (Little Pine Island Mitigation Bank) “OBL and FACW constitute $> 90\%$ of the basal area within the canopy stratum and upland (UPL) and facultative (FAC) species $< 10\%$ of the number of seedlings/saplings in the groundcover stratum” (Florida Mitigation Bank) Canopy stratum in each forested sampling station is dominated by any one of the following species: red maple (<i>Acer rubrum</i>), cypress (<i>Taxodium distichum</i>), or pond apple (<i>Annona glabra</i>). (Loxahatchee Mitigation Bank) “Representative data shall demonstrate at least 50% cover with appropriate OBL or FACW tree species in the canopy stratum” (Loxahatchee Mitigation Bank) “Fresh water tree islands and forested riverine areas shall have at least 80% canopy cover with at least 6 tree or shrub species with no one species representing more than 50% cover, and at least 25% ground cover, reproducing naturally. (FPL Everglades Mitigation Bank, Phase 2) “At least 5 native wetland (FACW or OBL) species per transect (trees, shrubs, herbs combined)” (dome swamp, Devils Swamp Mitigation Bank) “There is at least 10% relative combined cover of the following wetland wildlife mast producing species: <i>Ilex cassine</i>, <i>I. amelanchier</i>, <i>I. coriacea</i>, <i>I. myrtifolia</i>, <i>Vaccinium corymbosum</i>, <i>Cephalanthus occidentalis</i>” (Bayfield Mitigation Bank) “Planted and volunteer aerial canopy cover .. of ... appropriate tree species

	consistent with the community descriptions in Attachment C and the planting mix described in Attachment D. For target communities designated as “cypress dominated”, pond cypress shall comprise >70% of the tree canopy or tree counts per acre” (Bayfield Mitigation Bank) “There is a $\geq 10\%$ relative cover (combined) of the following wetland wildlife mast-producing species: <i>Ilex cassine</i>, <i>I. amelanchier</i>, <i>I. coriacea</i>, <i>I. myrica</i>, <i>Vaccinium corymbosum</i>, <i>Cephalanthus occidentalis</i>, <i>Nyssa</i>, <i>Persea</i> and <i>Magnolia virginiana</i>; Slash or loblolly pine that is less than 1 ft. dbh is reduced to <20 stems per acre. Old, established slash or loblolly trees may remain, unless, at the time of success determination, the Department directs further reduction of pine density; and, Plant composition and relative abundance/cover is consistent with or, in planted areas, is annually trending toward the community descriptions.” (Heather Island Mitigation Bank) “The canopy and shrub strata shall each have species richness values and dominance regimes within the range of values documented in the reference wetlands/floodplains of the target community type. Canopy and shrub measurements shall be limited to those indigenous species that contribute to the shrub, subcanopy, and canopy strata of the mature forested wetlands/floodplains in the Horse Creek basin. Up to 50 percent of the trees and shrubs in the upper transitional zone (defined as the uppermost one foot change in elevation within the wetland boundary) may consist of appropriate upland and facultative species as found in the reference wetlands.” (Mosaic Ona-Fort Green) “The plant species and coverage is similar to what would be expected for the target habitat type.” (Nonphosphate) The canopy layer shall be dominated by (meaning that > 50% of all trees are) bay trees (<i>Magnolia virginiana</i>, <i>Persea palustris</i>, and <i>Gordonia lasianthus</i>). . . (Bay swamps); The canopy layer shall be dominated by (meaning that > 50% of all trees are) tupelo (<i>Nyssa</i> spp.). . . , (gum swamps); The canopy layer shall be dominated by (meaning that > 50% of all trees are) cypress (<i>Taxodium</i> spp.) (cypress swamps); Neither conifers nor hardwoods shall account for more than 66% of the crown canopy composition.(stream and lake swamps and mixed hardwood coniferous forests) (PCS Loncalla) “The following tree species, at a minimum, shall be present, with no one species accounting for more than 33% of total tree density, and no facultative species, as defined in Chapter 62-340, F.A.C., accounting for more than 10 % of the tree density: Black gum (<i>Nyssa sylvatica</i> var. <i>biflora</i>), Sweet gum (<i>Liquidambar styraciflua</i>), Sweet bay (<i>Magnolia virginiana</i>), Loblolly bay (<i>Gordonia lasianthus</i>), Swamp bay (<i>Persea palustris</i>), Red maple (<i>Acer rubrum</i>), Laurel oak (<i>Quercus laurifolia</i>), Water oak (<i>Quercus nigra</i>), Dahoon holly (<i>Ilex cassine</i>), Wax myrtle (<i>Myrica cerifera</i>), and Swamp azalea (<i>Rhododendron viscosum</i>)” (Mosaic Mining Unit R) “For the forested canopy, the 9 primary species identified in reference riverine forests of the Alafia River system (identified in Table 5 and the Appendix of Clewell et al., 1982, Wetlands 2:21-72) are: <i>Acer rubrum</i>(red maple), <i>Carpinus caroliniana</i> (ironwood), <i>Liquidambar styraciflua</i> (sweetgum), <i>Magnolia virginiana</i> (sweet bay), <i>Nyssa biflora</i> (black gum), <i>Quercus laurifolia</i> (laurel oak), <i>Quercus nigra</i>
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	(water oak), <i>Sabal palmetto</i> (cabbage palm), and <i>Ulmus americana</i> (American elm). Of these primary tree species, at least 6 species that are an average of at least 12ft. tall (this height requirement does not apply to <i>Sabal palmetto</i> [cabbage palm], which shall have a leaf at least 3 feet long including the stalk), must be present within every 5-acre area of the restored forest by the time of release. Furthermore, for these primary species, at least 80% of the 400 trees per acre required, i.e. at least 320 trees per acre, must be present. The 4 secondary tree species are: <i>Carya aquatica</i> (water hickory), <i>Gordonia lasianthus</i> (loblolly bay), <i>Ilex cassine</i> (dahoon holly), and <i>Persea palustris</i> (swamp bay). Of these secondary tree species, at least 3 species that are an average of at least 12 ft. tall, must be present within every 5-acre area of the restored forest by the time of release. Furthermore, for these secondary species, at least 20% of the 400 trees per acre required, i.e. at least 80 trees per acre, must be present. (Mosaic Mining Unit T)
Hydrology	“Soils are inundated through wet season and water table is no more than 10" below ground surface in dry season. This target is intended to reflect natural conditions in healthy ...hardwood swamp wetlands and is expected to be met for each of these polygons as a whole, regardless of some expected variations in water levels at different sampling locations” (Florida Mitigation Bank) “Minimum of 120 days of soil saturation (water levels within 6 in of surface) or inundation during June-Nov. of a typical wet season rainfall year” (Corkscrew Regional Mitigation Bank) “In forested areas labeled as “enhanced” or “rehabilitated” on Figure 8, ... furrows and bedding have been rehabilitated in a manner that no longer drains or impounds water” (Bayfield Mitigation Bank)

Success Criteria Parameters	Herbaceous Wetlands
Ground Cover, Herbaceous - Percent Cover	“A minimum of 15 non-nuisance, native wetland plant species are present, contribute to a minimum of 60 percent total cover, and remains the same or is increasing in percent total cover. Percent cover shall be reported for the aggregate of these wetland species, relative to the total area, including a measure of percent cover by non wetland species, bare ground and water.” (Little Pine Island Mitigation Bank) “In polygons 1-3, OBL and FACW constitute > 90% of the basal area within the canopy stratum and upland (UPL) and facultative (FAC) species < 10% of the number of seedlings/saplings in the groundcover stratum; In polygons 1-3, OBL and FACW species > 90% of relative ground cover and UPL and FAC species constitute < 10% of relative ground cover and the total ground cover shall not decrease” (Florida Mitigation Bank) “Representative data shall demonstrate at least 80% cover with appropriate native, non-nuisance herbaceous vegetation classified as obligate or facultative-wet (OBL or FACW), with no greater than 25% total cover by woody shrub species (excluding cypress) in the shrub and groundcover strata. Visual inspections will be used to verify cover in the field” (Loxahatchee Mitigation Bank) “Freshwater herbaceous flats shall have at least 80% cover with native non-nuisance, marsh species, dominated by <i>Cladium</i>, and reproducing naturally. Periphyton shall average 1.25 inches in thickness when hydrated” (Everglades Mitigation Bank, Ph2) “At least 60% relative cover with herbaceous species” (Breakfast Point Mitigation Bank, coastal basin marsh) “Minimum 85% cover by native herbaceous species listed as OBL, FACW, or FAC, predominantly OBL and FACW” (Corkscrew Regional Mitigation Bank) “Herbaceous cover of species listed in Plant List in Attachment F, and excluding all woody shrub species as well as open water areas, shall be 75% or greater.” (Wekiva River Mitigation Bank, wet prairie/marsh) “Each groundcover quadrat shall either attain $\geq 80\%$ cover with native, non-nuisance herbaceous or graminoid OBL or FACW species or shall exhibit a clear trend over time of increasing cover of these species” (Heather Island mitigation bank, sawgrass marsh) “Percent cover by all appropriate species is 80 percent or more ... Appropriate species are those species that are identified as obligate or facultative wet plant species, as defined by Chapter 62-340, F.A.C., that commonly occur in the target habitat type, and are native to [XXXXX] County” (Nonphosphate) “Relative cover by non-nuisance, non-exotic FAC, FACW, or OBL species listed in rule 62-340.450, F.A.C., in the ground cover shall be at least 80%. Non-nuisance, non-exotic facultative species will be considered desirable only provided that their contributions to the vegetative community structure are within the range of values documented within the reference wetlands of the target community type, the target

	community type is established, and the mitigation site is jurisdictional in accordance with Rule 62-340, F.A.C. In no case will temporary dominance by transient facultative species such as dogfennel (<i>Eupatorium capillifolium</i>), sesbania (<i>Sesbania</i> spp.), wax myrtle (<i>Myrica cerifera</i>), shyleaf (<i>Aeschynomene americana</i>), or similar species be used to demonstrate achievement of vegetation community performance standards.” “Total cover by non-nuisance, non-exotic FAC, FACW, and/or OBL species listed in rule 62-340.450, F.A.C., (desirable species) in the ground cover shall be at least 80%.” (freshwater marsh) “Total cover by non-nuisance, non-exotic FACW and/or OBL species listed in rule 62-340.450, F.A.C., (desirable species) in the ground cover shall be at least 75%.” (deepwater marsh) (PCS-Loncalla) “Cover by non-nuisance, non-exotic wetland species (FACW or OBL) listed in rule 62-340.450, F.A.C., in the ground cover shall be at least 80% of the total wetland area or shall be within the range of values documented within the reference wetlands of the target community type.” (Mosaic South Fort Meade Hardee)																				
Ground Cover, Herbaceous - Species Diversity	“The importance value, based on frequency and percent cover or density, for each area shall fall within the range of Whittaker curves for the naturally occurring communities in this area of Everglades National Park” (Everglades National Park, Hole in Donut) “The community structure with regard to vegetation cover, species composition and diversity of the communities on the bank site shall be reasonably similar to the identified reference wetlands for each community type. The plant species richness is a minimum of 75 percent of the richness of either the identified reference wetland or published literature values. A minimum of 15 non-nuisance, native wetland plant species are present, contribute to a minimum of 60 percent total cover, and remains the same or is increasing in percent total cover. Percent cover shall be reported for the aggregate of these wetland species, relative to the total area, including a measure of percent cover by non wetland species, bare ground and water.” (Little Pine Island Mitigation Bank) “Representative data indicate: (a) $\geq 70\%$ of the total ground cover shall be comprised of the species listed in Table A; (b) transect data average ≥ 8 of these species; and (c) the cumulative total cover by ruderal or colonizing species identified in Table B shall be $< 30\%$ or demonstrate a decreasing trend. Table A. At least 70% of total groundcover comprised by these species <table><tr><th>Common Name</th><th>Scientific Name</th><th>Common Name</th><th>Scientific N</th></tr><tr><td>Saw Grass</td><td><i>Cladium jamaicense</i></td><td>Royal fern</td><td><i>Osmunda regalis</i></td></tr><tr><td>Maidencane</td><td><i>Panicum hemitomon</i></td><td>Cinnamon fern</td><td><i>Osmunda cinnamonea</i></td></tr><tr><td>Giant Bulrush</td><td><i>Scirpus californicus</i></td><td>Hottentot fern</td><td><i>Thelyptei</i> <i>interrupta</i></td></tr><tr><td>Soft Stem Rush</td><td><i>Scirpus valdivus</i></td><td>Whitetop sedge</td><td><i>Dichromena colorata</i></td></tr></table>	Common Name	Scientific Name	Common Name	Scientific N	Saw Grass	<i>Cladium jamaicense</i>	Royal fern	<i>Osmunda regalis</i>	Maidencane	<i>Panicum hemitomon</i>	Cinnamon fern	<i>Osmunda cinnamonea</i>	Giant Bulrush	<i>Scirpus californicus</i>	Hottentot fern	<i>Thelyptei</i> <i>interrupta</i>	Soft Stem Rush	<i>Scirpus valdivus</i>	Whitetop sedge	<i>Dichromena colorata</i>
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(Loxahatchee Mitigation Bank) “5 or more native wetland (FACW or OBL) species per transect” (Breakfast Point Mitigation Bank, coastal basin marsh) “Minimum 15 species of native herbaceous plants within sampling plots” (Corkscrew Regional Mitigation Bank) “Appropriate composition and cover of groundcover and shrub species. The marsh shall demonstrate appropriate zone or rings of progressively more hydrophytic plants from the boundary to the center” (St Marks Mitigation Bank) “The marshes shall demonstrate appropriate zone or rings of progressively more hydrophytic plants from the boundary to the center, indicating appropriate seasonal hydrologic variations, as demonstrated by photographs and vegetation data” (Heather Island Mitigation Bank) “Qualitative and quantitative sampling transects shall have ≥50% total cover and ≥ 80% relative cover with sawgrass (<i>Cladium jamaicense</i>)” (Heather Island Mitigation Bank, sawgrass marsh) “The plant species and coverage is similar to what would be expected for the target habitat type.” (Nonphosphate) “Cover within herbaceous marshes (FLUCFCS 641) shall be dominated by emergent native species typical of native freshwater marshes in the Upper Suwannee River																																						

	Basin, and shall be distributed in appropriate zonation patterns. Cover within deepwater marshes (FLUCFCS 644) shall be dominated by floating native wetland species typical of native deepwater marshes in the Upper Suwannee River Basin.” (PCS Loncalla) “Cover within marshes shall be dominated by native species typical of reference marshes and shall be distributed in similar zonation patterns. Species richness and dominance regimes shall be within the range of values documented within the reference marshes. Cover within wet prairies shall be dominated by native species typical of reference wet prairies. Species richness and dominance regimes shall be within the range of values documented within the reference wet prairies. Cover by range grasses such as Bahia grass (<i>Paspalum notatum</i>) and Bermuda grass (<i>Cynodon dactylon</i>) shall be limited to less than 10% (i.e. total cover by both species combined shall be less than 10%) (Mosaic South Fort Meade Hardee).
Bare Ground, open water	“A minimum of 15 non-nuisance, native wetland plant species are present, contribute to a minimum of 60 percent total cover, and remains the same or is increasing in percent total cover. Percent cover shall be reported for the aggregate of these wetland species, relative to the total area, including a measure of percent cover by non wetland species, bare ground and water.” (Little Pine Island Mitigation Bank) “Non-vegetated open water and/or bare ground shall cumulatively be limited to less than 20% of the wetland area. (freshwater marsh) Non-vegetated open water and/or bare ground shall cumulatively be limited to less than 25% of the wetland area.” (deepwater marsh) (PCS Loncalla) “Non-vegetated open water and/or bare ground shall cumulatively be limited to less than 10% of the wetland area.” (marsh and wet prairie, CF South Pasture Extension)
Shrub Cover	“Gallberry, Yaupon, Wax Myrtle, Titi, and other woody shrubs shall be no taller than the coppice sprouts that could have arisen from root crowns following the most recent fire.” (Garcon Peninsula Mitigation Bank, wet prairie) “Representative data shall demonstrate at least 80% cover with appropriate native, non-nuisance herbaceous vegetation classified as obligate or facultative-wet (OBL or FACW), with no greater than 25% total cover by woody shrub species (excluding cypress) in the shrub and groundcover strata. Visual inspections will be used to verify cover in the field” (Loxahatchee Mitigation Bank) “At least 80% shrubs reduced to coppice <2m in height” (Breakfast Point Mitigation Bank, basin marsh) “Woody shrub species shall exhibit no greater than 10% cover.” (Wekiva River Mitigation Bank, wet prairie/marsh) “Hardwood and shrub species are $\leq$ 10% areal coverage” (St Marks Mitigation Bank) “Qualitative and quantitative sampling transects shall have $\leq$ 10% woody shrub cover and

	Qualitative transects and aerial photography (infrared) demonstrate that tree and shrub cover is a minor component of ≥ 170 ac. of contiguous marsh” (Heather Island Mitigation Bank, sawgrass marsh) “No more than XX (10 to 20 percent) cover by woody species shall be present in any acre of the wet prairie/savannah.” (Nonphosphate) Cover within shrub marshes shall be dominated by native species typical of reference shrub marshes. Cover by Carolina willow (<i>Salix caroliniana</i>) and wax myrtle (<i>Myrica cerifera</i>) shall be limited to less than 30% (i.e. total cover by both species combined shall be less than 30%).” (Mosaic Lambe Tract) “The outer transition zone of each herbaceous marsh, defined as the wetland area within 50 feet of the wetland edge, shall have an average of at least 10 native shrubs per acre” (PCS Loncala) “The outer transition zone of each herbaceous marsh, defined as the wetland area within 50 feet of the wetland edge, shall be supporting at least five shrubs per acre, as listed for the 641 community type on Appendix 7 - Table RP-2.” (CF South Pasture Extension)
Tree Cover	“Woody species < 25% of cover in all strata combined” (Florida Mitigation Bank) “Less than 30 trees per acre; excluding cypress, tupelo, and pop ash.” (Breakfast Point Mitigation Bank, coastal basin marsh) “Hardwood and shrub species have been reduced to $\leq 10\%$ aerial cover in the canopy and shrub stratum, and Qualitative transects and aerial photography (infrared) demonstrate that tree and shrub cover is a minor component of ≥ 170 ac. of contiguous marsh” (Heather Island Mitigation Bank)
Prescribed Fire Frequency	“At least one prescribed fire has been conducted that covers at least 70% of this polygon, and community demonstrates positive response (growth and seeding, as appropriate) following prescribed fire” (Wekiva River Mitigation Bank, wet prairie/marsh) “At least three prescribed fires have been conducted that cover at least 80% of this Assessment Area, and the community demonstrates positive response (growth and flowering/seeding) following the prescribed fire” (Heather Island Mitigation Bank, sawgrass marsh) “Prior to release request, all mitigation sites which involve the creation of fire-dependent communities, including freshwater marshes and hydric pine flatwoods, shall have in place a long-term management plan that includes prescribed burning at ecologically appropriate intervals. For the purposes of this condition, ecologically appropriate fire return interval shall be determined through consultation of the Florida Natural Areas Inventory’s <u>Guide to the Natural Communities of Florida (2010 Edition)</u>, the Soil Conservation Service’s <u>26 Ecological Communities of Florida (February, 1981)</u>, or other published literature documenting natural fire return intervals in the appropriate community type. “ (PCS Loncalla)

Hydrology	“Minimum 150 days of soil saturation (water levels within 6 in of surface) or inundation during June to Dec. of a typical wet season rainfall year” (Corkscrew Regional Mitigation Bank) “Wet prairies shall remain inundated for no more than eight (8) months of the year during a typical after year, defined as being within the 20th and 80th percentile of historical record in terms of total rainfall and major event occurrences.” (Mosaic South Fort Meade Hardee)
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Appendix C

Nonphosphate Permits

Alico Land Development, Inc. - Keri Road Sand Mine

Black Gold Compost Company - Gator Pond Peat Mine

Dial One, LC - Nature Coast Mine

E.I. du Pont de Nemours and Company, Inc.- North Maxville Mine

FFD Land Co., Inc. - FFD MEPD Mine

Florida Rock Industries, Inc. - East Naples Mine

Sumter Cement Company, LLC - Sumter Cement Mine

Sunshine Peat, Inc. - Hurley Peat Mine

Tarmac America, LLC - King Road Mine

Alico Land Development, Inc. - Keri Road Sand Mine
Permit/Authorization No. 0300373-001
Date of Issue: November 9, 2012

25. Offsite Mitigation Area. All mitigation for the permanent 117.11 acres of wetland and other surface waters impacts shall be within a 701.72-acre offsite mitigation area. A conservation easement shall be placed on 701.72-acre mitigation area prior to any construction within the mining operations area. Wetlands and uplands shall be enhanced within the offsite mitigation area. The boundary of the conservation easement area is shown in the attached survey.

27. Mitigation Vegetation Enhancement. The offsite wetland mitigation areas shall be enhanced by the removal of vegetation inappropriate for the native wetland or upland habitat type.

a. In the conservation easement area, cattle grazing and other agricultural activities that conflict with the purposes of the conservation easement, shall be permanently excluded. If necessary, fences shall be constructed and maintained to exclude cattle.

b. All exotic and nuisance species removal and other environmental enhancement on the mitigation area shall begin concurrently with the construction for mining operations. Exotic plant species include, but is not limited to those species listed as Category I or Category II, on the Florida Exotic Plant Council's List of Invasive Species. Nuisance species shall mean those species of flora whose noxious characteristics or presence in sufficient number, biomass, or areal extent may reasonably be expected to prevent, or unreasonably interfere with, the designated use of the waters under consideration, as defined in rule 62-302.200, F.A.C. Nuisance species include but are not limited to: melaleuca (*Melaleuca quinquenervia*), Brazilian pepper (*Schinus terbinthifolius*), torpedo grass (*Panicum repens*), mosquito fern (*Azolla caroliniana*), water-primrose (*Ludwigia leptocarpa*), climbing hemp vine (*Mikania scandens*), water spangles (*Salvinia rotundifolia*), and cattails (*Typha*). Vegetation shall be disposed in a manner that will not cause the spread of seeds or propagules to wetlands or other surface waters.

c. Maintenance is required for a minimum of five years after the initial treatment. As part of the success criteria, each habitat area shall have less than five percent total cover of nuisance and exotic species. Maintenance is required anytime exotic levels exceed five percent of the cover until the site is released.

d. Monitoring, which includes documentary photographs, is required. Monitoring of the conservation area is required for a minimum of five years beginning with the baseline report that will be submitted with the draft conservation easement documents.

Black Gold Compost Company - Gator Pond Peat Mine
Permit No. 0299580-001
Date of Issue: March 1, 2013

15. Wetland Mitigation Summary. The mitigation to be implemented as part of the reasonable assurances for this project consists of the below.

Mitigation ID	FLUCCS	Habitat Type	Mitigation Type	Acres
Restored Area A	641	Freshwater Marsh	Restoration	3.94
	643	Wet Prairie	Restoration	0.55
	644	Emergent Aquatic	Restoration	51.69
	523	Open Water	Restoration	14.15
Restored Area B	641	Freshwater Marsh	Enhancement	2.08
	643	Wet Prairie	Enhancement	3.84
	644	Emergent Aquatic	Enhancement	1.37
	523	Open Water	Enhancement	1.21
Restored Area C	643	Wet Prairie	Enhancement	3.65
Restored Area D	643	Wet Prairie	Enhancement	3.90
Restored Area E	643	Wet Prairie	Enhancement	3.16

46. **Wetland Mitigation Areas.** Wetland creation, restoration and enhancement sites shall be successful when all of the following criteria have been continuously met for a period of at least one growing season, without intervention in the form of irrigation, dewatering, removal of undesirable vegetation, or replanting of appropriate vegetation.

- a. The Department has determined that the required minimum acreage of the mitigation site is jurisdictional pursuant to Section 373.421, F.S. Specific Condition No. 43 lists each mitigation site, the minimum required acreage for each site, and the target habitat.
- b. Each site shall have hydroperiods and depths of inundation based on field measurements that are within the range of conditions for the target community type. The headwater wetlands should be storing and releasing water to the downstream wetlands and to the tributary in a manner approximating that of the reference wetlands of that community type.
- c. The plant species and coverage is similar to what would be expected for the target habitat type.
- d. Percent cover by all appropriate species is 80 percent or more, and the plants are reproducing naturally, either by normal, healthy, vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth and survival. Appropriate species are those species that are identified as obligate or facultative wet plant species, as defined by Chapter 62-340, F.A.C., that commonly occur in the target habitat type, and are native to Sumter County.
- e. Exotic and nuisance species are limited to five percent or less of the total cover.
- f. No more than 10 to 20 percent cover by woody species shall be present in any acre of the wet prairie/savannah.

Dial One, LC - Nature Coast Mine
Permit No. 0283664-001
Date of Issue: June 15, 2010

25. Wetland Mitigation Summary. Mitigation for the 13.79 acres of wetland impacts shall be the following:

- a. Prior to the start of construction, the permittee shall provide the Department with verification of the purchase of 1.00 forested wetland credits at the Upper Coast Mitigation Bank.
- b. Prior to the start of construction, an acceptable conservation easement shall be placed over 32.23 acres of uplands, wetlands and the redirected slough.
- c. The construction, planting, and establishment of the 9.32-acre redirected slough, to develop into a mixed freshwater marsh (FLUCCS 641)/ streams and lake swamps (bottomland) (FLUCCS 615).
- d. The enhancement of 5.78 acres freshwater marsh (FLUCCS 641).
- e. The restoration of 8.17 acres of upland mesic hardwood forest (FLUCCS 425) and 2.09 acres of upland buffer mesic hardwood forest (FLUCCS 425).
- f. The preservation of 1.57 acres of mixed wetland hardwood forest (FLUCCS 617) and the preservation of 4.94 acres of upland hardwood-coniferous mixed forest (FLUCCS 434).

59. Wetland Mitigation Areas. Wetland restoration sites shall be successful when all of the following criteria have been continuously met for a period of at least one growing season, without intervention in the form of irrigation, dewatering, removal of undesirable vegetation, or replanting of desirable vegetation.

- a. The Department has determined that the required minimum acreage of the mitigation areas is to be jurisdictional pursuant to section 373.421, F.S.
- b. Each site shall have hydroperiods and depths of inundation based on field measurements that are within the range of conditions for the target community of freshwater marsh (FLUCCS 641). The headwater wetlands should be storing and releasing water to the downstream wetlands and to the tributary in a manner approximating that of the reference wetlands of that community type.
- c. The plant species and coverage is similar to what would be expected for the target habitat type.
- d. Percent cover by all desirable species is 80 percent or more, and the plants are reproducing naturally, either by normal, healthy, vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth and survival. Appropriate species are those species that are identified as obligate or facultative wet plant species, as defined by Chapter 62-340, F.A.C., and are native to Citrus County.
- e. Exotic and nuisance species are limited to five percent or less of the total cover.

60. Upland Areas for Wetland Mitigation. Upland restoration areas for wetland mitigation shall meet the follow standards, in addition to the release standards provided by Specific Condition No. 55.

- a. The plant species and coverage is similar to what would be expected for the target habitat types, mesic hardwood forest (FLUCCS 425) or hardwood conifer mixed forest (FLUCCS 434).

- b. Percent cover by all desirable species is 80 percent or more, and the plants are reproducing naturally, either by normal, healthy, vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth and survival.
- c. Exotic and nuisance species are limited to five percent or less of the total cover.
- d. An average of at least 400 desirable trees per acre shall be growing above the herbaceous and shrub stratum. The desirable canopy tree cover exceeds 33 percent of the restoration area and in no area of an acre in size is the desirable canopy tree cover less than 20 percent total cover.

E.I. du Pont de Nemours and Company, Inc.- North Maxville Mine
Permit No. 0169603-017
Date of Issue: December 21, 2009

23. Forested Wetland Creation and Restoration. The permittee shall create or restore forested wetlands to replace wetlands to be dredged or filled as authorized by this permit. Forested wetlands include cover types as listed in the Florida Land Use, Cover and Forms Classification System (FLUCCS) 611- Bay swamps (1.00 acre), FLUCCS 613-Gum swamp (1.00 acre), FLUCCS 621-Cypress (62.38 acres), FLUCCS 622-Pond Pine (14.76 acres), FLUCCS 630-Wetland Forested Mixed (137.87 acres), FLUCCS 6301- Other Wetland Forested Mixed (170.71 acres), and FLUCCS 631- Wetland Shrub (2.20 acres).

24. Herbaceous Wetland Creation and Restoration. The permittee shall create and restore FLUCCS 641- freshwater marsh (31.41 acres) and FLUCCS 643- wet prairies (4.20 acres) to replace wetlands to be dredged or filled within the area.

60. Wetland Mitigation Success Criteria. Each wetland creation and restoration area shall be deemed as successful when all of the following criteria have been continuously met for a period of at least one growing season, without intervention in the form of irrigation, dewatering, removal of undesirable vegetation, or replanting of desirable vegetation.

a. Each wetland mitigation area shall provide at least the minimum number acres of wetlands to off-set wetland functional losses resulting from dredging or filling. The wetland acreage shall be determined by the Department, pursuant to Chapter 62-340, F.A.C., and the hydrologic records.

b. The desirable herbaceous species and shrub cover exceeds 80 percent of the wetland area, and the plants are reproducing naturally, either by normal, healthy, vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth and survival.

c. An average of at least 400 desirable trees per acre shall be growing above the herbaceous and shrub stratum.

d. Desirable species are those species that are identified as aquatic, obligate or facultative wet plant species, as defined by Chapter 62-340, F.A.C., and are native to Baker County.

e. Nuisance species shall not exceed 10 percent of the total cover. Exotic species shall not exceed 1 percent of the total cover.

f. Water within all wetlands and water bodies shall be of sufficient quality to allow recreation or support fish and other wildlife.

FFD Land Co., Inc. -FFD MEPD Mine
Permit Number: 0293270-001
Date of Issue: August 23, 2011

30. **Wetland Mitigation Summary.** The mitigation to be implemented as part of the reasonable assurances for this project is attached as Sheet E-12., Mitigation and Monitoring Plan, Sheet E-13., Mitigation Phase Detail No 1, Sheet E-14., Mitigation Phase Detail No 2 & 3, and Sheet E-15., Mitigation Phase Detail No 4 & 5.

31. **Wetland Mitigation Schedule.** The mitigation shall be implemented in accordance with the schedule provided by the following attached tables:

FFD MEPD Wetland Mitigation by Habitat and Phase -Wetland Enhancement and Preservation

FFD MEPD Wetland Mitigation by Habitat and Phase -Wetland Restoration and Preservation

FFD MEPD Wetland Mitigation by Habitat and Phase -Upland Enhancement, Restoration, and Preservation

FFD MEPD Wetland Mitigation by Habitat and Phase -Upland Enhancement and Preservation

36. **Hydrologic Enhancement.** An important part of the wetland mitigation for this project is the hydrologic enhancement of wetland mitigation areas and avoided wetlands by the removal of agricultural ditches and berms at the time of reclamation. The enhancement is intended to improve wetland functional values, suppress upland and exotic species, and restore, to some degree, the historic surface water flows to adjacent lands. Work related to this hydrologic enhancement is shown on Sheet 14 of 23, Reclamation Plan, Sheet 15 of 23, Reclamation Plan, and Sheet 21 of 23, Proposed Mining and Reclamation Cross Sections.

66. **Lake Surface Water Separation.** The project is designed to allow the reclaimed created lakes to connect to offsite wetlands or other surface water during storms less than the 25-year, 24-hour design storm. The reclaimed lakes will be waters of the state and must meet the water quality standards of Chapter 62-302, F.A.C. A water quality variance has been granted for dissolved oxygen in the lower layers of the lake.

71. **Wetland Mitigation Areas.** Wetland creation, restoration and enhancement sites shall be successful when all of the following criteria have been continuously met for a period of at least one growing season, without intervention in the form of irrigation, dewatering, removal of undesirable vegetation, or replanting of appropriate vegetation.

a. The Department has determined that the required minimum acreage of the mitigation site is jurisdictional pursuant to Section 373.421, F.S. Specific Condition No. 30 lists each mitigation site, the minimum required acreage for each site, and the target habitat.

b. Each site shall have hydroperiods and depths of inundation based on field measurements that are within the range of conditions for the target community type. The headwater wetlands should be storing and releasing water to the downstream wetlands and to the tributary in a manner approximating that of the reference wetlands of that community type.

- c. The plant species and coverage is similar to what would be expected for the target habitat type.
- d. Percent cover by all appropriate species is 80 percent or more, and the plants are reproducing naturally, either by normal, healthy, vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth and survival. Appropriate species are those species that are identified as obligate or facultative wet plant species, as defined by Chapter 62-340, F.A.C, and commonly occur in the target habitat type, and are native to Lee County. \
- e. Exotic and nuisance species are limited to five percent or less of the total cover.
- f. For forested wetlands, an average of at least 400 appropriate trees per acre shall be growing above the herbaceous and shrub stratum. The canopy cover by appropriate trees exceeds 33 percent of the mitigation wetland area and in no area of an acre in size is the canopy tree cover less than 20 percent total cover. Appropriate tree species are those tree species that are identified as obligate or facultative wet species, as defined by Chapter 62-340, F.A.C., and commonly occur in the target habitat type and are native to Lee County.

72. Upland Areas for Wetland Mitigation. Upland enhancement mitigation areas shall be deemed successful when the following criteria have been continuously met for a period of at least one growing season, without intervention in the form of irrigation, dewatering, removal of undesirable vegetation, or replanting of appropriate vegetation.

- a. The plant species and coverage is similar to what would be expected for the target habitat type.
- b. Percent cover by all appropriate species is 80 percent or more, and the plants are reproducing naturally, either by normal, healthy, vegetative spread (in ways that would be normal for each species) or through seedling establishment, growth and survival. Appropriate species are those species that commonly occur within the target habitat and are native to Lee County.
- c. Exotic and nuisance species are limited to five percent or less of the total cover.
- d. For forested wetlands, an average of at least 400 appropriate trees per acre shall be growing above the herbaceous and shrub stratum. The canopy cover by appropriate tree species exceeds 33 percent 'of the mitigation area and in no area of an acre in size is the canopy cover by appropriate tree species less than 20 percent total cover. Appropriate tree species are those tree species that commonly occur within the target habitat and are native to Lee County.

Florida Rock Industries, Inc. - East Naples Mine
Permit No. 258805-001
Date of Issue: December 4, 2012

24. Wetland Mitigation Summary. The mitigation to be implemented as part of the reasonable assurances for this project consists of the enhancement and preservation by conservation easement of a 371.23-acre tract of land Section 27, southeast of the mine site. Enhancement activities by the control of exotic plant species through an ongoing program of herbicide management will be directed at 109.11 acres of uplands, 261.85 acres of wetlands, and 0.27 of an acre of other surface waters located within the conservation area. The property can be accessed from public roads, using the access easement that will be provided. The property will be part of a larger system of surrounding uplands and wetlands that constitute a development rights "Sending Area" which has been targeted for conservation uses under the Collier County Comprehensive Plan.

56. Wetland Mitigation Areas. Wetland enhancement sites shall be successful when all of the following criteria have been continuously met for a period of at least one growing season, without intervention in the form of irrigation, dewatering, removal of undesirable vegetation, or replanting of desirable vegetation.

a. The plant species and coverage is similar to what would be expected for the target habitat type, as depicted on Drawing E-9 (Post Reclamation FLUCFCS Map).

b. Percent cover by all desirable species is 80 percent or more, and the plants are reproducing naturally, either by normal, healthy, vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth and survival. Desirable species are those species that are identified as obligate or facultative wet plant species, as defined by Chapter 62-340, F.A.C., and are native to Collier County.

c. Exotic and nuisance species are limited to five percent or less of the total cover.

57. Mitigation Work in Uplands. Upland enhancement mitigation areas shall be deemed successful when the following criteria have been continuously met for a period of at least one growing season, without intervention in the form of removal of undesirable vegetation, or replanting of desirable vegetation:

a. The plant species and coverage is similar to what would be expected for the target habitat type, as depicted on Drawing E-9 (Post Reclamation FLUCFCS Map).

b. Percent cover by all desirable species is 80 percent or more, and the plants are reproducing naturally, either by normal, healthy, vegetative spread (in ways that would be normal for each species) or through seedling establishment, growth and survival. Desirable species are those species that are native to Collier County.

c. Exotic and nuisance species are limited to five percent or less of the total cover.

Sumter Cement Company, LLC - Sumter Cement Mine
Permit No. 0271152-001
Date of Issue: September 20, 2011

29. **Wetland Mitigation Acreage.** To compensate for the 167.72 acres of dredging and filling, 552.68 acres of mitigation are required by this permit. Habitat creation, restoration and enhancement shall begin within two years of the final approval necessary to begin dredging or filling. Within each creation, restoration and enhancement area ground contouring, initial exotic removal and/or initial planting shall be completed within five years of the final approval necessary to begin dredging or filling. The wetland mitigation consists of:

- 11.52 acres of wetland forest creation,
- 1.0 acre wetland hardwood forest enhancement,
- 64.46 acres of wet prairie enhancement,
- 4.54 acres of cypress wetland restoration,
- 219.09 acres of pine flatwoods restoration (includes tree planting and 4 acres of shrub planting),
- 36.39 acres of herbaceous dry prairie restoration,
- 10.17 acres of xeric oak upland enhancement (includes 2.25 acres of oak/palmetto planting),
- 190.56 acres of wetland preservation, and
- 14.96 acres of upland preservation.

32. Wetland Forest Creation.

a. The 11.52 acres of wetland forest required to be created consists of 16 wetlands. The wetlands will be dug approximately 200 feet wide at natural grade and utilize a 3H:1 V (horizontal:vertical) slope down approximately two feet below the seasonal high water level creating an approximately 188 feet wide opening at the base of the wetland. The trees shall be hand planted at a rate of 681 trees per acre and shall consist of sweet gum (25 percent species composition), sugarberry (25 percent species composition), red maple (25 percent species composition) and American elm (25 percent species composition).

b. Monitoring of this planted area is required. The monitoring sampling quadrants shall be 10 meters by 10 meters. A steel rod will be used in the field to mark the location of each quadrant. Each quadrant shall have a photo station. The location of the photo stations shall be identified in the monitoring reports. At a minimum, the data gathered shall include the number, type, height, diameter of the canopy species, and the percent cover of nuisance species. The quadrants are to be located in the areas as shown in Figure 9 (Mitigation/Reclamation Plan) of the permit.

c. Release criteria for these forested wetland areas require trees to be a minimum average density of 400 trees per acre. Only trees with a minimum of 10 feet in height and a diameter at breast height (DBH) of two inches or more will contribute towards the determination of tree density. The tree density must meet this requirement for a minimum of one year without replacement or artificial irrigation. Additionally, the percent cover of nuisance/exotic species in the ground stratum must be less than ten percent and the overall number of nuisance/exotic species in the canopy and subcanopy must be less than ten percent.

33. Wetland Hardwood Forest Enhancement.

- a. The 1.0 acre of wetland hardwood forest enhancement adjacent to the roadway consists of chemically treating the area twice with aquatic herbicides utilizing a backpack sprayer. The applicator is required to not damage desirable native wetland species already present. The trees shall be hand planted at a rate of 681 trees per acre and shall consist of sweet gum (25 percent species composition), sugarberry (25 percent species composition), red maple (25 percent species composition) and American elm (25 percent species composition). Monitoring of this wetland hardwood forest is required.
- b. The monitoring sampling quadrants shall be 10 meters by 10 meters. A steel rod will be used in the field to mark the location of each quadrant. Each quadrant shall have a photo station. The location of the photo stations shall be identified in the monitoring reports. As a minimum, the data gathered shall include the number, type, height, diameter of the canopy species, and the percent cover of nuisance species. The quadrants are to be located in the areas as shown in Figure 9 of the permit.
- c. Release criteria for these forested wetland areas require trees to be a minimum average density of 400 trees per acre. Only trees with a minimum of 10 feet in height and a diameter at breast height (DBH) of two inches or more will contribute towards the determination of tree density. The tree density must meet this requirement for a minimum of one year without replacement or artificial irrigation. Additionally, the percent cover of nuisance/exotic species in the ground stratum must be less than ten percent and the overall number of nuisance/exotic species in the canopy and subcanopy must be less than ten percent.

34. Wet Prairie Enhancement.

- a. The 64.46 acres of wet prairie enhancement will be treated chemically with aquatic herbicides twice utilizing a backpack sprayer to eradicate the dominant pasture grasses. The applicator is required to not damage desirable native wetland species. After the treatment, the area will be prepared for direct seeding. Seed for the wet prairie species shall be hand collected since machinery would typically harm native wetland prairie donor sites by rutting the soil. The area will be direct seeded with native wetland habitat seed mixes historically present on this site. A wet seed mix collected locally from a donor site within the Withlacoochee River Basin shall be used if available.
- b. Vegetative monitoring of the enhancement areas is required. The quadrants are to be located in the areas as shown in Figure 9 of the permit. The monitoring sampling quadrants shall be 10 meters by 10 meters. A steel rod will be used in the field to mark the location of each quadrant. Four one meter by one meter quadrants shall be sampled from the corners of each of the 10 meter by 10 meter quadrants.
- c. Release criteria includes an 80 percent ground cover by desirable native wetland species for one year without artificial watering or replacement and less than 10 percent coverage of nuisance or exotic species.

35. Cypress Wetland Restoration.

- a. The 4.54 acres of cypress restoration will not need site preparation prior to planting. The area shall be hand planted with pond cypress (70 percent species composition) and black gum (30 percent species composition). The trees shall be planted at a rate of 681 trees per acre.
- b. Monitoring of this planted area is required. The monitoring sampling quadrants shall be 10 meters by 10 meters. A steel rod will be used in the field to mark the location of each quadrant. Each quadrant shall have a photo station. The location of the photo stations shall be identified in the monitoring reports. At a minimum, the data gathered shall include the number, type, height, diameter of the canopy species, and the percent cover of nuisance species. The quadrants are to be located in the areas as shown in Figure 9.
- c. Release criteria for these forested wetland areas require trees to be a minimum average density of 400 trees per acre. Only trees with a minimum of 10 feet in height and a diameter at breast height (DBH) of two inches or more will contribute towards the determination of tree density. The tree density must meet

this requirement for a minimum of one year without replacement or artificial irrigation. Additionally, the percent cover of nuisance/exotic species in the ground stratum must be less than ten percent and the overall number of nuisance/exotic species in the canopy and subcanopy must be less than ten percent.

36. Pine Flatwoods Restoration.

a. Pine Restoration

1) In the 219.09-acre pine restoration areas, a mixture of 65 percent longleaf and 35 percent slash pine shall be planted. The pine restoration areas shall be burned and scalped prior to planting to reduce ground cover competition. The pines will be planted in the middle of the bare mineral soil strips created by the scalping equipment. The 191,000 pines trees will be planted during the winter using proper planting techniques. The trees shall be planted at a density of 871 trees per acre.

2) Monitoring of this planted area is required. The monitoring sampling quadrants shall be 10 meters by 10 meters. A steel rod will be used in the field to mark the location of each quadrant. Each quadrant shall have a photo station. The location of the photo stations shall be identified in the monitoring reports. At a minimum, the data gathered shall include the number, type, height, diameter of the canopy species, and the percent cover of nuisance species. The quadrants are to be located in the areas as shown in Figure 9.

3) Release criteria for these forested areas require trees to be a minimum average density of 400 trees per acre. Only trees with a minimum of 10 feet in height and a diameter at breast height (DBH) of two inches or more will contribute towards the determination of tree density. The tree density must meet this requirement for a minimum of one year without replacement or artificial irrigation. Additionally, the percent cover of nuisance/exotic species in the ground stratum must be less than ten percent and the overall number of nuisance/exotic species in the canopy and subcanopy must be less than ten percent. When the bark of the trees is sufficiently thick, prescribed burning shall occur using an acceptable prescribed burning plan. Prescribed controlled burns shall be conducted periodically at a frequency of approximately every three to seven years by qualified personnel.

b. Shrub Restoration

1) Within the 219.09-acre pine flatwood restoration areas, 16 areas that are each one-quarter acre (totaling 4 acres) will be hand planted with gallonsize material of palmetto (50 percent species composition), gallberry (25 percent species composition) and fetterbush (25 percent species composition). These shrubs shall be planted at a rate of 681 plants per acre. Prior to planting, the area must receive a prescribed burn, two passes of a disc with a drag iron, and then be rolled with a drum roller.

2) Vegetative monitoring of the shrub planted areas is required. Data shall be collected on the number and type of shrub species and the percent cover of nuisance/exotic species located in each quadrant. One photo station is required in each quadrant. The location of the photo stations will be identified in the monitoring reports. Steel rods will be used in the field to mark the location of the quadrants. The quadrants are to be located in the areas as shown in Figure 9.

3) Release criteria require that the shrubs must meet a minimum density of 400 plants per acre for at least three years without replacement or artificial irrigation.

37. Herbaceous Dry Prairie Restoration.

a. In the 36.39 acres of herbaceous dry prairie restoration, the area will be direct seeded using native pyrogenic xeric seed mixes historically present on the site. The seeds will be collected locally from a donor site within the Withlacoochee River Basin when available. Prior to direct seeding, the area will

receive a prescribed burn, two passes of a disc with a drag iron, and then be rolled with a drum roller. The seed mix may be supplemented with tube lings, bare-root, or containerized plantings as needed.

b. Vegetative monitoring of the restoration areas is required. The quadrants are to be located in the areas as shown in Figure 9 of the permit. The monitoring sampling quadrants shall be 10 meters by 10 meters. A steel rod will be used in the field to mark the location of each quadrant. Four one meter by one meter quadrants shall be sampled from the corners of each of the 10 meter by 10 meter quadrants to collect data on the type and percent cover of the ground cover species. One photo station is required in each quadrant. The location of the photo stations will be identified in the monitoring reports.

c. Release criteria include an 80 percent ground cover by desirable native pyrogenic species for one year without artificial watering or replacement and less than 10 percent coverage of nuisance or exotic species. Prescribed J controlled burns shall be conducted periodically at a rate of approximately every four years after the desired vegetation has been established.

38. Xeric Oak Enhancement.

a. Site preparation for the 10.17 acres of xeric oak upland enhancement includes two applications of herbicides, a controlled burn between the applications to diminish the thatch, two passes with a disc and drag iron, and then roll chopped with a drum chopper. This will prepare the site for direct seeding of native xeric seed mixes historically present on this site. The seeds will be collected locally from a donor site within the Withlacoochee River Basin when available. The seed mix may be supplemented with tubelings, bare-root, or containerized plantings as needed. Within the 10.17 acres of xeric oak upland enhancement, nine clustered areas that are each one-quarter acre (totaling 2.25 acres) shall be planted as shown in Figure 9. These clusters will be planted leaving open space between them. These hand planted clusters will consist of bare-root Chapman oak (25 percent species composition), myrtle oak (25 percent species composition), and sand live oak (50 percent species composition) at a rate of 726 trees per acre. Gallon size saw palmetto shall also be hand planted interspersed between the oaks at a rate of 436 plants per acre.

b. Vegetative monitoring of the xeric oak enhancement area (10.17 acres) is required. The quadrants are to be located in the areas as shown in Figure 9 of the permit. The monitoring sampling quadrants shall be 10 meters by 10 meters. One photo station is required in each 10 meter by 10 meter quadrant. The location of the photo stations will be identified in the monitoring reports. A steel rod will be used in the field to mark the location of each quadrant. Four one meter by one meter quadrants shall be sampled from the corners of each of the 10 meter by 10 meter quadrants to collect data on the percent cover of vegetative species. Data will be collected on the number, type, and height of the canopy species and the percent cover of pasture/nuisance/exotics species.

c. A part of the release criteria includes a minimum density of 400 trees per acre growing above the ground cover within the oak clusters and a maximum of 10 percent cover of pasture grass/nuisance/exotic species. The tree density must meet this requirement for a minimum of one year without replacement or artificial irrigation. Additionally, the opening surrounding the oak clusters should have a minimum percent cover of bare ground of 10 percent and a maximum percent cover of pasture grass/nuisance/exotic species of 10 percent. When the oaks are approximately eight feet tall, topping shall occur to inhibit continued vertical growth and create bushy shrub-like growth. Prescribed controlled burns shall be conducted periodically by qualified personnel at a rate of approximately every 10 years after the desired vegetation has been established. The area shall be burned in sections so that no more than 25 percent of the xeric oak habitat is burned at any one time.

Sunshine Peat, Inc. - Hurley Peat Mine
Permit No. 0242621-001
Date of Issue: May 5, 2006

12. Wetland mitigation consists of the creation of at least 137.25 acres of freshwater marsh, 41.47 acres of emergent marsh and 77.22 acres of wet prairie wetlands along the lake shorelines.

14. The permittee shall create wetlands to replace wetlands to be dredged or filled as authorized by this permit. The active planting of mitigation areas shall include species listed on the attached RAI Figure 10 (Reclamation Mitigation Plan). Other species may be added or substituted with prior written approval of the Department. Such species shall be native to Lee County, identified as obligate or facultative wet plant species, as defined by Chapter 62-340, F.A.C., and appropriate for the land cover type. The specific location for planting should be determined in the field by a qualified mitigation planting professional, based on an assessment of the variation in topography, soils and hydrology within the forested wetland site.

28. Wetland mitigation area shall provide at least the minimum number acres (255.94 acres total) of wetlands to offset wetland function losses resulting from dredging or filling. The wetland acreage shall be determined by the Department, pursuant to Chapter 62-340, F.A.C., and the hydrologic records.

29. Each wetland mitigation area shall be successful when all of the following criteria have been continuously met for a period of at least one growing season, without intervention in the form of irrigation, dewatering, removal of undesirable vegetation, or replanting of desirable vegetation.

a. The desirable herbaceous species and shrub cover exceeds 80 percent of the wetland area, and the plants are reproducing naturally, either by normal, healthy, vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth and survival.

b. Desirable species are those species that are identified as aquatic, obligate or facultative wet plant species, as defined by Chapter 62-340, F.A.C., and are native to Lake County.

c. Exotic and native nuisance species shall not exceed 10 percent of the total cover. Exotic species shall not exceed 1 percent of the total cover.

d. Water within all wetlands and waterbodies shall be of sufficient quality to allow recreation or support fish and other wildlife.

e. Long term water management on site shall be compatible with maintaining mitigation wetlands as shown in the attached RAI Figure 10.

Tarmac America, LLC - King Road Mine
Permit No. 0244771-002
Date of Issue: November 1, 2010

33. Wetland Mitigation Summary. The target habitat types for wetland mitigation to be implemented as part of the reasonable assurances are shown on Figure 3-2, "Mitigation Target Communities" and consist of:

a. Tarmac Mitigation Site (TMS) (approximately 4,332.0 acres)

Wetlands:

- Restoration and preservation of 345.01 acres of hydric hammock from mature hydric pine plantations.
- Restoration and preservation of 1,314.61 acres of hydric hammock from harvested hydric pine plantations.
- Restoration and preservation of 43.13 acres of hydric hammock from cleared natural hammock.
- Preservation of 1,890.9 acres of existing hydric hammock and forested wetlands.
- Preservation of 382.93 acres of existing coastal hydric hammock.
- Preservation of 24.25 acres of existing freshwater herbaceous wetlands and surface waters.

Uplands:

- Preservation of 78.90 acres of existing coastal mesic hammock.
- Restoration and preservation of 35.49 acres of coastal mesic hammock from mature pine plantation.
- Preservation of 47.53 acres of existing mesic hammock.
- Restoration and preservation of 136.03 acres of mesic hammock from mature pine plantations.
- Restoration and preservation of 33.23 acres of mesic hammock from harvested pine plantations.

b. Mine Site (approximately 850.4 acres)

- Restoration and preservation of 156.37 acres of hydric hammock from mature and harvested hydric pine plantation.
- Preservation of 385.08 acres of hydric hammock and forested wetlands.
- Restoration and preservation of 251.00 acres of mesic hammock from mature and harvested pine plantation.
- Preservation of 57.94 acres of mesic hammock.
- Preservation of open water channels associated within the wetland flow ways.

Also at the Mine Site, outside of the preservation area, approximately 13.4 acres of temporary flow way crossings will be partially restored to the pre-project elevations and forested wetlands. An 18-foot-wide access roadway with a 57 foot-wide filled and culverted base will remain for silvicultural purposes, as

shown on the cross section, "Typical Post Reclamation Wetland Crossing Road", on Sheet D6, "Proposed Mining & Construction Sections".

81. Wetland Mitigation Areas. Wetland restoration and enhancement sites shall be successful when all of the following criteria have been continuously met for a period of at least one growing season, without intervention in the form of irrigation, dewatering, removal of undesirable vegetation, or replanting of desirable vegetation.

- a. The Department has determined that the required minimum acreage of the mitigation site is jurisdictional pursuant to section 373.421, F.S. Specific Condition No. 33 lists each mitigation site, the minimum required acreage for each site, and the target habitat.
- b. Each site shall have hydroperiods and depths of inundation based on field measurements that are within the range of conditions for the target community type. The headwater wetlands should be storing and releasing water to the downstream wetlands and to the tributary in a manner approximating that of the reference wetlands of that community type.
- c. The plant species and coverage is similar to what would be expected for the target habitat type. Pines shall be less than five percent of the aerial cover.
- d. Percent cover by all appropriate species is 80 percent or more, and the plants are reproducing naturally, either by normal, healthy, vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth and survival. Appropriate species are those species that are identified as obligate or facultative wet plant species, as defined by Chapter 62-340, F.A.C., and are native to Levy County.
- e. Exotic and nuisance species are limited to five percent or less of the total cover.
- f. For forested wetlands, an average of at least 400 total appropriate trees per acre shall be growing above the herbaceous and shrub stratum. The appropriate canopy tree cover exceeds 33 percent of the mitigation wetland area and in no area of an acre in size is the desirable canopy tree cover less than 20 percent total cover.

82. Upland Areas for Wetland Mitigation. Upland enhancement mitigation areas shall be deemed successful when the following criteria have been continuously met for a period of at least one growing season, without intervention in the form of irrigation, dewatering, removal of undesirable vegetation, or replanting of desirable vegetation.

- a. The plant species and coverage is similar to what would be expected for the target habitat type. Pines shall be less than five percent of the aerial cover.
- b. Percent cover by all appropriate species is 80 percent or more, and the plants are reproducing naturally, either by normal, healthy, vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth and survival. Appropriate species are those species that are native to Gulf Hammock area.
- c. Exotic and nuisance species are limited to five percent or less of the total cover.
- d. For forested uplands, an average of at least 400 total desirable trees per acre shall be growing above the groundcover and sub-canopy strata. The desirable canopy tree cover exceeds 33 percent of the mitigation wetland area and in no area of an acre in size is the desirable canopy tree cover less than 20 percent total cover.

Appendix D

Phosphate Permits

Altman Tract

Lambe Tract

Loncala Tract

Mining Unit R

Mining Unit T

Ona-Fort Green

South Fort Meade - Hardee

South Pasture Extension

Altman Tract
Permit Number 0155875-009/010
Date of Issue: 6/13/2006

17. RELEASE CRITERIA: The 33.2 acres of forested wetlands, 511.2 acres of nonforested wetlands and 850 linear feet (0.3 acre) of streams shall be released when the reclaimed mitigation wetlands have been constructed in accordance with the permit requirements, the following conditions have been met, and no intervention in the form of irrigation, dewatering, or replanting of desirable vegetation has occurred for a period of two consecutive years unless approved in writing by the Department. If the associated watershed has been reclaimed, individual wetlands may be released by the Department provided they have met the minimum establishment period for the wetland type and meet all applicable permit conditions. The permittee shall indicate in the Annual Narrative Report required by Specific Condition 5 the start date for the nonintervention period for each wetland:

A. Water Quality

Water quality shall meet Class III standards (Chapter 62-302, F.A.C.)

B. Water Quantity

1. For each wetland type, the created wetland shall have hydroperiods and depths of inundation sufficient to support wetland vegetation and that are within the range of conditions occurring in the reference wetlands of that community type for the same time period, as determined based on the monitoring data developed in accordance with Specific Condition 15c. Reference wetlands are discussed further in Paragraph B of the Monitoring Required section.

2. The designs of eight representative wetlands were modeled as part of the application process based on predicted subsurface conditions after excavation and backfilling of the mine cuts with sand tailings and overburden. Representative wetlands are those wetlands that were selected based on their FLUCFCS and position in the post reclamation landscape to serve as demonstrative wetlands for indicating the hydroperiods of the post reclamation wetlands are adequate. Prior to construction, the design of each of these wetlands will be reassessed and modified as necessary to achieve the design criteria set forth in Table 19 (Isolated Wetland Analysis Summary) using an integrated surface and ground water model that has been calibrated to the actual field conditions at the location of the wetland to be constructed. A similarly calibrated model shall be used to design the other wetlands to be constructed at the site to achieve the design criteria set forth in Table 19.

3. Monitoring as described in Section D of the Monitoring Required section and Table MR-B shall be performed for all eight of the representative wetlands that were modeled as part of the application. All water table piezometers shall be installed and datum surveyed within 30 days of the completion of reclamation grading/contouring activities in the wetland to be monitored. Hydrologic data collected for each wetland monitoring site is to be compiled, analyzed and submitted on an annual basis to the Bureau of Mine Reclamation in both tabular and graphical formats.

4. The wet prairies identified in Figures 16 and 16(1)- 16(6) shall remain inundated for no more than eight months of the year during a normal water year, defined as being within the 20th and 80th percentile of historical record in terms of total rainfall and major event occurrence.

C. Vegetation

For all mitigation areas:

1. Cover by non-nuisance, non-exotic wetland species listed in rule 62-340A50, F.A.C., in the ground cover shall be at least 80% or shall be within the range of values documented within the reference wetlands of the target community type. Desirable ground cover plant species shall be reproducing naturally, either by normal vegetative spread or through seedling establishment, growth and survival.

2. Cover by nuisance vegetation species, including, but not limited to *Typha* spp. (cattail), *Ludwigia peruviana* (primrose willow), and *Mikania* spp. (climbing hemp vine) shall be limited to less than 5% of the total wetland area. Invasive exotic vegetation such as *Melaleuca quinquenervia* (melaleuca), *Sapium sebiferum* (Chinese tallow) and *Schinus terebinthifolius* (Brazilian pepper) shall not be considered an acceptable component of the vegetative community.

For Herbaceous Marshes:

Cover within marshes shall be dominated by native species typical of reference marshes and shall be distributed in similar zonation patterns. Species richness and dominance regimes shall be within the range of values documented within the reference marshes.

For Wet Prairies:

Cover within wet prairies shall be dominated by native species typical of reference wet prairies. Species richness and dominance regimes shall be within the range of values documented within the reference wet prairies. Cover by range grasses such as Bahia grass (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*) shall be limited to less than 10% (i.e. total cover by both species combined shall be less than 10%).

For Shrub Marshes:

Cover within shrub marshes shall be dominated by native species typical of reference shrub marshes. Cover by Carolina willow (*Salix caroliniana*) and wax myrtle (*Myrica cerifera*) shall be limited to less than 30% (i.e. total cover by both species combined shall be less than 30%).

For all Forested Wetlands:

1. The canopy layer shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have a leaf at least 3 feet long including the stalk), or shall meet or exceed the range of canopy and subcanopy tree densities in the reference wetlands. No area greater than an acre in size shall have less than 200 trees per acre. Pine flatwoods areas shall have an average of 50 trees per acre.

2. The shrub layer shall have an average of at least 100 shrubs/acre or shall meet or exceed the range of shrub densities in the reference wetlands. Early successional species such as *Salix caroliniana* (Carolina willow), *Baccharis* spp. (saltbush), *Myrica cerifera* (wax myrtle), and *Sambucus canadensis* (elderberry) do not count toward meeting this requirement. (However, these species shall be included in the monitoring reports required in the Monitoring Required section of this permit.)

3. The canopy and shrub strata shall each have species richness values and dominance regimes within the range of values documented in the reference wetlands of the target community type. Canopy and shrub measurements shall be limited to those indigenous species that contribute to the shrub, subcanopy, and canopy strata of the mature forested wetlands in the Horse Creek basin. Up to 49% of the trees and shrubs in the upper transitional zone (defined as the uppermost one foot change in elevation within the wetland boundary) may consist of appropriate upland and facultative species as found in the reference wetlands. Desirable canopy and shrub species shall be reproducing naturally, as evidenced by the presence of fruit, cones or seedlings.

4. Species richness and dominance regimes for herbaceous vegetation shall be within the range of values documented within the reference wetlands of the target community type. The relative age of the mitigation site when compared to mature systems shall be considered in the evaluation.

D. Wetlands and Other Surface Waters

Mine wide, not less than 33.2 acres of forested wetlands, 511.2 acres of herbaceous wetlands and 850 linear feet (0.3 acre) of stream (in addition to the restored SR 37 stream discussed separately in Specific Condition 20) shall be determined to be wetlands or other surface waters. The minimum acreage for each wetland shall be achieved as indicated on Figure 16 and the associated figures and tables. However, minor changes in the size, shape, or location of individual wetlands may be acceptable subject to review and written approval from the Bureau of Mine Reclamation. The acreage of wetlands and other surface waters shall be determined pursuant to Chapter 62-340, F.A.C.

20. SR 37 STREAM RESTORATION MITIGATION PROJECT:

a. Construction: the stream restoration projects shall be constructed in accordance with the approved plan (attached). All appropriate BMPs shall be followed as described in Specific Condition 7. The permittee shall complete the enhancement work within one (1) year of initiation of mining operations in the Altman tract.

b. Monitoring: quantitative vegetation monitoring of the stream restoration project shall occur in years one, two, and three and every other year thereafter until release; continuous flow monitoring during construction and afterwards until release. A quantitative fish monitoring event shall be performed prior to release.

c. Success criteria: Stream banks shall be stable, with no active erosion or caving. Cover by nuisance vegetation species shall be limited to <5% of the total area and no exotic species shall be present. Species shall be reproducing naturally, either by normal vegetative spread or through seedling establishment, growth, and survival. Species richness and dominance shall be within the range of values documented on banks and in channels of similar intermittent streams in central Florida. Trees shall be planted on the filled ditch such that they maintain a density of 200 trees/acre. Wetland trees shall also be planted along the banks of the restored stream to improve bank stabilization. The restored stream shall support fishes similar to the reference site (point C on Figure SP-1); 80% of the species present at the reference site shall also be present within the SR 37 stream.

d. Release- Release shall be in accordance with procedures outlined in Specific Condition 18. Release shall occur in no less than five years.

e. Water flow to the headwater marsh of Horse Creek shall be protected as outlined in Specific Condition 11.

Lambe Tract
Permit Number 0155875-019
Date of Issue: 9/16/2008

16. RELEASE CRITERIA: The 0.3 acres of forested wetlands and 46.7 acres of nonforested wetlands shall be released when the mitigation wetlands have been constructed in accordance with the permit requirements, the following conditions have been met, and no intervention in the form of irrigation, dewatering, or replanting of desirable vegetation has occurred for a period of two consecutive years unless approved in writing by the Department. If the associated watershed has been reclaimed, individual wetlands may be released by the Department provided they have met the minimum establishment period for the wetland type and meet all applicable permit conditions. The permittee shall indicate in the Annual Report the start date for the non-intervention period for each wetland:

A, Water Quality

Water quality shall meet Class III standards (Chapter 62-302, F.A.C.)

B. Water Quantity

1. For each wetland type, the created wetland shall have hydroperiods and depths of inundation sufficient to support wetland vegetation and that are within the range of conditions occurring in the reference wetlands of that community type for the same time period as determined based on the monitoring data developed in accordance with Specific Condition 14c. Reference wetlands are discussed further in Paragraph B of the Monitoring Required section.

2. The hydroperiods of the mitigation wetlands were modeled as part of the application process based on predicted subsurface conditions after excavation and backfilling of the mine cuts with sand tailings and overburden. Prior to construction, the design of the wetlands will be reassessed and modified as necessary to achieve the design criteria using an integrated surface and ground water model that has been calibrated to the actual field conditions at the location of the wetland to be constructed.

3. Monitoring as described in Section D of the Monitoring Required section and Table MR-B shall be performed for the mitigation wetlands. All water table piezometers shall be installed and datum surveyed within 30 days of the completion of reclamation grading/contouring activities in the wetland to be monitored. Hydrologic data collected for each wetland monitoring site is to be compiled, analyzed and submitted on an annual basis to the Bureau of Mining and Minerals Regulation in both tabular and graphical formats.

C. Vegetation

For all mitigation areas:

1. Cover by non-nuisance, non-exotic wetland species listed in Chapter 62-340.450, F.A.C., in the ground cover shall be at least 80 % or shall be within the range of values documented within the reference wetlands of the target community type. Desirable ground cover plant species shall be reproducing naturally, either by normal vegetative spread or through seedling establishment, growth and survival.

2. Cover by nuisance vegetation species, including, but not limited to *Typha* spp. (cattail), *Ludwigia peruviana* (primrose willow), and *Mikania* spp. (climbing hemp vine) shall be limited to less than 10 % of the total, wetland area. Invasive exotic vegetation such as *Melaleuca quinquenervia* (melaleuca), *Sapium*

sebiferum (Chinese tallow) and *Schinus terebinthifolius* (Brazilian pepper) shall not be considered an acceptable component of the vegetative community.

For Wet Prairies:

b. Cover within wet prairies shall be dominated by native species typical of reference wet prairies. Species richness and dominance regimes shall be within the range of values documented within the reference wet prairies. Cover by range grasses such as Bahia grass (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*) shall be limited to less than 10% (ie. total cover by both species combined shall be less than 10%).

For Shrub Marshes:

c. Cover within shrub marshes shall be dominated by native species typical of reference shrub marshes. Cover by Carolina willow (*Salix caroliniana*) and wax myrtle (*Myrica cerifera*) shall be limited to less than 30% (i.e. total cover by both species combined shall be less than 30%).

For all Forested Wetlands:

d. The canopy layer shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have a leaf at least 3 feet long including the stalk), or shall meet or exceed the range of canopy and subcanopy tree densities in the reference wetlands. No area greater than an acre in size shall have less than 200 trees per acre.

e. The shrub layer shall have an average of at least 100 shrubs/acre or shall meet or exceed the range of shrub densities in the reference wetlands. Early successional species such as *Salix caroliniana* (Carolina willow), *Baccharis* spp. (saltbush), *Myrica cerifera* (wax myrtle), and *Sambucus canadensis* (elderberry) do not count toward meeting this requirement (However, these species shall be included in the monitoring reports required in the Monitoring Required section of this permit).

f. The canopy and shrub strata shall each have species richness values and dominance regimes within the range of values documented in the reference wetlands of the target community type. Canopy and shrub measurements shall be limited to those indigenous species that contribute to the shrub, subcanopy, and canopy strata of the mature forested wetlands in the Little Manatee River basin. Up to 49% of the trees and shrubs in the upper transitional zone (defined as the uppermost one foot change in elevation within the wetland boundary) may consist of appropriate upland and facultative species as found in the reference wetlands. Desirable canopy and shrub species shall be reproducing naturally, as evidenced by the presence of fruit, cones or seedlings.

g. Species richness and dominance regimes for herbaceous vegetation shall be within the range of values documented within the reference wetlands of the target community type. The relative age of the mitigation site when compared to mature systems shall be considered in the evaluation.

D. Wetlands and Other Surface Waters

1. Not less than 0.3 acres of forested wetlands and 46.7 acres of herbaceous wetlands within the Lambe Tract shall be determined to be wetlands or other surface waters. The restored wetlands shall be constructed as depicted in the attached permit drawings; however, minor changes in the size, shape, or location of individual wetlands may be acceptable subject to review and written approval from the Department. The acreage of wetlands and other surface waters shall be determined pursuant to Chapter 62-340, F.A.C.

19. LONG BRANCH AGRICULTURAL CROSSING REMOVAL MITIGATION PROJECT:

- a) Construction: the stream restoration projects shall be constructed in accordance with the approved plan ("Four Corners Mine Long Branch--Road Crossing Restoration Plan"). All appropriate BMPs shall be followed as described in Specific Condition 7. The permittee shall complete the enhancement work within one (1) year of initiation of milling operations in the Lambe Tract.
- b) Success criteria: Stream banks shall be stable, with no active erosion or caving. Cover by nuisance vegetation species shall be limited to <10 % of the total area and no exotic species shall be present. Species shall be reproducing naturally, either by normal vegetative spread or through seedling establishment, growth, and survival. Species richness and dominance shall be similar to adjacent areas within the Long Branch floodplain. Tree roots, log jams, and other in-stream structure are present in the restored stream segment
- c) Release- Release shall be in accordance with procedures outlined in Specific Condition 17. Release shall occur in no less than 5 years.

Loncala Tract
Permit Number 0144913-021
Date of Issue: 11/30/2012

18. RELEASE CRITERIA: The 553.5 acres of forested wetlands and 52.7 acres of herbaceous wetlands shall be released when the reclaimed mitigation wetlands have been constructed in accordance with the permit requirements, the following conditions have been met, and no intervention in the form of irrigation, dewatering, or replanting of desirable vegetation has occurred for a period of two consecutive years (unless approved in writing by the Department). If the associated watershed has been reclaimed, individual wetlands may be released by the Department provided they have met the minimum establishment period for the wetland type and meet all applicable permit conditions. The permittee shall indicate in the Annual Status Report required by Specific Condition 6 the start date for the non-intervention period for each wetland:

A. Water Quality:

Water quality shall meet Class III standards (Chapter 62-302, F.A.C.)

B. Water Quantity:

1. Each created wetland shall have hydroperiods and depths of inundation sufficient to support wetland vegetation of the target community type and that are within the range of conditions occurring in the reference wetlands of the applicable community type for the same time period as determined based on the monitoring data. Reference wetlands are discussed further in Paragraph B of the Monitoring Required section.
2. Hydrologic performance of the undisturbed portion of Cat Creek shall be verified through the results of the monitoring conducted in accordance with Specific Condition 12f. Following watershed restoration and reconnection of all mitigation wetlands the bankfull discharge stage, volumes, and frequency of occurrence shall be comparable to the values observed prior to the initiation of mining operations.

C. Vegetation:

For All Mitigation Areas:

1. Relative cover by non-nuisance, non-exotic FAC, FACW, or OBL species listed in rule 62-340.450, F.A.C., in the ground cover shall be at least 80%. Non-nuisance, non-exotic facultative species will be considered desirable only provided that their contributions to the vegetative community structure are within the range of values documented within the reference wetlands of the target community type, the target community type is established, and the mitigation site is jurisdictional in accordance with Rule 62-340, F.A.C. In no case will temporary dominance by transient facultative species such as dogfennell (*Eupatorium capillifolium*), sesbania (*Sesbania* spp.), wax myrtle (*Myrica cerifera*), shyleaf (*Aeschynomene americana*), or similar species be used to demonstrate achievement of vegetation community performance standards. Desirable ground cover plant species shall be reproducing naturally, either by normal vegetative spread or through seedling establishment, growth, and survival.
2. Cover by nuisance vegetation species, including cattail (*Typha* spp.), climbing hemp vine (*Mikania* spp.), saltbush (*Baccharis* spp.), and willow (*Salix* spp.), shall be limited to less than 10% relative cover. However, any member of the species listed above shall not be considered a nuisance

species in cases where it individually contributes less than 3% to the relative vegetation cover and does not dominate any patches greater than ½-acre in size.

3. Invasive exotic vegetation including, but not limited to Cogon grass (*Imperata cylindrica*), melaleuca (*Melaleuca quinquenervia*), Climbing fern (*Lygodium* spp.), Chinese tallow (*Sapium sebiferum*), primrose willow (*Ludwigia peruviana*), and Brazilian pepper (*Schinus terebinthifolius*) shall not be considered an acceptable component of the vegetative community. Invasive exotic species shall mean those species listed on the Florida Exotic Pest Plant Council's 2011 list of invasive exotic plant species.

For All Forested Wetlands:

4. Species richness and dominance regimes in the canopy, sub canopy, and ground layer shall be within the range of values documented within reference wetlands of the target community type. The relative age of the mitigation site when compared to mature systems shall be considered in the evaluation.

5. Canopy and shrub measurements shall be limited to those indigenous species that contribute to the shrub, sub canopy, and canopy strata of the mature forested wetlands in the Upper Suwannee River Basin. Desirable canopy and shrub species shall be reproducing naturally, as evidenced by the presence of saplings that are greater than one foot in height.

For Herbaceous Marshes (FLUCFCS 641):

6. Total cover by non-nuisance, non-exotic FAC, FACW, and/or OBL species listed in rule 62-340.450, F.A.C., (desirable species) in the ground cover shall be at least 80%. Cover within herbaceous marshes (FLUCFCS 641) shall be dominated by emergent native species typical of native freshwater marshes in the Upper Suwannee River Basin, and shall be distributed in appropriate zonation patterns. Non-vegetated open water and/or bare ground shall cumulatively be limited to less than 20% of the wetland area.

7. The outer transition zone of each herbaceous marsh, defined as the wetland area within 50 feet of the wetland edge, shall have an average of at least 10 native shrubs per acre.

For Deepwater Marshes (FLUCFCS 644):

8. Total cover by non-nuisance, non-exotic FACW and/or OBL species listed in rule 62-340.450, F.A.C., (desirable species) in the ground cover shall be at least 75%. Cover within deepwater marshes (FLUCFCS 644) shall be dominated by floating native wetland species typical of native deepwater marshes in the Upper Suwannee River Basin. Non-vegetated open water and/or bare ground shall cumulatively be limited to less than 25% of the wetland area.

9. The outer transition zone of each deepwater marsh, defined as the wetland area within 50 feet of the wetland edge, shall have an average of at least 10 native shrubs per acre.

For Bay Swamps (FLUCFCS 611):

10. The canopy layer shall be dominated by (meaning that > 50% of all trees are) bay trees (*Magnolia virginiana*, *Persea palustris*, and *Gordonia lasianthus*), and shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to

Cabbage Palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). No area greater than one acre in size shall have less than 200 trees per acre.

11. The shrub layer shall contain at least 3 shrub species listed for the appropriate community type on Table FDEP-1 and shall have an average of at least 50 shrubs per acre.

For Gum Swamps (FLUCFCS 613):

12. The canopy layer shall be dominated by (meaning that > 50% of all trees are) tupelo (*Nyssa* spp.), and shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). No area greater than one acre in size shall have less than 200 trees per acre.

13. The shrub layer shall contain at least 3 of the shrub species listed for the appropriate community type on Table FDEP-1 and shall have an average of at least 50 shrubs per acre.

For Stream and Lake Swamps (FLUCFCS 615):

14. The canopy layer shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). Neither conifers nor hardwoods shall account for more than 66% of the crown canopy composition. No area greater than one acre in size shall have less than 200 trees per acre.

15. The shrub layer shall contain at least 3 of the species listed for the target community type on Table FDEP-1 and shall have an average of at least 50 shrubs per acre.

16. Ground cover within mixed hardwood-coniferous forests shall be dominated by native species typical of reference mixed hardwood-coniferous forests. Species richness and dominance regimes shall be within the range of values documented within the reference mixed hardwood-coniferous forests.

For Mixed Wetland Hardwoods (FLUCFCS 617):

17. The canopy layer shall be dominated by (meaning that > 50% of all trees are) red maple (*Acer rubrum*), and shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). No area greater than one acre in size shall have less than 200 trees per acre.

18. The shrub layer shall contain at least 3 of the shrub species listed for the appropriate community type on Table FDEP-1 and shall have an average of at least 50 shrubs per acre.

For Cypress Swamps (FLUCFCS 621):

19. The canopy layer shall be dominated by (meaning that > 50% of all trees are) cypress (*Taxodium* spp.), and shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). No area greater than one acre in size shall have less than 200 trees per acre.

20. The shrub layer shall contain at least 3 of the shrub species listed for the appropriate community type on Table FDEP-1 and shall have an average of at least 50 shrubs per acre.

For Hydric Pine Flatwoods (FLUCFCS 625):

21. The canopy layer shall be dominated by (meaning that > 50% of all trees are) longleaf pine (*Pinus palustris*) and/or slash pine (*Pinus elliottii*) and shall have an average of at least 150 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). At least 5 of the tree species on Table FDEP-1 shall be present. No area greater than an acre in size shall have less than 50 trees per acre.

22. The shrub layer shall contain at least 3 of the species listed for the target community type on Table FDEP-1 and shall have an average of at least 50 shrubs per acre.

23. Ground cover within hydric pine flatwoods shall be dominated by native species typical of reference hydric pine flatwoods. At least 10% of the relative ground cover shall be derived from wiregrass (*Aristida stricta*). Species richness and dominance regimes shall be within the range of values documented within the reference hydric pine flatwoods. Cumulative total cover by range grasses, such as Bahia grass (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*), shall be less than 10%. Non-vegetated open water and/or bare ground shall cumulatively be limited to less than 10% of the wetland area.

For Wetland Mixed Hardwood-Coniferous Forest (FLUCFCS 630):

24. The canopy layer shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). Neither conifers nor hardwoods shall account for more than 66% of the crown canopy composition. No area greater than one acre in size shall have less than 200 trees per acre.

25. The shrub layer shall contain at least 3 of the species listed for the target community type on Table FDEP-1 and shall have an average of at least 50 shrubs per acre.

26. Ground cover within mixed hardwood-coniferous forests shall be dominated by native species typical of reference mixed hardwood-coniferous forests. Species richness and dominance regimes shall be within the range of values documented within the reference mixed hardwood-coniferous forests.

D. Wetlands Jurisdiction:

1. Within the Loncala Tract, not less than 553.5 acres of created forested wetlands and 52.7 acres of created herbaceous wetlands shall be determined to be wetlands. The minimum acreage for each type of wetland identified on Sketches A-6831, A-6832, and A-6833 shall be achieved as indicated on the UAMAM summary spreadsheet. However, minor changes in the size, shape, or location of individual wetlands may be acceptable subject to review and written approval from the Department. The acreage of wetlands shall be determined pursuant to Chapter 62-340, F.A.C.

E. Long-Term Management Plan for Fire-Dependent Communities:

1. Prior to release request, all mitigation sites which involve the creation of fire-dependent communities, including freshwater marshes and hydric pine flatwoods, shall have in place a long-term management plan that includes prescribed burning at ecologically appropriate intervals. For the purposes of this condition, ecologically appropriate fire return interval shall be determined through consultation of the Florida Natural Areas Inventory's Guide to the Natural Communities of Florida (2010 Edition), the Soil Conservation Service's 26 Ecological Communities of Florida (February, 1981), or other published literature documenting natural fire return intervals in the appropriate community type.

22. ADAPTIVE MANAGEMENT PROGRAM: Following construction and initial revegetation of each mitigation wetland the permittee shall implement an adaptive management program to continually monitor site development, assess progress towards meeting objectives, and perform management interventions, as necessary, to ensure the desired mitigation project goals are achieved in a timely manner. Achievement of project goals shall be demonstrated through compliance with the performance standards listed in Specific Condition 20.

a. Annual monitoring, as specified in the Monitoring Required section, shall sufficiently quantify performance metrics to provide an accurate representation of conditions across each mitigation site. In addition to the quantitative monitoring effort, a qualitative assessment of each mitigation site shall also be conducted to ensure spatial variability and site characteristics that may not be evident from the average conditions reported in the quantitative monitoring data are afforded proper consideration. The quantitative data and qualitative assessment shall be used by the permittee to generate an annual monitoring and adaptive management assessment (MAMA) for each mitigation site. The MAMA shall comply with the Department's May 11, 2009 Memo detailing Monitoring Report Requirements for the Year 2009 and Onward.

b. The MAMA shall include graphical plots summarizing all observations recorded since revegetation for each of the performance metrics in Specific Condition 20. Each parameter shall be plotted individually and each plot shall include graphical reference to the target performance standard and to the average values observed in reference wetlands of the target wetland community type. The parameters to be plotted include the following:

- Timing, depth, and duration of inundation (hydrographs)
 - Mitigation wetland hydrographs shall include reference to the range of water depths expected to support the target community type. The mitigation wetland hydrographs shall be compared with hydrographs from the hydrologic reference wetlands for the same period of record. Water level data in mitigation wetlands and hydrologic reference wetlands shall be collected weekly, as specified in Table MR-B.
- Total ground cover by desirable species;
- Total ground cover by nuisance/exotic/invasive exotic species;
- Total ground cover by wetland (FACW and OBL) species;
- Total ground cover by upland species;
- Relative ground cover by desirable species.
- Relative ground cover by nuisance/exotic/invasive exotic species
- Relative ground cover by wetland (FACW and OBL) species;
- Relative ground cover by upland species;
- Tree density
- Tree species richness
- Tree species evenness
- Tree species dominance regime (compare created wetlands vs. reference sites)

- Dominance thresholds for specific tree species (e.g., 50% dominance by bay trees in FLUCFCS 611 mitigation wetlands), as specified in Specific Condition 21C.
- Dominance thresholds for specific groundcover species (e.g., 10% relative cover of *Aristida stricta* in FLUCFCS 625 mitigation wetlands), as specified in Specific Condition 21C.
- Areal extent of open water
- Areal extent of bare ground

c. The MAMA shall include an evaluation of the monitoring data and an assessment as to whether the mitigation site is on a trajectory that will result in achievement of all mitigation performance standards within the time frames established in Specific Condition 18. In a case in which the data indicate that project objectives will likely not be met within the restoration time frame the permittee, in consultation with the Department, shall identify a suite of management alternatives that could be implemented to alter the trajectory of the site to achieve project objectives in a timely manner.

The permittee shall seek input from the Department prior to implementation of major management actions. However, the ultimate management option chosen shall be determined by the permittee. Corrective management actions shall be fully implemented within one year of a determination by the permittee that a management intervention is needed to achieve mitigation objectives within the permit time frames.

d. The permittee shall document management interventions (methods, timing, and intensity) and shall monitor and assess the results in subsequent MAMAs. Major management interventions (e.g., alteration of hydrology, nuisance species management, supplemental plantings, prescribed burns, etc...), shall be plotted on the time axis of each graph referred to in item 22b (above). MAMAs shall consider the successes or failures of past management interventions. MAMAs shall be submitted with the Annual Hydrology Report required in Specific Condition 7.

e. The adaptive management program shall continue through release of each mitigation site.

Mining Unit R
Permit Number 0133996-001
Date of Issue: 05/26/1999

10. The 43.7 acres of hardwood wetland forest restoration, 3.8 acres of herbaceous marsh restoration, and each specific wetland described in the permit drawings, shall be released when the reclaimed wetlands have been constructed in accordance with the permit requirements, the following conditions have been met. No intervention in the form of irrigation, or dewatering shall occur, unless approved by the Department, through submittal of a completed field modification, for a period of two (2) consecutive years. The permittee shall indicate in the Annual Narrative Report as required by Specific Condition No. 3, the start date for the non-intervention period.

A. Water Quality

I. Water quality shall meet Class III standards pursuant to Chapter 62-302, F.A.C.

B., 1. Water Quantity

1. Flows and intervals of no flow to the South Prong of the Alafia River as measured at specific discharge locations shall be within historical levels for the wet season (July through October), and dry season (November through June).

B., 2. Water Quantity

1. For each wetland type, the created wetland shall have hydroperiods, and depths of inundation as appropriate for that vegetative community type. The depths of inundation shall be consistent with depths in the adjacent preserved wetlands.

C. Vegetation

For all herbaceous mitigation required under this permit:

I. Cover by non-nuisance, non-exotic wetland species listed in Chapter 62-340, F.A.C., in the herbaceous wetland area shall be 80%. Desirable herbaceous vegetation shall be reproducing naturally, either by normal vegetative spread, or through seedling establishment.

a. Areas designated as marsh (FLUCCS 640) on Figure 13-A, B, and C, shall be revegetated with a mixture of at least five of the native wetland species listed in Chapter 62-340, F.A.C.

2. Cover by nuisance species, including but not limited to Cattail (*Typha spp.*), and Primrose willow (*Ludwigia peruviana*), shall be limited to less than 10% of the total wetland area. Invasive exotic vegetation, such as Melaleuca (*Melaleuca quinquenervia*), Chinese tallow (*Sapium sebiferum*), and Brazilian pepper (*Schinus terebinthifolius*), shall not be considered acceptable wetland vegetation.

For all the forested wetlands within the mine boundary to be reclaimed or maintained under this permit:

3. An average of at least 400 trees per acre (species listed in Chapter 62-340, F.A.C.), shall be growing above the herbaceous stratum ~12 feet tall), and no area one acre in size having less than 200 trees per acre;

4. Herbaceous ground cover in the hardwood wetland forest areas shall be 80%, and shall include a mixture of at least five of the species listed in Chapter 62-340, F.A.C., with no one species comprising more than 33% cover. Three of the following species must be present: Lizards tail (*Saururus cemus*), Cinnamon fern (*Osmunda cinnamonea*), Royal fern (*Osmunda regalis*), Shield fern (*Thelypteris sp.*), Swamp lily (*Crinum americanum*), Smartweed (*Carex spp.*), and Knotweed (*Polygonum spp.*).
5. The upper canopy stratum shall be equal to or exceed 33 % of the total forested area. Canopy size measurements shall be restricted to (1) those woody species at least 12 feet tall or 4" DBH, and (2) those indigenous species that contribute to the overstory of the mature forest of the South Prong of the Alafia River, and its tributaries. Tree species to be used for revegetation are listed in Chapter 62-340, F.A.C.
6. If after 12 years following the initial tree planting specified in Specific Condition 3 above, the upper canopy stratum does not exceed 33% of the total forested area, the department will evaluate the wetland, along with the permittee, and develop a plan to meet the requirements of the permit. In no area of greater than one acre in size shall the tree and shrub cover be less than 20% total cover. Cover measurements shall be restricted to (1) those woody species exceeding the herbaceous stratum in height (shrubs) or trees 4 inches DBH or 12 feet tall, and (2) those indigenous species that contribute to the overstory of the mature forest of the South Prong of the Alafia River and its tributaries and that are wetland vegetation listed in Chapter 62-340, F.A.C.
7. The following tree species, at a minimum, shall be present, with no one species accounting for more than 33% of total tree density, and no facultative species, as defined in Chapter 62- 40, F.A.C., accounting for more than 10 % of the tree density: Black gum (*Nyssa sylvatica mar. biflora*), Sweet gum (*Liquidambar styraciflua*), Sweet bay (*Magnolia virginiana*), Loblolly bay (*Gordonia lasianthus*), Swamp bay (*Persea palustris*), Red maple (*Acer rubrum*), Laurel oak (*Quercus laurifolia*), Water oak (*Quercus nigra*), Dahoon holly (*Ilex cassine*), Wax myrtle (*Myrica cerifera*), and Swamp azalea (*Rhododendron viscosum*).

D. Jurisdiction

1. Not less than 43.7 acres of wetland forest restoration, and 3.8 acres of herbaceous wetlands restoration are determined to be jurisdictional, as measured by vegetation, and evidence that hydrological regimes are present (actual water levels, stain or lichen lines, algal growth, etc.), pursuant to Section 403.817, F.S. and Chapter 62-340, F.A.C.
- d. The Department may release the mitigation wetlands based on visual evaluation, notwithstanding that all the requirements of Specific Condition No. 10 have not been met.

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8. The 38.1 acres of wetland forest and 4.0 acres of herbaceous wetland to be restored, as described in the permit drawings, shall be released when the reclaimed wetlands have been constructed in accordance with the permit requirements, the following conditions have been met, and no intervention in the form of irrigation, dewatering, or replanting of desirable vegetation has occurred for a period of two consecutive years unless approved in writing by the Department. The permittee shall indicate in the Annual Narrative Report required by Specific Condition No. 3, the start date for the non-intervention period for each wetland:

A. Water Quality

Water quality shall meet Class III standards (Chapter 62-302, F.A.C.) or shall be within the range of values documented for the community type.

B. Water Quantity

For each wetland type, the created wetland shall have hydroperiods and depths of inundation sufficient to support wetland vegetation and that are within the range of conditions occurring in the range of values documented for that community type. Tributary wetlands shall have seasonal flow patterns similar to the range of values documented for that community type.

C. Vegetation

For all mitigation wetlands:

1. Cover by non-nuisance, non-exotic wetland species listed in Chapter 62-340.450, F.A.C., in the ground cover shall be at least 80%. Desirable ground cover plant species shall be reproducing naturally, either by normal vegetative spread or through seedling establishment, growth and survival.

2. Cover by nuisance vegetation species, including, but not limited to *Typha* spp. (cattail), *Ludwigia peruviana* (primrose willow), and *Mikania* spp. (climbing hemp vine) shall be limited to less than 10% of the total wetland area. Invasive exotic vegetation such as *Melaleuca quinquenervia* (melaleuca), *Sapium sebiferum* (Chinese tallow) and *Schinus terebinthifolius* (Brazilian pepper) shall not be considered an acceptable component of the wetland vegetative community.

For Forested Mitigation:

1. The forested canopy shall have an average of at least 400 live trees per acre. No area greater than an acre in size shall have less than 200 trees per acre.

2. For the forested canopy, the 9 primary species identified in reference riverine forests of the Alafia River system (identified in Table 5 and the Appendix of Clewell et al., 1982, Wetlands 2:21-72) are: *Acer rubrum* (red maple), *Carpinus caroliniana* (ironwood), *Liquidambar styraciflua* (sweetgum), *Magnolia virginiana* (sweet bay), *Nyssa biflora* (black gum), *Quercus laurifolia* (laurel oak), *Quercus nigra* (water oak), *Sabal palmetto* (cabbage palm), and *Ulmus americana* (American elm). Of these primary tree species, at least 6 species that are an average of at least 12ft. tall (this height requirement does not apply to *Saba palmetto* [cabbage palm], which shall have a leaf at least 3 feet long including the stalk), must be present within every 5-acre area of the restored forest by the time of release. Furthermore, for these

primary species, at least 80% of the 400 trees per acre required, i.e. at least 320 trees per acre, must be present.

The 4 secondary tree species are: *Carya aquatica* (water hickory), *Gordonia lasianthus* (loblolly bay), *Ilex cassine* (dahoon holly), and *Persea palustris* (swamp bay). Of these secondary tree species, at least 3 species that are an average of at least 12 ft. tall, must be present within every 5-acre area of the restored forest by the time of release. Furthermore, for these secondary species, at least 20% of the 400 trees per acre required, i.e. at least 80 trees per acre, must be present.

3. For the shrub layer, the 9 primary species identified in reference riverine forests of the Alafia River system (identified in the Appendix of Clewell et al., 1982) are: *Callicarpa americana*, *Cephalanthus occidentalis*, *Comus foemina*, *Hypericum hypericoides*, *Ilex glabra*, *Itea virginica*, *Rhododendron viscosum*, *Vaccinium corymbosum*, and *Viburnum nudum*. Of these primary shrub species, at least 7 species must be present within every 5-acre area of the restored forest by the time of release. Furthermore, for these primary species, at least 80% of the 100 shrubs per acre required, i.e. at least 80 shrubs per acre, must be present.

The 18 secondary shrub species identified in the Alafia River system by Clewell et al. (1982) are: *Aralia spinosa*, *Asimina parvifolia*, *Bumelia reclinata*, *Erythrina herbacea*, *Euonymus americana*, *Hamamelis virginiana*, *Ilex decidua*, *Lyonia ligustrina*, *Lyonia lucida*, *Myrica cerifera*, *Pyrus arbutifolia*, *Rhapidophyllum hystrix*, *Sambucus canadensis*, *Serenia repens*, *Styrax americana*, *Vaccinium arboreum*, *Viburnum obovatum*, and *Ximenia americana*. Of these secondary shrub species, at least 12 species must be present within every 5-acre area of the restored forest by the time of release. Furthermore, for these secondary species, at least 20% of the 100 shrubs per acre required, i.e. at least 20 shrubs per acre, must be present.

4. For the remaining (ground cover) plants, the 23 primary species/genera identified in reference riverine forests of the Alafia River system (identified in the Appendix of Clewell et al., 1982) are: *Andropogon* sp., *Axonopus* sp., *Bidens* sp., *Carex* sp., *Commelina diffusa*, *Cyperus* sp., *Dichanthelium* sp., *Drymaria cordata*, *Eleocharis* sp., *Hydrocotyle* sp., *Juncus* sp., *Lycopus rubellus*, *Micranthemum glomeratum*, *Osmunda cinnamomea*, *Osmunda regalis*, *Panicum* sp., *Paspalum* sp., *Polygonum* sp., *Pontederia* sp., *Rhynchospora* sp., *Saururus cernuus*, *Thelypteris* sp., and *Woodwardia* sp. Of these primary ground cover plants, at least 15 species/genera must be present within every 5-acre area of the restored forest by the time of release.

D. Macroinvertebrates

For the forested stream mitigation sites listed in Table MR-2, species diversity and richness of the macroinvertebrate community shall be within the range of values documented in streams and tributaries to be impacted or associated with the floodplain of the forested mitigation sites, or within the range of literature values for similar stream systems of the target type. Functional feeding guilds of macroinvertebrates found in the tributaries and streams associated with the South Prong of the Alafia River and of the appropriate type shall be present. Alternatively, demonstration that the stream has met the normal minimum thresholds of the Department's Stream Condition Index for macroinvertebrates and habitat quality may satisfy this requirement.

E. Jurisdiction

For the area mined and restored, not less than 42.1 acres of wetlands (38.1 acres of wetland hardwood forest and 4.0 acres of herbaceous wetlands) shall be determined to be jurisdictional by the Department. The minimum jurisdictional acreage for each wetland shall be achieved as indicated in the attached permit drawings. However, minor changes in the size, shape, or location of individual wetlands may be acceptable, subject to review and written approval from the Bureau of Mine Reclamation. Total reclaimed

wetland acreage shall be in accordance with the attached permit drawings and tables. Actual jurisdictional acreages for each wetland shall be determined by a wetlands delineation team dispatched from the Department, and based on vegetation, soils and evidence that wetland hydrological regimes are present (actual water levels, stain or lichen lines, algal growth, etc.), pursuant to Chapter 62-340, F.A.C.

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16. The 68.9 acres of forested wetlands and 207.4 acres of herbaceous wetlands shall be released when the reclaimed wetlands have been constructed in accordance with the permit requirements, the following conditions have been met, and no intervention in the form of irrigation, dewatering, or replanting of desirable vegetation has occurred for a period of two consecutive years unless approved in writing by the Bureau of Mining and Minerals Regulation. If the associated basin has been reclaimed, individual wetlands may be released by the Bureau of Mining and Minerals Regulation provided they have met the minimum establishment period for the wetland type and meet all applicable permit conditions. The permittee shall indicate in the Annual Narrative Report required by Specific Condition No. 5 the start date for the non-intervention period for each wetland:

A. Water Quality

Water quality shall meet Class III standards (Chapter 62-302, F.A.C.)

B. Water Quantity

1. For each wetland type (FLUCFCS 600), the created wetland shall have hydroperiods and depths of inundation sufficient to support wetland vegetation and that are within the range of conditions occurring in the reference wetlands of that community type for the same time period as determined based on the monitoring data developed in accordance with Specific Condition 14j. Tributary wetlands shall have seasonal flow patterns similar to the reference wetlands of that community type for the same time period.
2. The designs of 24 representative wetlands as delineated on Figure 13-3 were modeled as part of the application process based on predicted subsurface conditions after excavation and backfilling of the mine cuts with sand tailings and overburden. Prior to construction, the design of each of these wetlands will be reassessed and modified as necessary to achieve the design criteria set forth in Table I using an integrated surface and ground water model that has been calibrated to the actual field conditions at the location of the wetland to be constructed. By using either an array of grid cells or multiple topographic transects and lithologic cross sections, the model simulation shall take into account the geometry and properties of the underlying spoil piles and sand tailings fill between the spoil piles. A similarly calibrated model shall be used to design the other wetlands to be constructed at the site to achieve the design criteria set forth in Table I.
3. Monitoring as prescribed in Section D of the Monitoring Required section and Table MR-2 shall be performed for all 24 of the representative wetlands that were modeled as part of the application. All water table piezometers shall be installed and datum surveyed within 30 days of the completion of reclamation grading/contouring activities in the wetland to be monitored. Hydrologic data collected for each wetland monitoring site is to be compiled, analyzed and submitted on an annual basis to the Bureau of Mining and Minerals Regulation in both tabular and graphical formats.
4. The ephemeral wetlands identified in Figure 13B-8 and Table 13A5-1 shall remain inundated for no more than 8 months of the year during a normal water year, defined as being within the 20th and 80th percentile of historical record in terms of total rainfall and major event occurrence.

C. Vegetation

For all mitigation areas:

1. Cover by non-nuisance, non-exotic wetland species listed in Chapter 62-340.450, F.A.C., in the ground cover shall be at least 80% of the total wetland area or shall be within the range of values documented within the reference wetlands of the target community type. Desirable ground cover plant species shall be reproducing naturally, either by normal vegetative spread or through seedling establishment, growth and survival.
2. Cover by nuisance vegetation species, including, but not limited to *Typha* spp. (cattail), *Ludwigia peruviana* (primrose willow), and *Mikania* spp. (climbing hemp vine) shall be limited to less than 10% of the total wetland area. Invasive exotic vegetation such as *Melaleuca quinquenervia* (melaleuca), *Sapium sebiferum* (Chinese tallow) and *Schinus terebinthifolius* (Brazilian pepper) shall not be considered an acceptable component of the vegetative community.

For Herbaceous Marshes

Cover within marshes shall be dominated by native species typical of reference marshes and shall be distributed in similar zonation patterns. Species richness and dominance regimes shall be within the range of values documented within the reference marshes.

For Wet Prairies (FLUCFCS 643):

Cover within wet prairies shall be dominated by native species typical of reference wet prairies. Species richness and dominance regimes shall be within the range of values documented within the reference wet prairies. Cover by range grasses such as Bahia grass (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*) shall be limited to less than 10% (i.e. total cover by both species combined shall be less than 10%).

For Shrub Marshes:

Cover within shrub marshes shall be dominated by native species typical of reference shrub marshes. Cover by Carolina willow (*Salix caroliniana*) and wax myrtle (*Myrica cerifera*) shall be limited to less than 30 percent (i.e. total cover by both species combined shall be less than 30 percent).

For all Forested Wetlands:

1. The forested canopy shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have a leaf at least three (3) feet long including the stalk), or shall meet or exceed the range of canopy and subcanopy tree densities in the reference wetlands. No area greater than an acre in size shall have less than 200 trees per acre. Pine flatwoods areas shall have an average of 50 trees per acre.
2. The shrub layer shall have an average of at least 100 shrubs/acre or shall meet or exceed the range of shrub densities in the reference wetlands. Early successional species such as *Salix caroliniana* (Carolina willow), *Baccharis* spp. (saltbush), *Myrica cerifera* (wax myrtle), and *Sambucus canadensis* (elderberry) do not count toward meeting this requirement (However, these species shall be included in the monitoring reports required in the Monitoring Required

section of this permit). Hydric pine flatwoods areas shall have an average density of 350/shrubs acres to be composed primarily of saw palmetto (*Serenia repens*), gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), and other species typical of hydric pine flatwoods.

3. The canopy and shrub strata shall each have species richness values and dominance regimes within the range of values documented in the reference wetlands/floodplains of the target community type. Canopy and shrub measurements shall be limited to those indigenous species that contribute to the shrub, subcanopy, and canopy strata of the mature forested wetlands/floodplains in the Horse Creek basin. Up to 50 percent of the trees and shrubs in the upper transitional zone (defined as the uppermost one foot change in elevation within the wetland boundary) may consist of appropriate upland and facultative species as found in the reference wetlands. Desirable canopy and shrub species shall be reproducing naturally, as evidenced by the presence of fruit, cones or seedlings.
4. Species richness and dominance regimes for herbaceous vegetation shall be within the range of values documented within the reference wetlands/floodplains of the target community type. The relative age of the mitigation site when compared to mature systems shall be considered in the evaluation.

D. Streams

1. For each reclaimed stream segment, stream banks shall be stable, but normal erosion and deposition zones shall be present as evidenced, in part, by stream morphology that fits within the specified Rosgen stream class (C or E) described in the reference reaches
2. The landscape, cross section, profile, and planform characteristics of each reclaimed reach shall be similar to the design details specified in Table 7-8 of the Stream Restoration Plan.
3. Tree roots, log jams, snags and other instream structure are present at desirable intervals along the stream.
4. Species diversity and richness of the macroinvertebrate community shall be within the range of values documented in the reference streams or based on literature values for similar stream systems in central Florida, and all functional feeding guilds of macroinvertebrates found in the reference streams shall be present. Alternatively, demonstration that the stream has met the minimum thresholds for the 'good' classification in the Department's Stream Condition Index for macroinvertebrates and habitat quality can satisfy this requirement.

E. Wetlands and Other Surface Waters

Mine wide, not less than 68.9 acres of forested wetlands and 207.4 acres of herbaceous wetlands shall be determined to be wetlands or other surface waters. The minimum acreage for each wetland shall be achieved as indicated on Map I-2 and the associated figures and tables. However, minor changes in the size, shape, or location of individual wetlands may be acceptable subject to review and written approval from the Bureau of Mining and Minerals Regulation. The acreage of wetlands and other surface waters shall be determined pursuant to Chapter 62-340, F.A.C.

Table MR-2. Release Monitoring Criteria Summary

Parameter	Variable	Release Criteria	Proposed Methods	Sampling Scheme	Frequency
Water Quality	Dissolved oxygen Turbidity Temperature pH Conductivity Streams – all parameters in SC 7a	Class III Standards	DEP Standard Operating Procedures or according to an approved QAPP	At or near the connection to preserved wetlands and at or near vegetation transects in streams and representative wetlands	Monthly from May through October prior to reconnection to preserved wetlands and Monthly from May through October of the year prior to release request
Water Quantity (Hydrology)	Water levels, flow, Hydroperiod, rain fall, hydrographs	Within the range of values documented in the reference wetlands for each community type Stage and hydroperiod data from representative monitored wetlands shall fall within the range of values predicted by the modeling.	Staff gauges, piezometers, monitoring wells, flow meters, rain gauges	At or near the connection to preserved wetlands and at representative locations including the deepest portions of several representative wetlands of each community type	1. Rainfall - daily 2. Staff gauges – continuous in streams 3. monitoring wells/piezometers – weekly from May – October, monthly from November – April 4. Flow – at frequency sufficient to generate rating curves in streams All above for at least two years after the completion of contouring
Stream Channel Integrity and Morphology	Channel stability, erosion	Stable channel and banks, no significant erosion, or bank undercutting, stream morphology within the range of values	Visual inspection Survey	Entire channel length	After significant rain events for at least the first two years after contouring Years 2, 5, and 10

Parameter	Variable	Release Criteria	Proposed Methods	Sampling Scheme	Frequency
	Map of channel, sinuosity, channel profile, cross sections	appropriate for the designed stream type (Rosgen C or E)	equipment, GPS	Entire channel and representative cross sections	
Soils	Substrate description, Litter accumulation Compaction		Soil auger, shovel, penetrometer	At or near vegetation transects	During vegetation sampling
Vegetation	Species list and percent cover, FLUCCS level III map, percent bare ground and open water, nuisance species cover, upland species cover, tree density, shrub density, tree height, tree dbh (starting year 5) fruit and seedlings (starting in year 7)	400 trees/acre that are 12 feet tall; 100 shrubs/acre; species richness and dominance within range of reference wetlands (both herbaceous and forested components); 80% ground cover, <10% nuisance species	Modified line-intercept, belt transects; point-frames, elongated quadrats	Randomly selected replicate sites along several transects across each wetland	Years 1, 2, 3, 5, then every other year through the year prior to release request
Macroinvertebrates	Number and identity of each taxa, diversity, functional feeding guilds, DEP Stream Condition Index	Species diversity, richness within range of reference wetlands, all functional feeding guilds or qualify as 'good' or better in the SCI	Dipnet sampling (DEP SOP)	In at least one representative 100m reach in each stream	Two times per year for at least the year prior to release request in stream sites

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17. RELEASE CRITERIA: The 357.4 acres of forested wetlands, 253.1 acres of non-forested wetlands, 29.9 acres of other surface waters and 67,397 linear feet of streams shall be released when the reclaimed mitigation wetlands and other surface waters have been constructed in accordance with the permit requirements, the following conditions have been met, and no intervention in the form of irrigation, dewatering, or replanting of desirable vegetation has occurred for a period of two consecutive years unless approved in writing by the Department. If the associated watershed has been reclaimed, individual wetlands or other surface waters may be released by the Department provided they have met the minimum establishment period for the wetland type and meet all applicable permit conditions. The permittee shall indicate in the Annual Status Report required by Specific Condition 5 the start date for the non-intervention period for each wetland/other surface waters:

A. Water Quality

Water quality shall meet Class III standards (Chapter 62-302, F.A.C.)

B. Water Quantity

1. Each created wetland shall have hydroperiods and depths of inundation sufficient to support wetland vegetation and that are within the range of conditions occurring in the reference wetlands of that community type for the same time period as determined based on the monitoring data developed in accordance with Specific Condition 15d. Reference wetlands are discussed further in Paragraph B of the Monitoring Required section.
2. Hydrologic performance of the reclaimed streams shall be verified through the results of the monitoring conducted in Specific Condition 15. Monitored bankfull depths, flows and frequencies shall be similar to those predicted in the analyses conducted pursuant to Specific Condition 15p.
3. Wet prairies shall remain inundated for no more than eight (8) months of the year during a typical after year, defined as being within the 20th and 80th percentile of historical record in terms of total rainfall and major event occurrences.
4. In no case shall as-built elevations for those non-wetland areas within the mean annual floodplain (27.1 acres) identified on CRP Map 18, be higher than the approved mean annual floodplain elevations shown on Map C-19.

C. Vegetation

For all mitigation areas:

1. Cover by non-nuisance, non-exotic wetland species (FACW or OBL) listed in rule 62-340.450, F.A.C., in the ground cover shall be at least 80% of the total wetland area or shall be within the range of values documented within the reference wetlands of the target community type. Desirable ground cover plant species shall be reproducing naturally, either by normal vegetative spread or through seedling establishment, growth and survival.

2. Cover by nuisance vegetation species, including, but not limited to *Typha* spp. (cattail), *Ludwigia peruviana* (primrose willow), and *Mikania* spp. (climbing hemp vine) shall be limited to less than 10% of the total wetland area. Invasive exotic vegetation including, but not limited to *Melaleuca quinquenervia* (melaleuca), *Sapium sebiferum* (Chinese tallow) and *Schinus terebinthifolius* (Brazilian pepper) shall not be considered an acceptable component of the vegetative community.

For Herbaceous Marshes:

Cover within marshes shall be dominated by native species typical of reference marshes and shall be distributed in similar zonation patterns. Species richness and dominance regimes shall be within the range of values documented within the reference marshes.

For Wet Prairies:

Cover within wet prairies shall be dominated by native species typical of reference wet prairies. Species richness and dominance regimes shall be within the range of values documented within the reference wet prairies. Cover by range grasses such as Bahia grass (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*) shall be limited to less than 10% (i.e. total cover by both species combined shall be less than 10%).

For Shrub Marshes:

Cover within shrub marshes shall be dominated by native species typical of reference shrub marshes. Cover by Carolina willow (*Salix caroliniana*) and wax myrtle (*Myrica cerifera*) shall be limited to less than 30% (i.e. total cover by both species combined shall be less than 30%).

For all Forested Wetlands:

1. The canopy layer shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk), or shall meet or exceed the range of canopy and subcanopy tree densities in the reference wetlands. No area greater than an acre in size shall have less than 200 trees per acre.
2. The shrub layer shall have an average of at least 100 live shrubs per acre or shall meet or exceed the range of shrub densities in the reference wetlands. Early successional species such as *Salix caroliniana* (Carolina willow), *Baccharis* spp. (saltbush), *Myrica cerifera* (wax myrtle), and *Sambucus canadensis* (elderberry) do not count toward meeting this requirement (However, these species shall be included in the monitoring reports required in the Monitoring Required section of this permit).
3. The canopy and shrub strata shall each have species richness values and dominance regimes within the range of values documented in the reference wetlands of the target community type. Canopy and shrub measurements shall be limited to those indigenous species that contribute to the shrub, subcanopy, and canopy strata of the mature forested wetlands in the Peace River basin. Up to 49% of the trees and shrubs in the upper transitional zone (defined as the uppermost one foot change in elevation within the wetland boundary) may consist of appropriate upland and facultative species as found in the reference wetlands. Desirable canopy and shrub species shall be reproducing naturally, as evidenced by the presence of fruit, cones or seedlings.

4. Species richness and dominance regimes for herbaceous vegetation shall be within the range of values documented within the reference wetlands of the target community type. The relative age of the mitigation site when compared to mature systems shall be considered in the evaluation.

For Other Surface Waters

1. Forested areas shall have an average combined total of at least 400 live trees and shrubs per acre and shall consist of species typical of the specific FLUCFCS code (410o, 425o, 427o, 434o) created. Trees shall average at least 12 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk).
2. Palmetto Prairies (FLUCFCS 321o) shall have an average of at least 400 shrubs per acre and greater than 50 percent of the shrubs shall be palmetto (*Serenoa repens*). At least 80 percent of the total cover of ground cover species shall be those species typical of palmetto prairie or wet prairie vegetation.

D. Streams

1. For each reclaimed stream segment, stream banks shall be stable, but normal erosion and deposition zones shall be present as evidenced in part by stream morphology that falls within the approved Rosgen stream class (C or E). The landscape, cross section, profile, and plan form characteristics of each reclaimed reach shall be similar to the design details specified in the Geomorphology Assessment and Stream Creation Design Guidance, South Fort Meade Hardee County Tract.
2. Tree roots, log jams, snags and other in-stream structure are present at desirable intervals along the stream.
3. Species diversity and richness of the macroinvertebrate community shall exceed or be within the range of values documented in the reference streams or based on literature values for similar stream systems in central Florida, and all functional feeding guilds of macroinvertebrates found in the reference streams shall be present. Functional feeding guilds shall be assigned based on Merritt and Cummins, An Introduction to the Aquatic Insects of North America. Reference streams are discussed further in part B of the Monitoring Required Section.

E. Wetlands and Other Surface Waters Jurisdiction

Mine wide, not less than 357.4 acres of forested wetlands, 253.1 acres of herbaceous wetlands, 29.9 acres of other surface waters and 67,397 linear feet of stream channels shall be determined to be wetlands or other surface waters. The minimum acreage for each wetland or other surface water identified on Map C-26 shall be achieved as indicated on Table E-7. At least the average lengths of each stream segment identified on Map C-28 shall be achieved as indicated on Table 4 of the Stream Creation Design Guidance Document. However, minor changes in the size, shape, or location of individual wetlands, streams and other surface waters may be acceptable subject to review and written approval from the Bureau of Mining and Minerals Regulation. The acreage of wetlands and other surface

waters shall be determined pursuant to Chapter 62-340, F.A.C. Stream lengths shall be determined based on GPS mapping of the channel thalweg.

South Pasture Extension
Permit Number 0294666-001
Date of Issue: 06/30/2012

25. RELEASE CRITERIA: The 488.6 acres of forested wetlands, 987.7 acres of non-forested wetlands, and 234.5 acres of other surface waters [including 7.1 acres (43,838 linear feet) of created stream channels] shall be released when the reclaimed mitigation wetlands and other surface waters have been constructed in accordance with the permit requirements, the following conditions have been met, and no intervention in the form of irrigation, dewatering, or replanting of desirable vegetation has occurred for a period of two consecutive years unless approved in writing by the Department. If the associated watershed has been reclaimed, individual wetlands or other surface waters may be released by the Department provided they have met the minimum establishment period for the wetland type and meet all applicable permit conditions. The permittee shall indicate in the Annual Status Report required by Specific Condition 8 the start date for the non-intervention period for each wetland/other surface water:

a. Water Quality.

Water quality shall meet Class III standards (Chapter 62-302, F.A.C.)

b. Water Quantity

1. Each created wetland shall have hydroperiods and depths of inundation sufficient to support wetland vegetation and that are within the range of conditions occurring in the reference wetlands of the applicable community type for the same time period as determined based on the monitoring data. Reference wetlands are discussed further in Paragraph B of the Monitoring Required section.
2. Hydrologic performance of the reclaimed streams shall be verified through the results of the monitoring conducted in accordance with Specific Condition 22c. The bankfull discharge volumes shall be comparable to the values provided on Table SRO-5A and shall occur at a frequency comparable to reference streams in the Middle Peace River Basin or comparable hydrophysiographic region. The velocity of water in the channels shall be adequate to preclude the establishment of excessive amounts of vegetation in the channel following canopy closure in the stream buffers. The bankfull depths, as evidenced by flow measurements and the development of bankfull indicators, shall be comparable to the depths provided on Table SRO-5A.
3. Wet prairies shall remain inundated for no more than eight (8) months of the year during a typical rainfall year, defined as being within the 20th and 80th percentile of historical record in terms of total rainfall and major event occurrences.
4. In no case shall as-built elevations for reclaimed areas within the extent of the post-reclamation mean annual floodplain, as identified on Figures FMR-20a and FMR-20b in the permittee's "Flood Modeling of the South Pasture Extension for Pre-Mining and Post-Reclamation Conditions" (Appendix 6), or areas identified as non-wetland other surface waters on Figure EN-16, be higher than the approved mean annual floodplain elevations shown on Appendix 6 - Figure FMR-3.

c. Vegetation

For All Non-Stream Mitigation Areas:

3. Total cover by non-nuisance, non-exotic FAC, FACW, and/or OBL species listed in rule 62-340.450, F.A.C., (desirable species) in the ground cover shall be at least 80%. Relative cover by non-nuisance, non-exotic FAC, FACW, or OBL species listed in rule 62-340.450, F.A.C., in the ground cover shall also be at least 80%. Non-nuisance, non-exotic facultative species will be considered desirable only provided that their contributions to the vegetative community structure are within the range of values documented within the reference wetlands of the target community type, the target community type is established as described in the Appendix 7 (Reclamation Plan), and the mitigation site is jurisdictional in accordance with Rule 62-340, F.A.C. In no case shall temporary dominance by transient facultative species such as dogfennell (*Eupatorium capillifolium*), sesbania (*Sesbania* spp.), wax myrtle (*Myrica cerifera*), shyleaf (*Aeschynomene americana*), or similar species be used to demonstrate achievement of vegetation community performance standards. Desirable ground cover plant species shall be reproducing naturally, either by normal vegetative spread or through seedling establishment, growth and survival.

Native upland species shall be considered desirable vegetation when evaluating non-wetland, non-stream other surface waters (FLUCFCS 211o, 321o, 330o, 411o, 427o, 434o, and 438o).

For the purposes of evaluating other surface waters revegetated to cropland and pastureland (FLUCFCS 210o), pasture grasses such as Bahia (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*) shall also be considered desirable vegetation species.

4. Cover by nuisance vegetation species, including cattail (*Typha* spp.), climbing hemp vine (*Mikania* spp.), saltbush (*Baccharis* spp.), and willow (*Salix* spp.), shall be limited to less than 10% relative cover. However, any member of the species listed above shall not be considered a nuisance species in cases where it individually contributes less than 3% to the relative vegetation cover and does not dominate any patches greater than ¼-acre in size.
5. Invasive exotic vegetation including, but not limited to Cogon grass (*Imperata cylindrica*), melaleuca (*Melaleuca quinquenervia*), Chinese tallow (*Sapium sebiferum*), primrose willow (*Ludwigia peruviana*), and Brazilian pepper (*Schinus terebinthifolius*) shall not be considered an acceptable component of the vegetative community. Invasive exotic species shall mean those species listed on the Florida Exotic Pest Plant Council's 2009 list of invasive exotic plant species.

For All Forested Wetlands:

4. Species richness and dominance regimes in the canopy, sub canopy, and ground layer shall be within the range of values documented within the reference wetlands of the target community type. The relative age of the mitigation site when compared to mature systems shall be considered in the evaluation.
5. Canopy and shrub measurements shall be limited to those indigenous species that contribute to the shrub, sub canopy, and canopy strata of the mature forested wetlands in

the Peace River basin. Desirable canopy and shrub species shall be reproducing naturally, as evidenced by the presence of saplings that are greater than one foot in height.

For Herbaceous Marshes (FLUCFCS 641):

6. Cover within herbaceous marshes shall be dominated by native species typical of reference marshes and shall be distributed in similar zonation patterns. Species richness and dominance regimes shall be within the range of values documented within the reference marshes. Non-vegetated open water and/or bare ground shall cumulatively be limited to less than 10% of the wetland area.
7. The outer transition zone of each herbaceous marsh, defined as the wetland area within 50 feet of the wetland edge, shall be supporting at least five shrubs per acre, as listed for the 641 community type on Appendix 7 - Table RP-2.

For Wet Prairies (FLUCFCS 643):

8. Cover within wet prairies shall be dominated by native species typical of reference wet prairies. Species richness and dominance regimes shall be within the range of values documented within the reference wet prairies. Cumulative total cover by range grasses, such as Bahia grass (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*), shall be less than 10%. Non-vegetated open water and/or bare ground shall cumulatively be limited to less than 10% of the wetland area.

For Bay Swamps (FLUCFCS 611):

9. The canopy layer shall contain at least five of the tree species listed for this community type on Appendix 7 - Table RP-2, shall be dominated by (meaning that > 50% of all trees are) bay trees (*Magnolia virginiana*, *Persea palustris*, and *Gordonia lasianthus*), and shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). No area greater than one acre in size shall have less than 200 trees per acre.
10. The shrub layer shall contain at least 5 of the species listed for the target community type on Appendix 7 - Table RP-2 and shall have an average of at least 100 shrubs per acre.

For Gum Swamps (FLUCFCS 613):

11. The canopy layer shall contain at least five of the tree species listed for this community type on Appendix 7 - Table RP-2, shall be dominated by (meaning that > 50% of all trees are) swamp tupelo (*Nyssa sylvatica* var. *biflora*), and shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). No area greater than one acre in size shall have less than 200 trees per acre.
12. The shrub layer shall contain at least 5 of the species listed for the target community type on Appendix 7 - Table RP-2 and shall have an average of at least 100 shrubs per acre.

For Inland Ponds and Sloughs (FLUCFCS 616):

13. The canopy layer shall contain at least five of the tree species listed for this community type on Appendix 7 - Table RP-2, shall be dominated by (meaning that > 50% of all trees are) popash (*Fraxinus caroliniana*), and shall have an average of at least 400 live trees per acre that are at least 8 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). No area greater than one acre in size shall have less than 200 trees per acre.
14. The shrub layer shall contain at least 5 of the species listed for the target community type on Appendix 7 - Table RP-2 and shall have an average of at least 100 shrubs per acre.

For Mixed Wetland Hardwoods (FLUCFCS 617):

15. The canopy layer shall contain at least five of the tree species listed for this community type on Appendix 7 - Table RP-2 and shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). No area greater than one acre in size shall have less than 200 trees per acre. No one tree species shall constitute more than 50% of the total trees.
16. The shrub layer shall contain at least 5 of the species listed for the target community type on Appendix 7 - Table RP-2 and shall have an average of at least 100 shrubs per acre.

For Hydric Pine Flatwoods (FLUCFCS 625):

17. The canopy layer shall be dominated by (meaning that > 50% of all trees are) slash pine (*Pinus elliottii*) and shall have an average of at least 150 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). At least 5 of the tree species on Appendix 7 - Table RP-2 shall be present. No area greater than an acre in size shall have less than 50 trees per acre.
18. The shrub layer shall contain at least 5 of the species listed for the target community type on Appendix 7 - Table RP-2 and shall have an average of at least 300 shrubs per acre.
19. Ground cover within hydric pine flatwoods shall be dominated by native species typical of reference hydric pine flatwoods. At least 10% of the relative cover shall be derived from wiregrass (*Aristida stricta* var. *beyrichiana*). Species richness and dominance regimes shall be within the range of values documented within the reference hydric pine flatwoods. Cumulative total cover by range grasses, such as Bahia grass (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*), shall be less than 10%. Non-vegetated open water and/or bare ground shall cumulatively be limited to less than 10% of the wetland area.

For Hydric Pine Savanna (FLUCFCS 626):

20. The canopy layer shall be dominated by (meaning that > 50% of all trees are) slash pine (*Pinus elliottii*) and shall have an average of at least 50 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). At least 5

of the tree species on Appendix 7 - Table RP-2 shall be present. No area greater than an acre in size shall have less than 50 trees per acre.

21. The shrub layer shall contain at least 5 of the species listed for the target community type on Appendix 7 - Table RP-2 and shall have an average of at least 100 shrubs per acre.
22. Ground cover within hydric pine savanna shall be dominated by native species typical of reference hydric pine savannas. At least 10% of the relative cover shall be derived from wiregrass (*Aristida stricta* var. *beyrichiana*). Species richness and dominance regimes shall be within the range of values documented within the reference hydric pine savannas. Cumulative total cover by range grasses, such as Bahia grass (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*), shall be less than 10%. Non-vegetated open water and/or bare ground shall cumulatively be limited to less than 10% of the wetland area.

For Slash Pine Swamp Forest (FLUCFCS 627):

23. The canopy layer shall be dominated by (meaning that > 50% of all trees are) slash pine (*Pinus elliottii*) and shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). At least 5 of the tree species on Appendix 7 - Table RP-2 shall be present. No area greater than one acre in size shall have less than 200 trees per acre.
24. The shrub layer shall contain at least 5 of the species listed for the target community type on Appendix 7 - Table RP-2 and shall have an average of at least 100 shrubs per acre.
25. Ground cover within slash pine swamp forest shall be dominated by native species typical of reference slash pine swamp forests. Species richness and dominance regimes shall be within the range of values documented within the reference slash pine swamp forests. Cumulative total cover by range grasses, such as Bahia grass (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*), shall be less than 10%. Non-vegetated open water and/or bare ground shall cumulatively be limited to less than 10% of the wetland area.

For Wetland Mixed Hardwood-Coniferous Forest (FLUCFCS 630):

26. The canopy layer shall have an average of at least 400 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). Neither pines nor hardwoods shall account for more than 66% of the crown canopy composition. At least 5 of the tree species on Appendix 7 - Table RP-2 shall be present in sufficient numbers to individually contribute at least 10 percent to the canopy composition. No one tree species shall constitute more than 40% of the total trees. No area greater than one acre in size shall have less than 200 trees per acre.
27. The shrub layer shall contain at least 5 of the species listed for the target community type on Appendix 7 - Table RP-2 and shall have an average of at least 100 shrubs per acre.
28. Ground cover within mixed hardwood-coniferous forests shall be dominated by native species typical of reference mixed hardwood-coniferous forests. Species richness and dominance regimes shall be within the range of values documented within the reference

mixed hardwood-coniferous forests. Cumulative total cover by range grasses, such as Bahia grass (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*), shall be less than 10%. Non-vegetated open water and/or bare ground shall cumulatively be limited to less than 10% of the wetland area.

For Other Surface Waters:

29. Pine flatwoods other surface waters (FLUCFCS 411o) shall be dominated by (meaning that > 50% of all trees are) slash pine (*Pinus elliottii*) and/or longleaf pine (*Pinus palustris*), and shall have an average of at least 150 live trees per acre that are at least 12 feet tall (the height requirement does not apply to Cabbage Palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). At least 5 of the tree species on Appendix 7 - Table RP-2 shall be present. No area greater than an acre in size shall have less than 50 trees per acre. The shrub layer shall contain at least 5 of the species listed for the target community type on Appendix 7 - Table RP-2 and shall have an average of at least 300 shrubs per acre. Ground cover within pine flatwoods shall be dominated by native species typical of reference pine flatwoods. At least 10% of the relative cover shall be derived from wiregrass (*Aristida stricta* var. *beyrichiana*). Species richness and dominance regimes shall be within the range of values documented within the reference pine flatwoods. Cumulative total cover by range grasses, such as Bahia grass (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*), shall be less than 10%. Bare ground shall cumulatively be limited to less than 10% of the community area.
30. Forested other surface waters areas other than pine flatwoods (FLUCFCS 427o, 434o, and 438o) shall have an average combined total of at least 400 live trees and shrubs per acre and shall consist of species typical of the specific FLUCFCS designation (427o, 434o, 438o) being created. Trees shall average at least 12 feet tall (the height requirement does not apply to Cabbage palm (*Sabal palmetto*), which shall have at least one leaf that is three (3) feet long including the stalk). At least 80 percent of the relative cover in the ground layer shall be native species typical of the native forested community type being created. Cumulative total cover by range grasses, such as Bahia grass (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*), shall be less than 10%.
31. Palmetto prairie other surface waters (FLUCFCS 321o) shall have an average of at least 25 trees per acre and 400 shrubs per acre. Greater than 50 percent of the shrubs shall be saw palmetto (*Serenoa repens*). At least 80 percent of the relative cover in the ground layer shall be native species typical of palmetto prairie or wet prairie communities. Cumulative total cover by range grasses, such as Bahia grass (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*), shall be less than 10%.
32. Mixed rangeland other surface waters (FLUCFCS 330o) shall have an average of at least 200 shrubs per acre. At least 80% of the relative cover in the ground layer shall be native species typical of mixed rangeland communities. Cumulative total cover by range grasses, such as Bahia grass (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*), shall be less than 10%.
33. Cropland and pastureland other surface waters (FLUCFCS 210o) shall have sufficient vegetation cover to minimize soil erosion. No bare areas greater than 1/4th of an acre shall be present (see Rule 62C-16.0051(10)(b), F.A.C.).

d. Streams

1. Prior to release request for any restored stream segment, the as-built construction report required by Specific Condition 22m, shall be utilized to document that the as-built conditions in the restored stream segment are consistent with the specifications outlined in Appendix 10 (Stream Restoration Plan). Specifically, the as-built construction report shall demonstrate that drainage area, average bankfull cross-sectional area, average bankfull width, bankfull thalweg depth, hydraulic depth, width/depth ratio, pool depth, Rosgen class, sinuosity, stream length, bed slope, flood-prone width, valley slope, meander belt width, and functional process zone type are consistent with the specifications provided on Appendix 10 - Tables SRO-5A, SRO-5B, and pertinent exhibits in the Stream Restoration Plan. The report shall also demonstrate the successful establishment of all habitat amendments, as described on Appendix 10 - Table SRO-5C including number of bends/pools, number of large woody debris (LWD) snags, number of root wads, number of fine woody fascines, and percent palmetto lining the banks, as applicable for each restored stream reach.
2. For each restored stream segment, all stream banks shall be stable, though normal erosion and deposition zones shall be present as evidenced in part by stream morphology that falls within the approved Rosgen stream class (C or E).
3. Each reclaimed stream segment shall show the development of bankfull indicators resulting from the flow of water, as described in the USDA-NRCS's Stream Channel Reference Sites: An Illustrated Guide to Field Technique (Harrelson et al., 1994), in Chapter 3 of Blanton, Development of Bankfull Discharge and Channel Geometry Regressions for Peninsular Florida Streams (Blanton, 2008), or similar published studies.
4. Vegetation cover within the bankfull extent of the restored stream channels shall not exceed 50% of the channel bottom.
5. Tree roots, log jams, snags and other in-stream structure are present at intervals along the stream consistent with the specifications provided on Appendix 10 - Table SRO-5C.
6. Native riparian buffers shall be established as described in Section 2.5 of Appendix 10 (Stream Restoration Plan). The buffers for restored upland confined, wetland confined, and wetland underfit functional process zones shall be at least 95, 60, and 25 feet wide, respectively, and shall be composed of native canopy, shrub, and groundcover species, as appropriate for the community type shown on Figure EN-15a. Relative cover by nuisance and exotic species within the riparian buffers shall be less than 10%.
7. Species richness of the macroinvertebrate community shall exceed or be within the range of values documented in the non-perennial reference streams or based on literature values for similar stream systems in peninsular Florida. The monitoring data shall also document a sustained presence (at least two consecutive sampling periods) of individuals from lotic and lentic macroinvertebrate species in proportion based on the range of values documented in non-perennial reference streams or based on literature values for similar stream systems in peninsular Florida, and a sustained presence of all functional feeding guilds of macroinvertebrates found in the reference streams. Reference streams are discussed further in Part B of the Monitoring Required Section. Determination of lotic versus lentic species and functional feeding guilds shall be assigned based on Merritt and Cummins, An Introduction to the Aquatic Insects of North America, or similar published literature. In instances when a genus or species is assigned as both lotic and lentic, each

individual sampled of that genus/species shall be considered as one half of an individual for each designation.

8. Fish sampling shall show that a viable fishery resource has established in the restored stream segments. Species richness of the native fish community shall be within the range of values documented in the non-perennial reference streams of the applicable functional process zone being created, or other appropriate available data acceptable to the Department. Reference streams are discussed further in Part B of the Monitoring Required Section. If sampling efforts reveal that, although there is sufficient flow in the channel, fish are not reaching a particular restored reach because of habitat deficiency or the presence of other barriers to the passage of fish within the restored channel, then remedial measures shall be undertaken to enhance channel habitat and/or remove the barriers to fish passage.

e. Wetlands and Other Surface Waters Jurisdiction

Mine wide, not less than 488.6 acres of created forested wetlands, 987.7 acres of created herbaceous wetlands, 234.5 acres of created other surface waters, including 43,838 linear feet of created stream channels shall be determined to be wetlands or other surface waters. The minimum acreage for each wetland or other surface water identified on Figure EN-16 shall be achieved as indicated on Table E-2. At least the average lengths of each stream segment identified on Appendix 10 - Figure SRO-4 (A-F) shall be achieved as indicated on Appendix 10 - Table SRO-5A. However, minor changes in the size, shape, or location of individual wetlands, streams and other surface waters may be acceptable subject to review and written approval from the Bureau of Mining and Minerals Regulation. The acreage of wetlands and other surface waters shall be determined pursuant to Chapter 62-340, F.A.C. Stream lengths shall be determined based on GPS mapping of the channel thalweg.

f. Long-Term Management Plan for All Fire-Dependent Communities:

Prior to release request, all mitigation sites which involve the creation of fire-dependent communities, including freshwater marshes, wet prairies, hydric pine flatwoods, and/or hydric pine savanna, shall have in place a long-term management plan that includes prescribed burning at ecologically appropriate intervals. For the purposes of this condition, ecologically appropriate fire return interval shall be determined through consultation of the Florida Natural Areas Inventory's Guide to the Natural Communities of Florida (2010 Edition), the Soil Conservation Service's 26 Ecological Communities of Florida (February, 1981), or other published literature documenting natural fire return intervals in the appropriate community type. Mitigation sites that are within the footprint of the post-reclamation Level 1 or Level 2 conservation easement required by Specific Condition 4 shall be considered to have satisfied this condition.

Table MR-A: Water Quality Monitoring Location	Parameters	Proposed Method	Frequency/Duration	Compliance Criteria
In stream and mitigation wetlands at or near the connection to preserved wetlands/streams	Turbidity, Temperature, DO, pH, Conductivity	DEP Standard Operating Procedures or according to an approved QAPP	Monthly from May through October prior to reconnection to preserved wetlands	Class III Standards
In streams and mitigation wetlands at or near vegetation transects	Turbidity, Temperature, DO, pH, Conductivity	DEP Standard Operating Procedures or according to an approved QAPP	Monthly from May through October of the year prior to release request	Class III Standards

Table MR-B Water Quantity Monitoring

Location	Parameters	Proposed Method	Frequency/Duration	Compliance Criteria
In all mitigation wetlands	Water levels, average water depth, hydroperiod, hydrographs	Staff gauges, piezometers, and visual inspection	Piezometers weekly for at least 2 years after contouring is complete for initial hydrological assessment, then continuing until release	Within the range of values documented in reference wetlands of the appropriate community type
In most downstream portion of each created stream reach	Water levels, flow, hydrographs, occurrence of bankfull events	Staff gauge/ calibrated flow rating curve/flow meter	Stage - continuously until release Flow measurements - monthly or as needed to refine the existing flow rating curves.	Bankfull stage and discharge volumes shall be similar to the values predicted on Table SRO-5A (in the ranges typical of Exhibit SRO-5), and shall occur at a frequency consistent with reference streams of the appropriate Functional Process Zone

Table MR-C: Vegetation, Soil, Stream Macroinvertebrate, and Stream Fish Monitoring

Monitoring Type	Location	Parameters	Proposed Method	Frequency/ Duration	Compliance Criteria
Vegetation	Randomly selected replicate sites along several transects across each mitigation wetland.	Species list and % cover, FLUCCS level III map, % bare ground and open water, nuisance spp. cover, upland spp. cover, tree density, shrub density, tree height, tree dbh (starting year 5), fruit and seedlings (starting year 7)	Modified line-intercept, belt-transects; point-frames, elongated quadrats	Years 1, 2, 3, 5, then every other year through the year prior to release request	Specific to community type being restored. See Specific Condition 25C
Soils	In mitigation wetlands at or near vegetation transects	Substrate description (hydric indicators/ depth to hydric indicators), litter accumulation, compaction, soil moisture	soil auger, shovel, penetrometer, soil moisture meter	During vegetation sampling	Development of hydric soil characteristics, soil moisture
Stream Channel Integrity and Morphology	Entire channel profile and representative cross sections	Bank and channel stability, map of channel, sinuosity, stream length, stream slope, bankfull indicators present, bankfull area, depth and width, max depth, width/depth ratio, entrenchment ratio, radius of curvature, large woody debris abundance, vegetation cover in stream channel.	Visual inspection Survey equipment, and GPS	Visual inspection of the channel after significant rain events for at least the first two years after contouring. GPS entire channel, survey profile and representative cross sections years 1, 2, 3, 5, 7 and 10	Stable channel and banks, no significant erosion or bank undercutting, development of bankfull indicators, stream morphology and habitat parameters within the range of values appropriate for the designed stream type (Table SRO-5A – 5C of Stream Restoration Plan). No more than 50% vegetation cover in restored stream channels.

Table MR-C (Continued)

Monitoring Type	Location	Parameters	Proposed Method	Frequency/ Duration	Compliance Criteria
Macro-invertebrates	Representative reaches in each reclaimed stream reach	Number and identity of each taxa, diversity, richness, functional feeding guilds (Merritt & Cummins)	Dipnet sampling, Hester Dendys (DEP SOPs)	Annually for at least two years prior to release request. Sampling shall be conducted in late August or early September	Sustained presence of lotic taxa and lentic macroinvertebrate species in proportion based on the range of values documented in the non-perennial reference streams, and species diversity and richness within ranges found in reference streams of the appropriate Functional Process Zone. All functional feeding guilds present (see Condition 25.D.7).
Fish	At least one representative station in each reclaimed stream reach	Number and identity of each taxa, diversity, richness, trophic guilds present	Seine/ Electro-shocking	In year 5 and for two years prior to release request. Sampling shall be conducted in late August or early September	Native fish species diversity and richness within the ranges found in reference streams of the appropriate Functional Process Zone

Appendix E

Mitigation Bank Success Criteria

Bayfield
Bear Creek
Bear Point
Breakfast Point
Corkscrew
Devil's Swamp
Everglades, Phase I
Everglades, Phase II
Florida Mitigation Bank
Garcon Peninsula
Graham Swamp
Heather Island
Hole in the Donut/Everglades National Park
Loxahatchee
Little Pine Island
Nokuse Plantation
Pensacola Bay
San Pedro Bay
Sand Hill Lakes
St. Marks
Sweetwater
Wekiva River

Bayfield Mitigation Bank
Permit Number 0288852-001
Date of Issue: 4/19/2011

24. Final Success. The overall goals of the mitigation bank are to eliminate artificial drainage to extend hydroperiods, preserve and maintain existing intact wetlands, enhance harvested wetland forests with supplemental planting, and convert planted pine and fire-suppressed plant communities to the appropriate native communities of wetland mixed forest, upland, or wetland flatwoods with an enhanced transitional ecotone. Existing conditions are shown in **Figure 4**, mitigation activities graphically presented on **Figures 6 and 7**, and proposed communities are shown in **Figure 8**.

The bank shall be deemed successful when all of the following criteria, in addition to the community descriptions in **Attachment C**, have been met for a period of at least one full year without intervention in the form of eradication of undesirable vegetation, pine harvesting, or replanting of desirable vegetation.

For the purposes of success determination, “woody shrubs” includes those species, typically reduced by fire to coppice, such as gallberry (*Ilex glabra*), fetterbush (*Leucothoe racemosa*, *Lyonia* spp.), yaupon (*Ilex vomitoria*), titi (*Cyrilla racemiflora* and *Cliftonia monophylla*), and wax myrtle (*Myrica cerifera*), that tend to become dominant (weedy) and reduce the diversity of herbaceous species and desirable trees and shrubs in a fire suppressed system. Slash pine is *Pinus elliotii*, loblolly pine is *Pinus taeda*, and longleaf pine is *Pinus palustris*. Wiregrass is *Aristida stricta* var. *beyrichiana*, and dropseed is *Sporobolus* spp.

In the following conditions, whenever specific numbers of species are required, the species shall be deemed as appropriate to the community type. An initial list of “appropriate” species are identified on **Attachment C1**, which may be augmented by some species found within the reference sites or by providing a citation and/or third party professional botanist/ecologist. Species may be added or removed from the list with the Department’s written approval.

Reference Sites

The following success criteria are intended to represent a range of biometrics indicative of the target/historic community. However, Department-approved reference sites representing each target community will be established within the first year subsequent to permit issuance for the purpose of refining vegetation criteria, by minor modification, to better represent local variations on species assemblages and structure. Reference sites will be monitored, concurrent with the on-site vegetation monitoring events. Reference sites will be established with the Department’s inspection and occur either on or near the site and be representative of the target community descriptions (**Attachment C**) and UMAM scores. Off-site reference sites will likely be within the Osceola National Forest. Success criteria will be refined, as necessary, following reference site vegetation surveys. Additional reference site vegetative surveys may be conducted to optimize species richness, diversity and identification and aid in species identification. Data collection methodologies within the reference sites will mimic those methods used for annual monitoring as described in **Attachment J**.

a. Entire Site:

1. At least three successful prescribed burns have been completed in accordance with Specific Condition 12;
2. Plants are reproducing naturally, either by normal, healthy vegetative spread (in ways that would be normal for each species) or through seedling establishment, growth, and survival;
3. All wetland target communities shall meet wetland delineation criteria as defined by 62-340, F.A.C.;

4. Coverage by category I and II invasive exotic plant species (pursuant to the most current list established by the Florida Exotic Pest Council at www.fleppc.org) shall not exceed 1% total coverage per acre;
 5. Nuisance species including, but not limited to *Typha*, *Rubus*, and viney species such *Vitis* and *Smilax*, are <5% cover per acre (10% in uplands); and
 6. Vegetation species composition and relative abundance and cover are consistent with or annually trending toward that of its reference community and appropriate community descriptions in **Attachment C**.
- b. Overall Hydrology:
1. All hydrology construction areas have been completed to the satisfaction of the Department, are stabilized showing no signs of erosion, and have operated as designed without repair for a period of two years;
 2. There is no evidence of unnatural channelized flow wash outs or erosion;
 3. Staff gauges show an equalized water elevation balance for at least two years (Note: staff gages 1C, 1D, 1E, and 1F may not show an equalized water elevation balance as shown on **Figure J3**);
 4. Each wetland polygon shall demonstrate appropriate hydric soils.
- c. Upland Longleaf Pine/Xeric Oak and Mesic Pine Flatwoods – Representative data and site inspections shall demonstrate:
1. ~75-125 healthy longleaf pines (≥ 8 feet) per acre;
 2. ≤ 30 slash pine per acre;
 3. Oak species (i.e. *Quercus incana*, *Q. geminata*, and *Q. laevis*) in the Xeric Oak Community are present and controlled by fire to attain the abundance appropriate to the **Attachment C** condition;
 4. Woody shrubs are reduced to an average of <1.5 m tall and $\leq 30\%$ relative cover (40% in xeric oak);
 5. ≥ 35 native, non-canopy species per transect (≥ 20 species in xeric oak);
 6. $\leq 20\%$ bare ground or leaf litter ($\leq 40\%$ for xeric oak);
 7. $\geq 60\%$ relative cover ($\geq 50\%$ for xeric oak) with native, non nuisance herbaceous species; and
 8. Wiregrass plus Curtis' dropseed cover shall rank among the top 5 dominant herbaceous species per transect.
- d. Ecotones – defined within this bank as a fire-adapted wetland transitional zone between the forested wetlands and the adjacent fire-adapted communities, as mapped on **Figures 4** and **5**, currently either fire suppressed or planted in slash pine. Representative data and site inspections shall demonstrate:
1. ≤ 30 mature pines per acre;
 2. Woody shrubs are reduced to an average of <2 m tall and $\leq 50\%$ relative cover;
 3. Ecotones shall meet wetland delineation criteria as defined by 62-340, F.A.C.
 4. ≥ 35 native, non-canopy species per transect (≥ 20 species in xeric oak);
 5. $\geq 80\%$ relative cover with native, non nuisance herbaceous species, with <50% relative cover by ruderal species; and
 6. Wiregrass plus Curtis' dropseed rank among the top 5 dominant herbaceous species per transect.

- e. Hydric Pine Flatwoods and Hydric Pine Savanna (FLUCCS 625 and 626) – Representative data and site inspections shall demonstrate:
 1. ≤ 70 slash pine per acre;
 2. Between 30 and 70 slash and longleaf pines (≥ 8 feet) per acre;
 3. Woody shrubs are reduced to an average of <1.5 m tall and $\leq 20\%$ relative cover per transect;
 4. ≥ 45 appropriate species/transect;
 5. $\leq 20\%$ bare ground or leaf litter;
 6. $\geq 80\%$ relative cover with native, non nuisance herbaceous species, with $<50\%$ relative cover by ruderal species; and
 7. Wiregrass plus Curtis' dropseed shall rank among the top 5 herbaceous species in dominance.

- f. Forested Wetlands: Cypress Dominated Depression, Mixed Wet Depressions, Mixed Slough and Stream Swamp, and Rehabilitated Swamp – Representative data and site inspections shall demonstrate:
 1. Planted and volunteer aerial canopy cover is $>80\%$, or is increasing annually and has a minimum of 30% canopy cover with appropriate tree species consistent with the community descriptions in **Attachment C** and the planting mix described in **Attachment D**. For target communities designated as "cypress dominated", pond cypress shall comprise $>70\%$ of the tree canopy or tree counts per acre. **Note:** a coppiced clump shall count as 1 tree; individual volunteer trees can only be counted if they are at least 1.5 m. tall; canopy to be estimated from average of crown spread of all monitored trees per quadrat;
 2. Planted trees appear healthy, have attained an average height ≥ 10 feet;
 3. Total aerial cover of combined non-nuisance, native tree, shrub and ground strata shall be greater than 70% (i.e., $<30\%$ bare ground, leaf litter or water), with woody shrub cover $<30\%$ relative cover compared with either the canopy or groundcover;
 4. Combined ground, shrub and tree cover of FACW and OBL species is $\geq 80\%$ relative cover (i.e., FAC or UP species such as redroot, dog fennel, blackberry, are $<20\%$ relative cover; gallberry, *Ilex glabra* and vines may be considered neutral – i.e., not counted in the cover);
 5. There is at least 10% relative combined cover of the following wetland wildlife mast producing species: *Ilex cassine*, *I. amelanchier*, *I. coriacea*, *I. myrtifolia*, *Vaccinium corymbosum*, *Cephalanthus occidentalis*; and
 6. In forested areas labeled as "enhanced" or "rehabilitated" on **Figure 8**, there are <5 slash pine per acre and furrows and bedding have been rehabilitated in a manner that no longer drains or impounds water; remnant beds may be used as "hummocks" for planting.

- h. UMAM Assessment. Using monitoring data and reports, and in conjunction with the permittee and available members of the IRT, the Department shall inspect the site and conduct a UMAM analysis to ensure that all communities have reached, or are expected to reach and maintain, the "with mitigation" scores in **Attachment H** and community descriptions in **Attachment C** under the permitted management requirements.

Bear Creek Mitigation Bank
Permit Number 0294280-001
Date of Issue: 6/11/2012

16. Final Success. The overall goal of the mitigation bank is to restore the native mesic flatwoods, wet prairie/flatwoods, and cypress basin swamp communities (Figure 8). The mesic flatwoods are characterized by an open, longleaf pine-dominated canopy over a dense and diverse herbaceous, pyrophitic groundcover; the wet prairie/flatwoods also have a dense and diverse herbaceous, pyrophitic groundcover but with a sparse canopy of pine or cypress and a minor component of coppiced woody shrubs or subcanopy; the cypress basin swamp has a canopy dominated by cypress or other wetland canopy trees with a water, bare ground or herbaceous/low shrub ground cover. A graphic representation of the success criteria is shown on Figure 9 and described in Attachment A. A list of appropriate species is in the permit file.

The bank, or phase thereof, shall be deemed successful when representative quantitative, qualitative and photographic monitoring and visual inspections indicate that the following criteria, in addition to the community descriptions in Attachment A, have been met for a period of at least one full year following the last interim credit release for that phase, during which no corrective actions or maintenance was necessary beyond routine management. Alternative criteria may be proposed after several monitoring events if actual onsite data indicate that such criteria provide a better assessment of the ecological goals and outcomes upon which credit was assessed. In particular, data from the relatively intact wet prairie assessment areas can serve as a reference to help determine appropriate species richness, density, structure or composition of other wet prairie assessment areas.

For the purposes of this permit and for success determination, “woody shrubs” include those species typically reduced by fire to coppice, such as gallberry (*Ilex glabra*), fetterbush (*Leucothoe racemosa*, *Lyonia* spp.), Clethra (*Clethra alnifolia*), yaupon (*Ilex vomitoria*), titi (*Cyrilla racemiflora* and *Cliftonia monophylla*), and wax myrtle (*Myrica cerifera*). Slash pine is *Pinus elliottii*, and longleaf pine is *Pinus palustris*. Cypress is *Taxodium ascendens* (pond cypress). Wiregrass is *Aristida stricta* var. *beyrichiana*.

a. Entire Site:

1. The acreage based on updated mapping of target communities is within 10% of the acreage tables in Specific Condition 9, or the permit has been modified in accordance with Specific Condition 18;
2. Plants are reproducing naturally, either by normal, healthy vegetative spread (in ways that would be normal for each species) or through seedling establishment, growth, and survival;
3. All wetland target communities meet wetland delineation criteria as defined by 62-340, F.A.C.;
4. Cover by category I and II invasive exotic plant species (pursuant to the most current list established by the Florida Exotic Pest Council at www.fleppc.org) shall not exceed 1% total cover per acre;
5. Nuisance species including, but not limited to *Rubus*, and vine species such *Vitis* and *Smilax*, are <5% cover per acre;
6. Plant species and structure in each target community is consistent with description in Attachment A, except for areas with immature canopy, but are otherwise meeting success criteria; and
7. The site is appropriately fenced, posted, and secured as depicted in Figure 3 and protected against unauthorized entry or activity.

b. Overall Hydrology.

1. All hydrology construction areas have been completed to the satisfaction of the Department, are stabilized and showing no signs of erosion, and have operated as designed (and with no repair required in previous two years);
2. Ditch blocks and road removal areas have a combined ground, shrub and tree cover of $\geq 80\%$ with appropriate native species for the community;
3. There is no evidence of wash outs, erosion, or other indications of unnatural channelized water flow throughout the site; and
4. Water level recorder data and random soil core samples representing each wetland community shall indicate appropriate water levels and appropriate hydric soils to support the community.

c. Mesic Flatwoods:

1. Transects have ≥ 40 native, non-canopy species (including coppice shrubs) appropriate to pine flatwoods identified in literature such as the Florida Plant Atlas (USF) and Guide to the Vascular Plants of Florida (Wunderlin, 2003);
2. There is at least 80% total cover (bare ground $\leq 20\%$) in groundcover stratum, with a relative cover of herbaceous species $\geq 70\%$ (less than 30% relative cover with woody shrubs);
3. Woody shrubs are reduced to coppice, typically $< 1.5\text{m}$ high and with a total aerial cover (all strata) averaging $< 30\%$;
4. Pine saplings and trees average < 70 stems per acre with at least 30% being longleaf pine that is taller than grass-stage; and
5. Wiregrass is among the top five dominant groundcover species.

d. Wet Prairie:

1. Transects have ≥ 50 native, non-canopy wetland (FACW or OBL) species appropriate to wet prairie or flatwoods as identified in literature such as the Florida Plant Atlas (USF) and Guide to the Vascular Plants of Florida (Wunderlin, 2003) (not including tree species);
2. There is at least 80% total cover (bare ground $\leq 20\%$) in groundcover stratum;
3. The relative cover of herbaceous species $\geq 70\%$ (less than 30% relative cover with woody shrubs or slash pine seedlings), dominated by grass species;
4. Woody shrubs and tree seedlings (not counting cypress) are reduced to coppice ($< 1.5\text{m}$ high) and have a total aerial cover (*across all strata*) $< 20\%$;
5. Average of less than 20 slash pine canopy or subcanopy ($\geq 1"$ dbh) trees per acre and > 30 total trees per acre, excluding cypress (because a wide range of cypress cover was historically present and would be appropriate); and
6. Wiregrass is among the top five dominant groundcover species.

e. Cypress Basin Swamp:

1. There is $\leq 50\%$ total aerial cover (all strata) of woody shrubs as estimated from a line intercept methodology, qualitative transects and inspection;
2. Woody shrubs are reduced to coppice along the community margins;
3. Slash pine is < 20 stems per acre and an insignificant portion of canopy; and
4. Aerial cover of canopy ($> 4"$ dbh) and subcanopy ($1-4"$ dbh) wetland tree species (not woody shrub species) is $\geq 60\%$, or is increasing annually and has a minimum of 30% cover, with cypress as the dominate tree species.

f. UMAM Assessment. Using monitoring data and reports, and in conjunction with the permittee and available members of the IRT, the Department shall inspect the site and conduct a UMAM analysis to ensure that all communities have reached, or are expected to reach and maintain, the "with mitigation" vision and scores in Attachment D.

- g. Compliance.
 - i. The permittee, or QMS, has conducted inspections, monitoring and management, including the appropriate schedule or prescribed burns (as defined in Specific Condition 25) and has submitted all required reports to the satisfaction of the Department;
 - ii. All security measures are established and are in working order;
 - iii. At least 3 successful prescribed burns have been completed in accordance with Specific Condition 11 in all initiated phases; and
 - iv. An updated, long-term management plan (expanded version of Specific Condition 25) and long term management entity has been submitted and approved by the Department, and the long term management trust fund has been funded.
- h. Phasing.
 - All phases have attained the success criteria in Specific Condition 16 a-g.

Bear Point Mitigation Bank
Permit Number 0175246-014
Date of Issue: 1/29/2010
(original issuance: November 17, 2003)

21. Final Success. The intent of the mitigation plan is to enhance water quality and wildlife utilization throughout the site by increasing water circulation and exchange, and to establish a healthy estuarine mangrove habitat, including naturally occurring high marsh or mudflat areas. The bank shall be deemed to have achieved success when all of the following criteria have been met. No intervention in the form of major levee or culvert repair, erosion repair, eradication of undesirable vegetation or replanting of desirable vegetation other than permit-specified exotic vegetation control and any repairs necessitated by storms or other events beyond the control of the permittee, shall be conducted within the year prior to the success evaluation.

- a. All pumps and culverts shall be installed and operational in accordance with Specific Conditions 10 and 13, and all of the construction areas in the site are stabilized.
- b. Using the Department approved hydrologic model required in Specific Condition 10g, a prediction of water volume exchange under natural conditions with no levee will be obtained by running the model under a levee-breach, no culvert, no pumping scenario. This volume will be compared to the previously modeled volumetric exchange through the culverts. During the pumped impoundment condition, the volumetric exchange shall be 80% of the exchange that would occur under natural conditions. During the open-culvert condition, the volumetric exchange shall be 90% of the modeled natural condition.
- c. The impoundment shall be maintained at +1.8 ft. NGVD (± 0.2 ft.) during the pumping season and have at least one draw-down as demonstrated by water level data. During the non-pumping season, concurrent measurements of water levels between the Lagoon and impoundment perimeter shall differ by no more than 0.2 ft. under typical conditions. In order to document final success, the permittee shall document that all pumps and culverts have been fully functional and operated in accordance with the permit and that these water levels have been attained for at least 3 years.
- d. Invasive exotic vegetation listed as Category I by the Florida Exotic Pest Plant Council (FLEPPC) shall not exceed a total of 2% cover per acre, and shall consist of only seedlings sprouted since the previous treatment.
- e. Within exotic vegetation treatment areas, document re-vegetation consisting of at least 50% cover of native, wetland, estuarine species, and show that the vegetation is reproducing naturally.
- f. At least $\frac{3}{4}$ of the sampling events over the two years prior to the request for success determination shall demonstrate that the bank is being used by at least 15 fish species and 15 wetland-dependent, non-fish, vertebrate species, where the sampling effort (time, # samples, etc.) is equal in both the northern and southern halves of the mitigation bank, and demonstrate that each half contributes at least 33 % of the species.
- g. The permittee shall demonstrate that there is no evidence of loss of seagrasses associated with the project, as determined by interpretation of infrared aerial photographic surveys and monitoring of sample quadrats to be established at a minimum of five end-of-culvert locations in the Indian River.

h. All water quality sampling locations shall maintain a non-reducing environment, as indicated by monthly water quality samples within the following limits for the two years prior to the success determination:

Temperature	35 ° C	maximum
Salinity	40 ppt	maximum
pH	6.0	minimum
Dissolved Oxygen	2.0 ppm	minimum
Eh	0.1 mv	minimum

i. The mitigation bank site waterward of the mosquito impoundment levee shall be determined to be jurisdictional wetlands pursuant to Section 373.421, F.S.

j. The permittee shall have submitted all required reports to the satisfaction of the Department.

Breakfast Point Mitigation Bank

Permit Number 0227473-011

Date of Issue: 4/8/2011

(original issuance: October 11, 2004)

23. Final Success. The overall goal of the mitigation bank is to reduce the planted pine and fire-suppressed plant communities shown in Figure 4 to their native condition, as described by FNAI and in Attachment C, as shown in Figures 6 and 7, and as documented by the criteria below. The bank, or phase thereof, will be deemed successful when all of the following criteria, in addition to the community descriptions in Attachment C, have been met for a period of at least one full year without intervention in the form of eradication of undesirable species, prescribed fire, or mechanical maintenance.

a. Entire Site:

1. At least three successful prescribed burns have been completed in accordance with Specific Condition 12;
2. Plants are reproducing naturally, either by normal or typical vegetative reproduction or through seedling establishment, growth, and survival;
3. All wetland target communities shall meet wetland delineation criteria as defined by Ch. 62-340, F.A.C.;
4. Coverage by category I and II invasive exotic plant species (pursuant to the most current FLEPPC list at www.fleppc.org - Attachment B is current list) shall not exceed 1% total coverage per acre;
5. Nuisance species including, but not limited to *Typha*, *Rubus*, and vines such *Vitis* and *Smilax*, are <5% cover per acre (10% in uplands); and
6. Vegetation species composition (per Attachment G and criteria below) and relative abundance and cover is consistent with or annually trending toward that of its reference FNAI community and appropriate community descriptions in Attachment C.

b. Mesic Flatwoods shall have:

1. At least 30 native, non-canopy species per transect (including coppice shrubs);
2. Less than 20% bare ground and leaf litter (combined);
3. At least 60% relative cover with herbaceous species (less than 40% relative cover with woody shrubs);
4. At least 80% shrubs reduced to coppice <2m in height;
5. An average of 10-70 pine trees per acre;

c. Coastal Flatwoods shall have:

1. At least 10 native, non-canopy, wetland (FACW or OBL) species per transect (including coppice shrubs);
2. Less than 20% bare ground, leaf litter and water (combined);
3. At least 70% relative cover with herbaceous species (less than 30% relative cover with woody shrubs);
4. At least 80% shrubs reduced to coppice <2m in height;
5. Less than 30 trees per acre, excluding cypress; approximately 20% of this community type contains a canopy of greater than 30 trees per acre due to the reticulation of forested and herbaceous wetlands.

d. Wet Prairie/Wet Flatwoods shall have:

1. At least 40 native, non-canopy, wetland (FACW or OBL) species per transect (including coppice shrubs);

2. Less than 20% bare ground, leaf litter and water (combined);
 3. At least 70% relative cover with herbaceous species (< 30% woody shrubs);
 4. At least 80% shrubs reduced to coppice <2m in height;
 5. An average of less than 30 trees per acre, excluding cypress
- e. **Coastal Basin Marsh**
1. 5 or more native wetland (FACW or OBL) species per transect;
 2. At least 80% shrubs reduced to coppice <2m in height;
 3. At least 60% relative cover with herbaceous species;
 4. Less than 30 trees per acre; excluding cypress, tupelo, and pop ash.
- f. **Cypress/Mixed Forested** shall have:
1. 10 or more native, non-canopy, wetland (FACW or OBL) species per transect (trees, shrubs, herbs combined);
 2. An average of 10 or more trees per acre.
- g. **Cypress Depression** shall have:
1. 10 or more native wetland (FACW or OBL) species per transect (trees, shrubs, herbs combined);
 2. An average of more than approximately 10 trees per acre.
- h. **Compliance:**
1. The permittee has conducted inspections, monitoring and management, including the appropriate schedule of prescribed burns, as defined in Specific Condition 12, and has submitted all required reports to the satisfaction of the Department;
 2. All security measures are established and in working order; and
 3. An updated long term management plan as defined in Specific Condition 26.c. and a long term management entity has been submitted and approved, and the long term management trust fund has been funded in compliance with Specific Condition 9.b.
- i. **UMAM Assessment:** Using monitoring data and reports and in conjunction with the permittee and available members of the IRT, the Department shall inspect the site and conduct a UMAM analysis to ensure that all communities have reached, or are expected to reach and maintain, the “with mitigation” community descriptions in Attachment C and UMAM scores in Attachment C Table, under the permitted management requirements in Specific Condition 26.

Corkscrew Regional Mitigation Bank
Permit Number 0198035-003
Date of Issue: 8/21/2006
(original issuance: April 20, 2004)

22. Final Success: The bank shall enhance, restore or create the following communities: hydric and upland pine flatwoods, marsh and wet prairie, cypress heads and mixed wetland hardwoods. The Bank shall be deemed successful when all of the following criteria have been met.

- a. **Acreage:** The communities listed above shall be enhanced or restored in the approximate configuration and acreage shown in Figure 5, with at least 530 acres determined to be wetlands or other surface waters pursuant to Chapter 62-340, F.A.C., based on as-built drawings, QMS certification and Department concurrence.
- b. **Phases:** All communities in all four phases (8 cells) have achieved 3rd level success for vegetation, wildlife utilization, and hydrology parameters, as identified in Specific Condition 23.
- c. **Exotic and Nuisance Vegetation:** The bank shall maintain less than 2% cover per acre with exotic vegetation (as listed in the FEPPC's 2003 Category 1) and less than 5% cover per acre with nuisance vegetation (including, but not limited to *Typha spp.*, *Ludwigia peruviana*, *Eupatorium capillifolium*, and *Ambrosia spp.*). Additionally, *Myrica cerifera*, *Baccharis halimifolia*, and *Salix caroliniana* within the hydric pine flatwoods and herbaceous communities shall be less than 25% combined cover per acre.
- d. **Prescribed Burn:** At least one successful prescribed burn as described in Specific Condition 13 and Attachment B has been implemented within the native lands and within at least one phase of the farm field restoration.
- e. **Hydrology and Construction:** As-built documentation has been submitted for structures and graded areas in accordance with Specific Condition 10.f., and hydrological targets have been met in accordance with Specific Condition 23.
- f. **Compliance:** The structures in the bank have operated as designed, and the permittee has conducted all monitoring, inspection and maintenance activities required and submitted all required reports to the satisfaction of the Department.
- g. **UMAM Assessment:** Using the monitoring data and reports and in conjunction with the permittee, the Department shall inspect the site and conduct an UMAM analysis of each predominant community type in each phase. The overall UMAM score derived from this assessment shall indicate that each phase has attained or is clearly trending toward the "with bank" scores, as shown in Attachment C, that were used to determine the potential credits for the bank.

23. Interim Release Criteria: Progressive environmental enhancement or trending towards success provides environmental lift for which credits may be released incrementally prior to achieving all of the final success criteria. Therefore, a set of interim success criteria have been identified to document functional enhancement. These criteria are defined by community type, and are the basis for interim credit releases, as outlined in Specific Condition 19. In order to release credits for a phase having achieved a certain level of success, all communities within that phase shall meet or exceed the criteria for that level of success.

Upland and Hydric Pine Flatwoods Success Criteria

Canopy/Shrub (Vegetation ≥ 1" DBH)

Ecological Parameter	Level 1	Level 2	Level 3
Minimum average trees per acre	250	200	150 ¹
Minimum average tree height	3	4.5	6
Minimum % of trees greater than 10 feet in height	--	--	20
No exotic (EPPC 2003 List Category 1) trees or shrubs present	yes	yes	yes
Evidence of trees or shrubs producing seed	--	--	yes

1. For Level 3 success, overall densities of pine trees within the planted hydric pine flatwoods shall approximate that of the native areas, and the Banker shall reduce the density, as necessary and in consultation with the MBRT, to achieve this goal.

Ground Cover

Ecological Parameter	Level 1	Level 2	Level 3
Minimum % cover by native herbaceous species listed as OBL, FACW, or FAC ²	30	50	70
Maximum % cover by nuisance/inappropriate species ⁵	10	10	5
Maximum % cover by exotic (EPPC 2003 List Category 1) species immediately following maintenance activities	5	2	<1 ³
Minimum # species of native plants within sampling plots ⁴	10	20	30
Evidence of natural reproduction of ground cover species	--	yes	yes

2. Upland assessment areas may also include UP species. Pursuant to 62-340, F.A.C., *Aristida stricta* is a FAC species.

3. Level 3 requires no more than 2% per acre cover by exotic species immediately prior to final maintenance event.

4. Does not apply to Upland Assessment Areas. The native species appropriate for Hydric Pine flatwoods groundcover must be from approved species list (Attachment E, Table E-1). 5. Upland ragweeds and facultative dogfennel are early succession species to be managed; however, they will not count toward native cover or nuisance species cover for Success Level 1 or 2, provided that annual monitoring data and observation demonstrate a significant decrease in the actual cover of these species annually.

Wildlife Utilization*

Ecological Parameter	Level 1	Level 2	Level 3
Qualitative evidence of wildlife utilization	yes	yes	yes
Qualitative evidence of wildlife utilization, including use by native wetland dependant bird and mammal species		yes	yes
Evidence of wetland dependant amphibian/reptile species (or no fewer than 1 species less than occurring at reference wetland ⁵)	--	Yes	6 species in 3 groups ⁶
Evidence of wetland dependant bird species (or no fewer than 2 species less than occurring at reference wetland ⁵)	--	Yes	10 species in 3 groups ⁷
Evidence of wetland dependant mammal species (or no fewer than 1 species less than occurring at reference wetland ⁵)	--	Yes	4 species with 1 predator

* Upland Assessment Areas are presumed to have appropriate wildlife usage if hydric flatwoods meet wildlife utilization criteria.

5. Reference wetlands may be used at Level 3 only.

6. Amphibian/reptile functional groups include alligators, turtles, snakes, salamanders, tree frogs, and deep water frogs.

7. Bird functional groups include wading birds, shore birds, raptors, perching birds, anhinga/cormorants, and waterfowl.

Hydrology (not required for Upland Communities)

Ecological Parameter	Level 1	Level 2	Level 3
Minimum days of soil saturation (water levels within 6 in of surface) or inundation during June-Oct. of a typical rainfall year ⁸	--	90	90
Plants appear healthy with no stress resulting from an improper hydroperiod	yes	yes	yes

8. Target hydroperiod criteria are based on typical rainfall during June-October. Should the Bank not receive typical rainfall for the second level of success determination, the Banker and DEP shall use an alternate mutually acceptable hydrologic criteria to determine success; however, for third level of success, the Bank shall demonstrate at least 2 years of success with typical rainfall.

Cypress/Mixed Wetland Hardwoods Success Criteria

Canopy/Shrub (Vegetation ≥ 1" DBH)

Ecological Parameter	Level 1	Level 2	Level 3
Minimum average appropriate trees per acre	500	450	400
Minimum average tree height	3	4.5	6
Minimum % of trees greater than 10 feet in height	--	--	20
No exotic (EPPC 2003 List Category 1) trees or shrubs present	yes	yes	yes
Evidence of trees or shrubs producing seed	--	--	yes

Ground Cover

Ecological Parameter	Level 1	Level 2	Level 3
Minimum % cover by native species listed as OBL, FACW, or FAC	25	50	75 ¹
Maximum % cover by nuisance/inappropriate species ³	10	10	5
Maximum % cover by exotic (EPPC 2003 List Category 1) species immediately following maintenance activities	5	2	<1 ²
Minimum species richness of native plants within sampling plots	5	10	15
Evidence of natural reproduction of ground cover species	--	yes	yes

1. A lower % cover that is attributable to appropriate amounts of open water or shading will not count against success attainment.

2. Level 3 requires no more than 2% cover by exotic species immediately prior to final maintenance event.

3. Upland ragweeds and facultative dogfennel are early succession species to be managed; however, they will not count toward native cover or nuisance species cover for Success Level 1 or 2, provided that annual monitoring data and observation demonstrate a significant decrease in the actual cover of these species annually.

Wildlife Utilization

Ecological Parameter	Level 1	Level 2	Level 3
Qualitative evidence of wildlife utilization	yes	yes	yes
Qualitative evidence of wildlife utilization, including use by native wetland dependent bird and mammal species		yes	yes
Evidence of native species of fish (or no fewer than 1 species less than occurring at reference wetland ²)	--	1 species	3 species
Evidence of native wetland dependant amphibian/reptile species (or no fewer than 1 species less than occurring at reference wetland ²)	--	1 species	8 species in 4 groups ³
Evidence of native wetland dependant bird species (or no fewer			10 species

than 2 species less than occurring at reference wetland ²)	--	1 species	in 4 groups ⁴
Evidence of native wetland dependant mammal species (or no fewer than 1 species less than occurring at reference wetland ²)	--	1 species	4 species w/ 1 predator

2. Reference wetlands may be used at Level 3 only.

3. Amphibian/reptile functional groups include alligators, turtles, snakes, salamanders, tree frogs, and deep water frogs.

4. Bird functional groups include wading birds, shore birds, raptors, perching birds, anhinga/cormorants, and waterfowl.

Hydrology

Ecological Parameter	Level 1	Level 2	Level 3
Minimum days of soil saturation (water levels within 6 in of surface) or inundation during June-Nov. of a typical wet season rainfall year ⁵	--	120	120
Plants appear healthy with no stress resulting from an improper hydroperiod	yes	yes	yes

5. Target hydroperiod criteria are based on typical rainfall during June-November. Should the Bank not receive typical rainfall for the second level of success determination, the Banker and DEP shall use an alternate mutually acceptable hydrologic criteria to determine success; however, for third level of success, the Bank shall demonstrate at least 2 years of success with typical rainfall.

Marsh Success Criteria

Ground Cover

Ecological Parameter	Level 1	Level 2	Level 3
Minimum % cover by native herbaceous species listed as OBL, FACW, or FAC, predominantly OBL and FACW	25	50	85
Maximum % cover by nuisance/inappropriate species ²	15	10	5
Maximum % cover by exotic (EPPC 2003 List Category 1) species immediately following maintenance activities	5	2	<1 ¹
Minimum #species of native herbaceous plants within sampling plots	5	10	15
Evidence of natural reproduction of ground cover species	--	yes	yes

1. Level 3 requires no more than 2% cover by exotic species immediately prior to final maintenance event.

2. Upland ragweeds and facultative dogfennel are early succession species to be managed; however, they will not count toward native cover or nuisance species cover for Success Level 1 or 2, provided that annual monitoring data and observation demonstrate a significant decrease in the actual cover of these species annually.

Wildlife Utilization

Ecological Parameter	Level 1	Level 2	Level 3
Qualitative evidence of wildlife utilization	yes	yes	yes
Qualitative evidence of wildlife utilization, including use by native wetland dependent bird and mammal species		yes	yes
Evidence of native species of fish (or no fewer than 1 species less than occurring at reference wetland ²)	--	1 species	3 species
Evidence of native wetland dependant amphibian / reptile species (or no fewer than 1 species less than occurring at reference wetland ²)	--	1 species	7 species in 4 groups ³
Evidence of native wetland dependant bird species (or no fewer than 2 species less than occurring at reference wetland ²)	--	1 species	12 species in 3 groups ⁴
Evidence of native wetland dependant mammal species (or no fewer than 1 species less than occurring at reference wetland ²)	--	1 species	2 species

2. Reference wetlands may be used at Level 3 only.

3. Amphibian/reptile functional groups include alligators, turtles, snakes, salamanders, tree frogs, and deep water frogs.

4. Bird functional groups include wading birds, shore birds, raptors, perching birds, anhinga/cormorants, and waterfowl.

Hydrology

Ecological Parameter	Level 1	Level 2	Level 3
Minimum days of soil saturation (water levels within 6 in of surface) or inundation during June to Dec. of a typical wet season rainfall year ⁵	--	150	150
Plants appear healthy with no stress resulting from an improper hydroperiod	yes	yes	yes

5. Target hydroperiod criteria are based on typical rainfall during June-December. Should the Bank not receive typical rainfall for the second level of success determination, the Banker and DEP shall use an alternate mutually acceptable hydrologic criteria to determine success; however, for third level of success, the Bank shall demonstrate at least 2 years of success with typical rainfall.

Devil's Swamp Mitigation Bank

Permit Number 0227475-005

Date of Issue: 9/17/2010

(original issuance: October 11, 2004)

23. Final Success. The overall goal of the mitigation bank is to reduce the planted pine and fire-suppressed plant communities shown in Figure 4 to their native condition, as described by FNAI and in Attachment C, as shown in Figures 6 and 7, and as documented by the criteria below. The bank, or phase thereof, will be deemed successful when all of the following criteria, in addition to the community descriptions in Attachment C, have been met for a period of at least one full year without intervention in the form of eradication of undesirable species, prescribed fire, or mechanical maintenance.

a. Entire Site:

- 1) At least three successful prescribed burns have been completed in accordance with Specific Condition 12;
- 2) Plants are reproducing naturally, either by normal or typical vegetative reproduction or through seedling establishment, growth, and survival;
- 3) All wetland target communities shall meet wetland delineation criteria as defined by Ch. 62-340, F.A.C.;
- 4) Coverage by category I and II invasive exotic plant species (Attachment B and pursuant to the most current list established by the Florida Exotic Pest Plant Council at www.fleppc.org) shall not exceed 1% total coverage per acre;
- 5) Nuisance species including, but not limited to *Typha*, *Rubus*, and vines such *Vitis* and *Smilax*, are <5% cover per acre (10% in uplands); and
- 6) Vegetation species composition (per Attachment G and criteria below) and relative abundance and cover is consistent with or annually trending toward that of its reference FNAI community and appropriate community descriptions in Attachment C.

b. Sandhills:

- 1) At least 30 native, non-canopy species per transect (including coppice shrubs);
- 2) Less than 60% bare ground, leaf litter (combined);
- 3) At least 50% relative cover with herbaceous species (less than 50% relative cover with woody shrubs);
- 4) At least 80% shrubs reduced to coppice <2m in height;
- 5) An average of 30-70 pine trees per acre;

c. Mesic Pine Flatwoods:

- 1) At least 40 native, non-canopy species per transect (including coppice shrubs);
- 2) Less than 20% bare ground and leaf litter (combined);
- 3) At least 60% relative cover with herbaceous species (less than 40% relative cover with woody shrubs);
- 4) At least 80% shrubs reduced to coppice <2m in height;
- 5) An average of 10-70 pine trees per acre

d. Wet Prairie:

- 1) At least 50 native, non-canopy, wetland (FACW or OBL) species per transect (including coppice shrubs);

- 2) Less than 20% bare ground, leaf litter and water (combined);
 - 3) At least 70% relative cover with herbaceous species (less than 30% relative cover with woody shrubs);
 - 4) At least 80% shrubs reduced to coppice <2m in height;
 - 5) An average of less than 30 trees per acre, excluding cypress
- e. **Bog:**
- 1) According to status reports, annual monitoring, QMS affirmation and onsite inspection, most of the boundary of the bog adjacent to wet prairie or uplands and generally at least 25% of the bog area of each phase shall have been burned or mechanically treated to reduce shrub vegetation to coppice. It is anticipated that in earlier phases and over time, fire will extend further into the bog.
 - 2) 20 or more native, wetland (FACW or OBL) species per transect (trees, shrubs, herbs combined).
- f. **Dome Swamp:**
- 1) Monitoring documents increasing growth and density of appropriate canopy trees;
 - 2) At least 5 native wetland (FACW or OBL) species per transect (trees, shrubs, herbs combined)
- g. **Seepage Stream:**
- 1) No evidence of unnatural erosion, drainage or inundation in streambed or vegetation
 - 2) Monitoring documents no decline in existing vegetation.
- h. **Compliance:**
- 1) The permittee has conducted inspections, monitoring and management, including the appropriate schedule of prescribed burns, and has submitted all required reports to the satisfaction of the Department;
 - 2) All security measures are established and in working order; and
 - 3) A long term management plan as defined in Specific Condition 26 and long term management entity has been submitted and approved, and the long term management trust fund is funded in compliance with Specific Condition 9.
- i. **UMAM Assessment:** Using monitoring data and reports and in conjunction with the permittee and available members of the IRT, the Department shall inspect the site and conduct a UMAM analysis to ensure that all communities have reached, or are expected to reach and maintain, the “with mitigation” community descriptions in Attachment C and UMAM scores in Table C-1, under the permitted management requirements in Specific Condition 26.

Everglades Mitigation Bank – Phase I
Permit Number 132637449
Date of Issue: 10/21/1996

29. Success of the bank shall be determined by the degree of ecological improvement over baseline conditions as measured by the functional analysis methodology, Wetland Assessment Technique for Environmental Reviews (W.A.T.E.R.) prepared by Coteleur Hearing Inc. dated October 1995. The permittee shall demonstrate the extent to which targeted (post improvement W.A.T.E.R. analysis) ecological improvements are achieved. The permittee shall make a written request to the Bureau requesting that a determination of success be made in accordance with this permit. The written request shall include a post improvement analysis of ecological conditions utilizing the W.A.T.E.R. procedure and the indicators in Specific Condition 30 below. Within 30 days of receipt of the request, the Department, in consultation with the Mitigation Bank Review Team (MBRT), which may consist of representatives from FDEP, U.S. Environmental Protection Agency (EPA), Army Corps of Engineers (USACE), the United States Fish and Wildlife Service (USFW), National Marine Fisheries Service (NMFS), will assess the success determination request. If the Department, in consultation with the MBRT, confirms the permittee's assessment the Bureau will assign the appropriate number of credits to the Ledger in accordance with Specific Condition 14 of this permit.

30. In addition to the procedure described in Specific Condition 29, the following shall be utilized in determining success of the mitigation bank:

- a. Conservation Easement: The site shall be preserved as required in Specific Conditions 36, 37, and 38 of this permit within 90 days of permit issuance.
- b. Exotic Vegetation: Following initial exotic vegetation removal activities the extent of nuisance and exotic vegetation shall not exceed 1% of the aerial extent of Phase I of the Bank. Determination shall be made from on site visual analysis of existing conditions, areal photographs and helicopter reconnaissance, fixed photo points, and quantitative sampling of 1 meter plots as discussed in the Monitoring Plan (Exhibit 4).
- c. Vegetation and Planting: The areas required to be planted must obtain 80% cover by the appropriate wetland vegetation species. A series of 1 sq. meter plots will be established at regular intervals as determined the MBRT after initial exotic and nuisance vegetation removal. These plots shall be evaluated during the monitoring sessions to determine the percent cover of obligate wetland vegetation, species diversity, and percentage of vegetative cover (Exhibit 4, page 4).
- d. Physical Feature Removal: The specified physical features have been removed in accordance with the permit drawings, the disturbed soils stabilized. Vegetation must meet the criteria described above.

Everglades Mitigation Bank – Phase II
Permit Number 0193232-055
Date of Issue: 6/25/2013
(original issuance: October 17, 2003)

23. Final Success. The bank shall be deemed successful when all of the following criteria have been met for a period of at least one full year without intervention in the form of artificial manipulation of water levels other than routine operation, eradication of undesirable vegetation, or replanting of desirable vegetation.

- a. **Acresage:** A minimum of 9,000 acres shall be determined to be wetlands or other surface waters, as delineated pursuant to Section 373.421, F.S.
- b. **Exotic and Nuisance Vegetation:** The bank shall maintain less than 2% coverage with invasive exotics vegetation (as listed in the FEPPC Category I, 2003 plant list) and less than 5% coverage of nuisance vegetation (including, but not limited to *Typha* spp., *Mikania scandens*, and *Trema micranthum*) in any acre, bank-wide for at least 3 years, with no herbicidal treatment conducted within the 12 months prior to success determination.
- c. **Prescribed Burn:** All burn units shall have had at least one successful fire event as described in Specific Condition 14.
- d. **Vegetation in Planted and/or Graded Areas:** All construction or exotic removal areas shall be clearly trending toward a seamless transition to the surrounding non-disturbed areas, as approximated by the following conditions:
 - i. Freshwater herbaceous flats shall have at least 80% cover with native non-nuisance, marsh species, dominated by *Cladium*, and reproducing naturally. Periphyton shall average 1.25 inches in thickness when hydrated.
 - ii. Brackish herbaceous flats shall have at least 75% cover with native non-nuisance, marsh or mangrove species, reproducing naturally. Periphyton shall average 0.75 inches in thickness when hydrated.
 - iii. Mangrove/*Distichlis* flats (from physical feature removal in Assessment Area 7) shall have at least 65 % cover with mangrove, buttonwood, or appropriate native non-nuisance herbaceous vegetation, reproducing naturally.
 - iv. Fresh water tree islands and forested riverine areas shall have at least 80% canopy cover with at least 6 tree or shrub species with no one species representing more than 50% cover, and at least 25% ground cover, reproducing naturally.
 - v. Saltwater tree islands shall have at least 70% canopy cover, reproducing naturally.
- e. **Hydrology:**
 - i. As-built documents shall demonstrate that all proposed structures were properly installed.
 - ii. To establish that the L-31-E levee culverts are functioning to simulate natural sheet flow, the permittee shall document the transfer of an average of 7,000 acre-feet of water per year, for 5 years, with no one year having less than 6,000 acre-feet (except in case of “drought” as defined by SFWMD), and that all culverts have been operating as designed with only routine maintenance for at least 3 years. The hydrograph of the water transfer shall mimic natural annual patterns.
 - iii. To demonstrate the proposed effect of the resumption of freshwater flow through the levee, the permittee shall document that the freshwater herbaceous marsh zone and the brackish herbaceous marsh zone south of the levee have each increased in acreage by at

- least 85% of the predicted expansion from the baseline assessment, as determined using the protocol in the Monitoring Plan (Attachment E).
- iv. Monitoring data shall indicate that the mangroves in test plots have 20% greater increase in the number of leaves than those from similar test plots in an area unaffected by hydrologic enhancements.
 - v. Photographs from fixed stations in vegetation transition zones south of the levee, as described in Attachment E, shall document the proposed vegetation community shift and growth.
- f. **Habitat enhancement:**
- i. Crocodile habitat enhancements in Assessment Area 9 shall be constructed and attain 75% herbaceous cover, except on nesting mounds. The permittee shall document crocodile use and nesting.
 - ii. Surveys shall document the establishment of seagrasses and/or macroalgae in the submerged bottom of the graded and depressed fish enhancement areas in Assessment Area 10.
- g. **Water Quality:** Salinity data shall demonstrate a decreasing trend in concentration at fixed sample locations south of the L-31-E. Other water quality parameters measured shall be used to substantiate a WATER score of 3 for the water quality parameter.
- h. **Compliance:** The permittee shall demonstrate that all of the structures in the bank have operated as designed and have required no repairs or maintenance beyond that specified in Specific Condition 27 for at least three years prior to a determination of final success. The permittee shall conduct all monitoring, inspection and maintenance activities required and shall submit all required reports to the satisfaction of the Department.
- i. **Wildlife:** Wildlife data shall indicate an increasing trend in number of individuals and/or species using the bank site over the years, and at least 7 species each of birds, fish, macroinvertebrates and amphibians are commonly seen in each assessment area, consistent with WATER criteria.
- j. **WATER Assessment:** Using the monitoring data and reports and in conjunction with the permittee, the Department (and the Mitigation Bank Review Team, as available) shall inspect the site and conduct an WATER analysis of each predominant community type in each Assessment Area. The overall WATER score derived from this assessment shall indicate that each Assessment Area has attained the “with bank” scores, as shown in Attachment C, that were used to determine the potential credits for the bank.

Florida Mitigation Bank
Permit Number 492924779
Date of Issue: 5/28/1997

26. The Bank shall be deemed successful when the following criteria are met without intervention (in the form of irrigation, changes in the water control outfall structure elevation, removal of undesirable vegetation, or replanting of desirable vegetation) and that no such intervention has occurred for a period of at least three years.

I. The following criteria must be met by the total bank area:

- a. Not less than 1517.5 ac. of the Bank are determined by the Department to be jurisdictional pursuant to Section 373.421, F. S.;
- b. The percentage cover of obligate (OBL) and facultative wet (FACW) species remains the same or is increasing in all strata of each polygon;
- c. Documented attraction of threatened and endangered species to the site, as defined in the Mitigation Bank Siting Index, which is attached to the permit as Attachment 1;
- d. Improvement of water quality by at least 15%, according to the following:

(i) The average percent change between the inflow (I) and outflow (O) measures of chlorophyll a (c), total phosphorus (p), and total nitrogen (n) shall be computed annually according to the following formula:

$$\frac{Ic - Oc}{3} + \frac{Ip - Op}{3} + \frac{In - On}{3}$$

$$\frac{Ic}{3} + \frac{Ip}{3} + \frac{In}{3} \times 100$$

This annual average percent change shall show a 15% or greater decrease for the three years prior to a final success determination (i.e. the three years during which there is no intervention, as stated above).

and

(ii) The annual percent change of turbidity measures between inflow and outflow shall show a 15% or greater decrease for the three years prior to a final success determination.

II. The following criteria must be met by each of the eight wetland polygons, unless otherwise noted:

- a. Invasive exotic vegetation shall not exceed 1% of the total cover in each strata, and nuisance vegetation shall not exceed 5% of the total cover in each strata;
- b. Desirable listed species, other than nuisance species in any polygon or inappropriate woody species in polygon 1, are reproducing naturally, via seedling establishment, growth and survival or healthy vegetative spread in ways that would be normal for each wetland species;

- c. In polygons 1-3, OBL and FACW constitute > 90% of the basal area within the canopy stratum and upland (UPL) and facultative (FAC) species < 10% of the number of seedlings/saplings in the groundcover stratum;
- d. In polygons 1-3, OBL and FACW species > 90% of relative ground cover and UPL and FAC species constitute < 10% of relative ground cover and the total ground cover shall not decrease;
- e. In sawgrass marsh area (polygon 1) only - Woody species < 25% of cover in all strata combined;
- f. In polygons 1, 2 and 3, soils are inundated through wet season and water table is no more than 10" below ground surface in dry season. This target is intended to reflect natural conditions in healthy sawgrass and hardwood swamp wetlands and is expected to be met for each of these polygons as a whole, regardless of some expected variations in water levels at different sampling locations. Although the water level criteria must be met over time, any year when exceptional drought conditions are demonstrated, such that criteria water levels cannot be expected, the drought year will not be considered in the analysis for final success, provided that water levels again meet criteria when normal precipitation conditions return;
- g. The Wetland Hydrology variable in the M-WRAP shall attain a value of 3 for polygons 1, 2, 3, 4, and 8 and a value of at least 2.5 for polygons 5, 6, and 7;
- h. The Wildlife Utilization variable in the M-WRAP shall attain a value of 3; and
- i. Documented increase in abundance of benthic macroinvertebrates.

Garcon Peninsula Mitigation Bank
Permit Number 0170880-001
Date of Issue: 4/16/2001

24. Final Success. The bank shall be deemed successful when all of the following criteria have been met for a period of at least one full year without intervention in the form of artificial manipulation of water levels, prescribed burns, eradication of undesirable vegetation or replanting of desirable vegetation. The bank shall enhance or restore the following four wetland polygon types: wet prairie, wet flatwoods, stream/bayou and cypress/hardwood swamp as shown on Figure 2 of 27.

a. Site-wide:

- i. *S. sebiferum* shall not exceed 1% cover in any polygon, except for seedlings that may have sprouted in the 12 months previous to the success determination when artificial manipulation is prohibited.
- ii. Bahiagrass shall not exceed 10% cover in any polygon, or, if greater than 10%, shall display a trend over two or more years that strongly indicates that its cover will decrease below 10% under the permitted management plan.
- iii. The collective cover of all other exotic species (excepting *S. sebiferum* and bahiagrass) shall not exceed 1% in any polygon.

b. Cypress/hardwood swamp:

- i. The two depression restoration sites shall be ~30 acres in size, with no greater than 1.0 acres of non-vegetated, open water area in the middle.
- ii. There shall be less than 10% mortality of planted trees.
- iii. Non-nuisance, native wetland groundcover species cover is 75% or greater (except in open water area) and is reproducing naturally. Bare ground is 25% or less cover. Vegetation trends over at least three years show increasing cover.
- iv. Planted trees have doubled in height and have a 30% canopy coverage at the end of the growing season.
- v. Invasive nuisance species, including but not limited to *Typha spp.*, shall not exceed 5% cover.

c. Bayou area:

- i. There shall be less than 10% mortality of planted trees.
- ii. Non-nuisance, native wetland groundcover or shrub species cover is 75% or greater (except in open water area) and is reproducing naturally. Bare ground is 25% or less cover. Vegetation trends over at least three years show increasing coverage in the graded area.

d. Wet prairie and wet flatwoods:

- i. Gallberry, Yaupon, Wax Myrtle, Titi, and other woody shrubs shall be no taller than the coppice sprouts that could have arisen from root crowns following the most recent fire.
- ii. Each sampling quadrat except those located in the *S. sebiferum* eradication area (as shown in Figure 1 of 27) and earthmoving areas (e.g. roads) shall contain at least 75 desirable species. Quadrats in the *S. sebiferum* and graded areas shall contain at least 50 desirable species. Desirable species are non-nuisance, native, fire adapted, wet prairie species, such as those listed in Attachment G. Some species not listed may be determined to be desirable for the purpose of this condition by providing a citation and/or third party professional botanist/ecologist determination, and, upon concurrence by the Department, will thereafter be added to the list.
- iii. The average cover of graminoids shall be 75% or greater, with no one quadrat having less than 50% cover, and the collective cover of pioneer *Andropogon spp.* (except *A.*

liebmannii) shall not exceed 25% of the graminoids found in each polygon. Additionally, each quadrat shall either attain at least 85% coverage with graminoid species or shall exhibit a clear trend over time of increasing graminoid coverage.

e. Acreage: A minimum of 325 acres of the site shall be determined to be jurisdictional wetlands pursuant to Section 373.421, F.S. and with consideration of monitored hydrologic data. The four wetland community polygons shall each be within ten percent of their target acreages as listed in the WRAP acreage table in Attachment D.

f. Compliance: All of the graded areas in the bank are stabilized. The ditch block and ditch fill areas are effectively curtailing any channelized drainage from the site and have required no repairs beyond minor maintenance specified in Specific Condition 27e for at least three years. The permittee has submitted all required reports to the satisfaction of the Department.

g. WRAP Assessment: Utilizing the monitoring data and reports and in conjunction with the permittee and the Mitigation Bank Review Team, the Department shall inspect the site and conduct a WRAP analysis to determine that, under the permitted maintenance requirements, all polygons have reached, or are expected to reach and maintain, the criteria required to attain the “with bank” scores, as shown in Attachment D, that were used to determine the potential credits for the bank.

Graham Swamp Mitigation Bank
Permit Number 182313539
Date of Issue: 9/5/1996

16. The banks shall be deemed successful when the following criteria have been continuously met for a period of at least three growing seasons, without intervention in the form of irrigation, dewatering, removal of undesirable vegetation, or planting of desirable vegetation.
- a. Not less than 65.9 ac. of the Bank are determined by the Department to be jurisdictional pursuant to Section 373.421, F.S.;
 - b. Nuisance and exotic vegetation shall not exceed 5% of the total cover. If these species exceed 5% of the total cover, their density and areal coverage shall be declining over several years, which would be considered a positive indication that the mitigation work will be successful;
 - c. Wetland species are reproducing naturally, via seedling establishment, growth and survival, or normal vegetative spread in ways that would be normal for each wetland species;
 - d. The percentage cover of the Bank area of wetland species remains the same or is increasing, except in open water areas; and
 - e. The bank area is either inundated for at least seven consecutive days or saturated for at least twenty consecutive days during a 12 month period which represents long-term hydrologic conditions.

Heather Island Mitigation Bank
Permit Number 293579-001
Date of Issue: 7/30/2013

17. Final Success. The overall goal of the Heather Island Mitigation Bank is to establish viable and sustainable mesic flatwoods and oak hammock upland communities; mixed wetland forests and transitional/ecotone shrub communities; and sawgrass marsh and small depression marsh communities. Proposed communities are shown in Figure 5, described in Attachment C, and depicted graphically in Figure 9. Because of natural variation in ecotone boundaries, community configurations may not precisely follow Figure 5, however approximate or minimal acreage is provided in the criteria. The principle enhancement goal of the oak hammock and wetland forested communities is the reduction of vines and shrubs, and increase in appropriate canopy cover. The main target for the sawgrass marsh community (AA-9) is to significantly decrease trees and other woody vegetation and seedlings, and to the increase hydroperiod to attain at least 170 acres of herbaceous, sawgrass-dominated, hydrated marsh with only small pockets of tree canopy or shrubs. The mesic flatwoods goal is the restoration of a native community with a sparse pine canopy and dense and diverse, pyrophytic groundcover.

The bank shall be deemed successful when quantitative, qualitative and photographic monitoring (Attachment J) that is representative of the site or assessment area, indicate that the community goals and all of the following criteria, in addition to the community descriptions in Attachment C, have been met for a period of at least one full year without intervention in the form of eradication of undesirable vegetation, pine harvesting, or replanting of desirable vegetation. Alternative criteria may be proposed after several monitoring events if actual onsite data indicate that such criteria provide a better assessment of the ecological goals and outcomes upon which credit was assessed.

For the purposes of success determination, “woody shrubs” includes those species typically reduced to coppice by fire, such as gallberry (*Ilex glabra*), fetterbush (*Leucothoe racemosa*, *Lyonia* spp.), yaupon (*Ilex vomitoria*), and wax myrtle (*Myrica cerifera*) that tend to become dominant (weedy) and reduce the diversity of herbaceous species and desirable trees and shrubs in a fire suppressed system. Nuisance vines include species of blackberry (*Rubus* spp.), grape vine (*Vitis* spp.) and greenbrier (*Smilax* spp.). Other species that exhibit an invasive pattern onsite, displacing or inhibiting vegetation structure appropriate to the community, are considered nuisance species. Slash pine is *Pinus elliottii*, loblolly pine is *Pinus taeda*, and longleaf pine is *Pinus palustris*. Wiregrass is *Aristida stricta* var. *beyrichiana*. Sawgrass is *Cladium jamaicense*. Desirable canopy species for specific assessment areas are listed in the descriptions in Attachment C.

a. Entire Site (all Assessment Areas)

1. Plants are reproducing naturally, either by normal, healthy vegetative spread (in ways that will be normal for each species) or through seedling establishment, growth, and survival;
2. All wetland communities shall meet 62-340, F.A.C. wetland delineation;
3. Cover by categories I and II invasive exotic plant species (pursuant to the most current list established by the Florida Exotic Pest Plant Council at www.fleppc.org) shall not exceed 1% total cover per acre;
4. Nuisance species including, but not limited to, *Typha*, dog fennel and vines such as *Rubus*, *Vitis* and *Smilax*, are an insignificant component of the vegetation structure (<5% cover per acre in any stratum);
5. Vegetation species and structure in the cleared perimeter and each target community is consistent with the descriptions in Attachment C, except for immature canopy otherwise meeting success criteria; and,
6. The site is appropriately fenced, posted, and secured as depicted in Figure 8 and protected against unauthorized entry or activity.

b. Overall Hydrology

1. All hydrology construction areas have been completed to the satisfaction of the Department, are stabilized and showing no signs of erosion, and have operated as designed without repair for a period of two years;
2. There is no evidence of wash outs, erosion, or other indications of unnatural channelized water flow throughout the site;
3. Random water level or core samples from each wetland assessment area shall demonstrate appropriate hydric soils, and indicate appropriate water levels;
4. The preponderance of water level data shall indicate water levels adequate to support the target community and that the hydrologic goals of longer hydroperiods and higher groundwater elevations and decreased evidence of drainage within wetlands are evident throughout the site. Water level evidence supporting these goals include:

- All WLRs shall demonstrate substantially greater percentage of days where water levels are within 6 inches of the surface, or higher elevation, as shown in post-construction stage-duration curves compared to pre-construction;
- Water Level Recorders (WLR) in existing ditches (WLR # 1, 6, 7, 10, 11) shall demonstrate a notable increase in duration (flattening) of the descending limb of hydrographs when compared to pre-construction data; and demonstrate a descending limb curve that is not noticeably steeper nor deeper than WLRs 9 and 12 (that are similar in elevation and proximal to ditch) to indicate effective blocking of drainage;
- WLRs at the lowest elevations (WLR # 6, 7, 9, 10, 11, 12, 16) have water levels that are distinctly higher and of greater duration than those in forested communities (WLR #2, 3, 8, 13, 14, 15);
- Water levels on either side of the road removal area and along Horseshoe Road (WLR pairs 6 and 7, 10 and 11, 14 and 15) will demonstrate nearly equivalent water levels when there is surface water, and very similar ground water levels as well;
- Recorders in marsh (WLR #4, 5, 9 and 12) shall demonstrate a notable increase in water levels at or near surface elevations, and have near surface water levels for at least 90 days in the wet season (June-Oct) of non-drought water years when compared with pre-construction data; and,
- Random water level or core samples substantiate WLR data.

c. Pine Flatwoods (AA-1 - approximately 100 acres): Representative quantitative, qualitative and photographic data shall indicate:

1. Each quantitative sampling transect shall contain at least 25 native, non-nuisance plant species appropriate to pine flatwoods as identified in appropriate literature such as the Florida Plant Atlas (USF) and Guide to the Vascular Plants of Florida (Wunderlin, 2003), and the cumulative total of appropriate species from qualitative and quantitative transects is >40;
2. There is at least 80% total cover (bare ground $\leq$ 20%) in groundcover stratum, with a relative cover of appropriate herbaceous species $\geq$ 70%;
3. Wiregrass is among the top five dominant species;
4. Woody shrubs are reduced to coppice, typically <1.5m high and with a total aerial cover (all strata) averaging <30%;
5. The pine saplings and trees are 30 to 70 trees per acre, with at least 50 longleaf pine trees per acre taller than grass stage, and longleaf pine comprise $\geq$ 80% of all tree species saplings (<1" dbh); and,

6. At least 3 prescribed fires have been conducted that cover at least 80% of this AA-1 and the community demonstrates positive response (growth and seeding, as appropriate) following the prescribed fire.
- d. Wetland Forested Mixed (AA-4, AA-6, AA-7 and AA-10 – total of approximately 375 acres):
1. Appropriate tree species (Attachment C) canopy cover is $\geq 80\%$, except in planted areas and previously cleared perimeter areas of AA-6 and AA-7, which shall demonstrate an annual increase in cover with a minimum of 30% canopy cover. Canopy to be estimated from observations in qualitative transects, supported by densitometer readings described in the Monitoring Plan (Attachment J);
 2. Planted trees appear healthy, and have attained an average height ≥ 10 feet;
 3. Combined ground, shrub and tree cover is $\geq 80\%$ total cover, with $\geq 80\%$ relative cover by FACW and OBL species;
 4. There is a $\geq 10\%$ relative cover (combined) of the following wetland wildlife mast-producing species: *Ilex cassine*, *I. amelanchier*, *I. coriacea*, *I. myrica*, *Vaccinium corymbosum*, *Cephalanthus occidentalis*, *Nyssa*, *Persea* and *Magnolia virginiana*;
 5. Slash or loblolly pine that is less than 1 ft. dbh is reduced to < 20 stems per acre. Old, established slash or loblolly trees may remain, unless, at the time of success determination, the Department directs further reduction of pine density; and,
 6. Plant composition and relative abundance/cover is consistent with or, in planted areas, is annually trending toward the community descriptions.
- e. Freshwater Marsh (AA-8 - approximately 3 acres):
1. Appropriate composition and cover of groundcover and shrub species;
 2. The marshes shall demonstrate appropriate zone or rings of progressively more hydrophytic plants from the boundary to the center, indicating appropriate seasonal hydrologic variations, as demonstrated by photographs and vegetation data; and,
 3. Hardwood and shrub species have been reduced to $\leq 10\%$ aerial cover in the canopy and shrub stratum.
- f. Sawgrass Marsh (AA-9 – **at least** 170 acres):
1. Each groundcover quadrat shall either attain $\geq 80\%$ cover with native, non-nuisance herbaceous or graminoid OBL or FACW species or shall exhibit a clear trend over time of increasing cover of these species;
 2. Qualitative and quantitative sampling transects shall have $\geq 50\%$ total cover and $\geq 80\%$ relative cover with sawgrass (*Cladium jamaicense*);
 3. Qualitative and quantitative sampling transects shall have $\leq 10\%$ woody shrub cover;
 4. Qualitative and quantitative sampling transects shall average fewer than 5 trees per acre in the canopy stratum;
 5. Qualitative transects and aerial photography (infrared) demonstrate that tree and shrub cover is a minor component of ≥ 170 ac. of contiguous marsh; and,
 6. At least three prescribed fires have been conducted that cover at least 80% of this Assessment Area, and the community demonstrates positive response (growth and flowering/seeding) following the prescribed fire.
- g. Shrub Wetland (AA-11 - approximately 26 acres, predominantly as an ecotone between marsh and mixed wetland forest):
1. Each sampling transect shall be comprised of $\geq 40\%$ herbaceous species, 30% of which is sawgrass;
 2. Each quadrat shall either attain $\geq 80\%$ cover with desirable species or shall exhibit a clear trend over time of increasing graminoid cover;

3. The plants are reproducing naturally, either by normal, healthy vegetation spread, or through seedling establishment, growth and survival; and,
 4. At least three prescribed fires have been conducted that cover $\geq 80\%$ of this Assessment Area, and the community demonstrates positive response following the prescribed fire.
- h. Preservation-only (Live Oak Hammock- AA-2 ~20 acres; Wetland Forested Mixed- AA-5 ~77 acres): Meets the criteria overall in Specific Condition 17.a. and 17.b., approximates ideal conditions of community descriptions in Attachment C and show no signs of disturbance or degradation from baseline.
- i. Compliance
1. The permittee, or QMS, has conducted inspections, monitoring and management, including the appropriate schedule of prescribed burns and has submitted all required reports to the satisfaction of the Department;
 2. All security measures are established and in working order;
 3. At least three successful prescribed burns have been completed in accordance with Specific Condition 11; and,
 4. An updated, detailed long-term management plan (Attachment G) and a long- term management entity has been submitted and approved by the Department. The long-term management trust fund has been fully funded.
- i. UMAM Assessment. Using monitoring data and reports, and in conjunction with the permittee and available members of the Interagency Review Team, the Department shall inspect the site and conduct a UMAM analysis to ensure that all communities have reached, or are reasonably expected to reach, the “with mitigation” scores in Attachment H and community descriptions in Attachment C under the permitted management requirements.

“Hole in the Donut”, Everglades National Park mitigation bank
Permit Number 132416479 PA# 257597
Date of Issue: 02/15/95

24. The restoration work authorized by this permit shall be constructed in phases. Freshwater herbaceous wetland restoration within each phase shall be considered successful when all of the following criteria have been continuously met for a period of at least one growing season, without intervention in the form of irrigation, removal of undesirable vegetation, or replanting of desirable vegetation.

- a. The presence (species list) of wetland species listed in Rule 62-340, F.A.C. is statistically similar to a mutually acceptable species list for each community, based on the hydrologic pattern present to maintain the site(s) as wetland marsh (long hydrologic pattern) or prairie (short hydrologic pattern), defined in accordance with the vegetation classification system detailed on Attachment VI.
- b. Native species are reproducing naturally via seedling establishment and recruitment, or vegetative spread typical of each species;
- c. Exotic and nuisance species are limited to 1% cover or less in the aggregate;
- d. The importance value, based on frequency and percent cover or density, for each area shall fall within the range of Wittaker curves for the naturally occurring communities in this area of Everglades National Park;
- e. Not less than the total acreage of each parcel of freshwater wetlands are determined by Department staff to be jurisdictional pursuant to Rule 62-340, F.A.C., and
- f. The restored wetlands are constructed in accordance with the permit requirements, including any approved modifications.

Loxahatchee Mitigation Bank
Permit Number 0140969-096
Date of Issue: December 1, 2011
(original issuance: February 18, 2000)

21. Final Success. The permittee will take every reasonable action to attain the following success criteria by April 2016. In the event permittee does not achieve final success based on data collected prior to April 1, 2016 (end of water year), the Department will make a final determination of the level of success based on site inspections and data to that point and release all or a portion of remaining potential credits based on criteria below. The Department will also release the permittee from the monitoring requirements and may make any necessary modifications to the long term management plan to ensure that the ecological function of the site is maintained or improved in perpetuity.

The bank shall enhance or restore freshwater herbaceous marsh and forested wetlands typical of a range of eastern Everglades communities as represented in the Project Description. These success criteria have been established as benchmarks indicative of sustainable herbaceous and forested systems. The bank shall be deemed successful when representative monitoring data and visual inspection indicate that **all** of the following criteria have been met without intervention in the form of artificial manipulation of water levels, eradication of undesirable vegetation (other than the routine maintenance described in Specific Condition 24), or replanting of desirable vegetation, for a period of at least one year following the previous interim success.

Regardless of whether interim criteria have been met in previous years, for final success determination, all criteria (a-h) shall be monitored and meet the objective standards or, as determined by the Department, partially or fully meet the target goal for each category. Water level monitoring shall be conducted each year.

a. Hydrology- Monitoring and criteria for hydrology success are established at internal, lower elevations where water levels can be accurately measured, and that data, with topography, can be used to approximate actual hydroperiods across the site (see Figure 6 of Attachment A). The following criteria were developed to demonstrate appropriate hydroperiods to support the Everglades target communities. For final success, these criteria shall be met for at least **three** 12-month periods including one of the three years prior to the request for final success. Seven water level monitoring stations (PN1, PS1, PS2, PS3, PS4, PS5, and PSE1 in Figure 6, Attachment A) shall provide primary data used to demonstrate success. As used in this condition, a “year” is a 12-month period, not necessarily a calendar year.

Entire site: All areas within the perimeter levees shall meet wetland determination criteria in Rule 62-340, F.A.C.

North Parcel: During any year, the following criteria shall be met at each of the water level recording devices to demonstrate appropriate and fluctuating water levels:

- i. inundation or saturation at or above 14.2 NGVD for at least 150 consecutive days
- ii. a minimum inundation at or above 14.75 NGVD for a 30-day period, and
- iii. water levels shall fall below 14.2 NGVD for at least one 30-day period.

South and Southeast Parcels: During any year, the following criteria shall be met to demonstrate appropriate and fluctuating water levels:

- i. inundation or saturation at or above 13.5 NGVD for at least 150 consecutive days
- ii. a minimum inundation at or above 14.2 NGVD for a 30-day period, and
- iii. water levels shall fall below 13.5 NGVD for at least one 30-day period.

To allow for variability in weather, this condition recognizes that not all hydrology targets may be met every year in every location. However, for final success and to provide assurance of sustainability, the preponderance of primary and supplemental monitoring data shall support the annual success targets for most of the period of record since the discontinuation of pumping, including the years immediately preceding final success. The Department may determine partial or complete hydrology success, based on overall performance at the time of final success determination.

b. Nuisance and exotic species: Invasive exotic vegetation (based on the 2009 list of Invasive Species by the FL Exotic Pest Plant Council (EPPC), Category I) shall not exceed a total of 1% cover, and nuisance vegetation (EPPC, Category II) shall not exceed a total of 3% cover per acre bank-wide. Because quantitative sampling of 100% of the site is not feasible, percent cover will be determined based on the annual vegetation monitoring data outlined in the Monitoring Plan (Attachment H) and verified by visual observation. It is understood that nuisance and exotic species will be treated on an as needed and/or yearly cycle; however, for the purposes of determining the final success and final credit release, these criteria shall be met after at least one full year with only minor (back-pack spot treatment) maintenance treatments. If the Department determines that this criterion cannot be sustained without more robust annual herbicide treatments, final credit release may be adjusted, as noted in Specific Condition 21.h.

c. Vegetation Cover:

- i. Herbaceous Community (~870 acres): Representative data shall demonstrate at least 80% cover with appropriate native, non-nuisance herbaceous vegetation classified as obligate or facultative-wet (OBL or FACW), with no greater than 25% total cover by woody shrub species (excluding cypress) in the shrub and groundcover strata. Visual inspections will be used to verify cover in the field.
- ii. Forested Community (~355 acres): Representative data shall demonstrate at least 50% cover with appropriate OBL or FACW tree species in the canopy stratum.

For the purposes of this permit, appropriate canopy species include: red maple (*Acer rubrum*), cypress (*Taxodium distichum*), pond apple (*Annona glabra*), sweet bay (*Magnolia virginiana*), red bay (*Persea borbonia*), strangler fig (*Ficus aurea*), and dahoon holly (*Ilex cassine*). In addition, a maximum of 30 acres dominated by mature willow (*Salix caroliniana*) may be counted as a portion of the forested community as long as it meets all the other requirements.

Ground cover shall consist of appropriate native, non-nuisance SAV, OBL, or FACW herbaceous species, appropriate shrub species including, but not limited to, buttonbush (*Cephalanthus occidentalis*), *Myrsine guianensis* or wax myrtle (*Myrica cerifera*) <1.5 m overall height, or canopy seedlings. Groundcover density will vary depending on canopy cover, but combined canopy and groundcover shall exceed 80% (i.e., <20% open water or un-vegetated area).

d. Plant community composition: For a success determination, each community shall demonstrate the species diversity and composition typical of natural systems. As an objective measure of that target, and to account for variation within the mosaic of natural communities of the eastern Everglades, the following criteria shall be used:

- i. Herbaceous Community: Representative data indicate: (a) $\geq 70\%$ of the total ground cover shall be comprised of the species listed in Table A; (b) transect data average ≥ 8 of these species; and (c) the cumulative total cover by ruderal or colonizing species identified in Table B shall be < 30% or demonstrate a decreasing trend.

Table A. At least 70% of total groundcover comprised by these species

Common Name	Scientific Name	Common Name	Scientific Name
Saw Grass	<i>Cladium jamaicense</i>	Royal fern	<i>Osmunda regalis</i>
Maidencane	<i>Panicum hemitomon</i>	Cinnamon fern	<i>Osmunda cinnamomea</i>
Giant Bulrush	<i>Scirpus californicus</i>	Hottentot fern	<i>Thelypteris interrupta</i>
Soft Stem Rush	<i>Scirpus valdivus</i>	Whitetop sedge	<i>Dichromena colorata</i>
Pickrel weed	<i>Pontederia cordata</i>	Muhly Grass	<i>Muhlenbergia spp</i>
Duck potato	<i>Sagittaria spp.</i>	South Fl Bluestem	<i>Schizocyrium spp</i>
Spike rush	<i>Eleocharis spp.</i>	Cord Grass	<i>Spartina bakeri</i>
Arrow arum	<i>Peltandra virginica</i>	Broom Grass	<i>Andropogon spp.</i>
Lizard's tail	<i>Saururus cernuus</i>	Beak rushes	<i>Rhynchospora spp.</i>
Fire flag	<i>Thalia geniculata</i>	Sedges	<i>Cyperus spp.</i>
Saltmarsh aster	<i>Aster subulatus</i>	Plume Grass	<i>Erianthus gigantus</i>
Smartweeds	<i>Polygonum spp.</i>	American Cupscale	<i>Sacciolepis striata</i>
Rushes	<i>Juncus spp.</i>	Yellow-eyed grass	<i>Xyris spp.</i>

Additional species may be proposed for approval with appropriate supporting documentation.

Table B. Cumulative total <30% by these species or demonstrate decreasing trend

Ruderal species or nuisance species	<i>Baccharis spp; Commelina spp; Echinochloa spp; Eupatorium spp; Hydrocotyle umbellata; Ludwigia repens; Mikania scandens; Pluchea rosea; Ptilimnium spp; Solanum spp; Typha</i>
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- ii. Forested Community: Canopy stratum in each forested sampling station is dominated by any one of the following species: red maple (*Acer rubrum*), cypress (*Taxodium distichum*), or pond apple (*Annona glabra*). Willow (*Salix caroliniana*) may comprise the dominant canopy for a maximum of 30 acres. Groundcover is dominated by species not classified as ruderal (see Table B above).

e. Wildlife Utilization: The Strazzula Tract marsh and the cypress swamp located in the Loxahatchee Wildlife Refuge were monitored as the reference wetlands for the bank's herbaceous community and forested communities, respectively. The bank shall be determined to be successful if the total number of wetland dependent fish, amphibian, reptile, bird and mammal species, tallied by class and community, recorded during the formal wildlife surveys meet or exceed the number of wetland dependant species monitored in the reference wetlands, as defined in the following table. The bank's final success determination shall require that the criteria, as defined in the following table be met for at least 3 monitoring years, including the final success determination year.

Class	# Wetland Dependent Species	
	Herbaceous	Forested
Fish	4	3
Amphibians	6	7
Reptiles	2	1
Birds	16	3
Mammals	3	3

f. Acreage: The ~1,225 acres of wetlands within the perimeter berms shall be determined to be jurisdictional pursuant to Rule 62-340, F.A.C., and the herbaceous and forested community types are within 10% of their target of 870 acres and 355 acres, respectively.

h. M-WRAP Assessment: Utilizing the monitoring data and reports and in conjunction with the permittee, the SFWMD, and any interested IRT members, the Department shall inspect the site and conduct an M-WRAP analysis to determine that the bank has reached the criteria required to attain the “with bank” scores, as shown in Attachment D, that were used to determine the potential credits for the bank. The M-WRAP score of 3 for the vegetation component requires that the site meet the nuisance and exotic species coverage criteria in Specific Condition 21. b. Should the bank be determined to exceed these coverage criteria, an M-WRAP score of 2.75 would be assigned. The difference between scores of 2.75 and 3 represents **26.4** credits. The final credit release would then be decreased by **26.4** credits.

Little Pine Island Mitigation Bank
Permit Number: 198719-082
Issue Date: December 18, 2012
(original issuance February 6, 1996)

6. This permit authorizes the permittee to implement wetland restoration activities on 1,564.6 acres shown in Figure 1. The original permit drawings and Figure 3 show the bank's condition at the time of permitting. Exhibit B provides the construction figures for the permit. The wetland restoration realized through these activities shall comprise the Little Pine Island Mitigation Bank that includes the following target wetland types, as shown in Figure 4:

Forested freshwater coastal fringe	83.6 acres
Forested saltwater coastal fringe	346.8 acres
Herbaceous freshwater/brackish coastal fringe	504.2 acres
Herbaceous saltwater coastal fringe	630.0 acres

This December 18, 2012 phase-consolidation permit modification and concurrent credit release affirm that **the bank** overall has attained a total of 85% of the permitted potential credits based on criteria 13.a. and 13.b. below. The final 15% of potential credits shall be based on bank-wide attainment of release schedule criteria 13.c [10%] and 13.d. [5%](plus any remaining credit fraction not previously released):

- a. Exotic vegetation has been removed to the 95 percent level in all phases.
- b. By phase (prior to December 18, 2012), and for entire bank afterward:
 - 1) Removal of 95 percent of exotic vegetation and removal of mosquito ditches.
 - 2) Removal and restoration of haul roads (except as noted in Specific Condition 3).
 - 3) Representative monitoring and site inspection demonstrate that at least 8 of the 20 parameters listed in Specific Condition 30 b. have been achieved.
 - 4) Representative monitoring and site inspection demonstrate that at least 15 of the 20 parameters listed in Specific Condition 30 b. have been achieved.
- c. Representative monitoring and site inspections demonstrate that:
 - 1) The bank has attained the success criteria in Specific Condition 30 as documented in the Summary Report and recent qualitative data collected by the approved plan required in Specific Condition 38;
 - 2) Updated maps based on aerial photography, qualitative data, and reference descriptions that distinguish the four wetland types (including FLUCCS descriptions, ground-truthing, data and site inspections) indicate that the acreage and configuration of these restored wetland community types is within 10% of permit values. Any greater deviation from the permitted values shall be addressed in a modification request to re-map the resulting communities;
 - 3) Freshwater forested wetland types shall either have $\geq 30\%$ canopy cover with native tree species (dahoon holly will be considered a 'tree' for this permit) or a minimum of 75 healthy, established (>3' tall) planted or recruited trees or saplings per acre of *Pinus elliotii var. densa*, *Ilex cassine* or *Sable palmetto*;
 - 4) An updated long-term management plan has been approved by the Department and the Charlotte Harbor Preserve State Park manager.

30. Ecological Success Criteria: Enhancement and restoration of the four communities shall be considered ecologically successful when the following monitoring criteria have been met and documented in reports. Determination of final **bank** success shall be based on submitted monitoring data and the credit release criteria in Specific Condition 13.c. and 13.d.

- a. The site topography at the temporary roads and ditch and berm areas has been restored to natural grade, as would be appropriate for the target community and as verified by topographical survey of these areas.

- b. The following criteria as described in "An Assessment Procedure for Wetland Mitigation Banks" (Kevin L. Erwin Consulting Ecologist, Inc. 1995) available in the permit file have been met in each of the hydrogeomorphic wetland types identified above:

1. Vertebrate Criteria:

- a) Wildlife utilization will, at a minimum, include two native wetland dependent mammal species.
- b) Wildlife utilization will, at a minimum, include three wetland dependent wading bird species.
- c) Wildlife utilization will, at a minimum, include three wetland dependent bird species other than wading birds.
- d) Wildlife utilization will, at a minimum, include two native wetland dependent reptile species.
- e) When water is present, fish assemblage, at a minimum, will include three native species of fish, or, in the case of extremely harsh environments (with respect to water temperatures, salinities, etc.) one abundant species of fish.
- f) Native amphibians (anurans) include a minimum of two species.
- g) Species richness of fish and native amphibians (anurans) is at least 75 percent of that found in the reference wetland or published literature.
- h) Characteristic feeding guilds and trophic positions of fish are at least 75 percent of that found in the identified reference wetland or from published literature.

2. Vegetation Criteria:

- a) The community structure with regard to vegetation cover, species composition and diversity of the communities on the bank site shall be reasonably similar to the identified reference wetlands for each community type.
- b) The plant species richness is a minimum of 75 percent of the richness of either the identified reference wetland or published literature values.
- c) A minimum of 15 non-nuisance, native wetland plant species are present, contribute to a minimum of 60 percent total cover, and remains the same or is increasing in percent total cover. Percent cover shall be reported for the aggregate of these wetland species, relative to the total area, including a measure of percent cover by non wetland species, bare ground and water.
- d) All native wetland ground cover species and existing wetlands trees are reproducing naturally, via seeding establishment, growth and survival or normal, healthy vegetative spread for each species.
- e) A viable seed bank of non-nuisance native wetland species has been established, as demonstrated by germination experiments that have been approved by the Department prior to their initiation.
- f) Percent cover of exotic species (melaleuca, Brazilian pepper, and Australian pine) is maintained at or below one percent of the total cover without physical maintenance for one growing season.
- g) A minimum of three macrophyte communities are established within each hydrogeomorphic wetland type.
- h) Macrophyte communities are within the range of conditions occurring for similar hydrogeomorphic wetland types in south Florida based on the identified reference wetland or literature values.

3. Invertebrate criteria

- a) Species richness of aquatic macroinvertebrates is a minimum of 75 percent of that found in the literature or the identified reference wetland.

- b) All characteristic functional feeding guilds, as described by Merrit and Cummins (1984), or 75 percent of all taxa of macroinvertebrates found in the literature, or the identified reference wetland, are also found in the restored site. (Taxonomic classification levels (Class, Order, Family) should be mutually agreed upon prior to using this criteria).
 - c) A minimum of three classes (i.e., insecta, mollusca, crustacea, or annelida), four orders (i.e., odonata, coleoptera, hemiptera, diptera, gastropoda, or decapoda), and ten species of aquatic macroinvertebrates are present in each herbaceous wetland type. At least two classes, three orders, and six species are present in each forested wetland type.
 - d) Weighted species abundance of aquatic macroinvertebrates are a minimum of 75 percent of that found in the literature or the identified reference wetland.
- c. Soils Criteria: The soils at the restored mosquito ditches and berms have the following characteristics:
- 1. Redox potential is within 200 mV and pH within 1 unit of values measured in adjacent wetland soils.
 - 2. Redox potential and pH is within the range of conditions occurring for similar types of wetlands in South Florida based on literature values.
 - 3. Interstitial salinity is similar to adjacent wetland soils.
 - 4. Interstitial salinity is within the range of conditions occurring for similar types of wetlands in South Florida based on literature values.
- d. Post success criterion: The percent cover by exotic and nuisance plant species at the site shall be maintained at or below 1% of the total cover.

Nokuse Plantation Mitigation Bank
Permit Number: 0283695-002
Date Issued: April 20, 2010
(original issuance July 3, 2008)

22. Final Success. The goal of the mitigation is to rehabilitate or enhance the existing communities shown in Figure 4 into the target communities shown in Figure 6 and as described in Attachment C. The bank shall be deemed successful when all of the following criteria, in addition to the community descriptions in Attachment C, have been met for one full year without intervention in the form of nuisance and exotic vegetation treatment, pine harvesting or replanting of desirable vegetation. For the purposes of success determination, “woody shrubs” includes those species, typically reduced by fire to coppice, such as gallberry (*Ilex glabra*), fetterbush (*Leucothoe racemosa*, *Lyonia* spp.), yaupon (*Ilex vomitoria*), titi (*Cyrilla racemiflora* and *Cliftonia monophylla*), and wax myrtle (*Myrica cerifera*) that tend to become dominant (weedy) and reduce the diversity of herbaceous species and desirable trees and shrubs in a fire suppressed system. Slash pine is *Pinus elliotii*, loblolly pine is *Pinus taeda*, and longleaf pine is *Pinus palustris*.

- a. Entire Site. Nuisance exotic species listed in FLEPPC are restricted to less than 1% cover in any one acre.
- b. Uplands – Mesic Flatwoods and Sandhills.
 1. Less than 100 trees/acre of slash (*Pinus eliotii*) and loblolly pines (*Pinus taeda*) with a d.b.h. ≥ 4 ”;
 2. A minimum of 50 longleaf pine (*Pinus palustris*) subcanopy and/or canopy trees/acre, but no more than 150/ac. of planted longleaf pine.
 3. Fire-adapted, native herbaceous species are of adequate density to carry a prescribed fire over an average of at least 70% of the upland communities.
 4. Subcanopy shrub cover/density (>1 ” and <4 ” d.b.h.) is less than 35% as determined by a combination of density and coverage estimates.
 5. Gopher tortoise burrows average a minimum of one burrow per acre over the approximate 500 acres suitable for burrow habitat.
- c. Wet Flatwoods (from Pine Plantation).
 1. Less than 75 trees/acre canopy pines (*Pinus* spp.) with a d.b.h. ≥ 4 ”.
 2. Gallberry, yaupon, wax myrtle, fetterbush, titi and other woody shrubs shall be no taller than the coppice sprouts that could have arisen from root crowns following the most recent successful fire. Areas dominated by woody shrubs (i.e. areas with shrubs averaging 1.5 meters in height and a collective canopy coverage of over 50%) shall be limited to random spots of 1 ac. or less where fire did not burn and shall represent an insignificant feature in this community type.
 3. The average cover/density of herbaceous groundcover (including graminoids, forbs and ferns) shall be 70% or greater, with no one monitoring quadrat having less than 50% cover/density, and the collective coverage of *Andropogon* spp. (except *A. liebmannii*) shall not exceed 25% in any one quadrat.
 4. Prescribed fire routinely carries over a minimum of 70% of the community type after each burn. The exception to this would be for extremely wet years in which a burn was implemented to comply with the maximum burn intervals stated in the permit even though the conditions were not ideal from a hydrologic standpoint.
 5. There is an average of at least of 40 species typical of wet flatwoods and prairie such as those listed in Attachment H). Species may be added to the list with the written consent of the Department.

6. Evidence of flowering by helophytic plant species.
- d. Wet Prairie/Wet Flatwoods Enhancement Area.
1. Less than 35 trees/acre canopy pines (*Pinus* spp.) with a d.b.h. $\geq 4''$.
 2. Gallberry, yaupon, wax myrtle, fetterbush, titi and other woody shrubs shall be no taller than the coppice sprouts that could have arisen from root crowns following the most recent successful fire. Areas dominated by woody shrubs (i.e. areas with shrubs averaging 1.5 meters in height and a collective canopy coverage of over 50%) shall be limited to random spots of 1 ac. or less where fire did not burn and shall represent an insignificant feature in this community type.
 3. The average cover/density of herbaceous groundcover (including graminoids, forbs and ferns) shall be 70% or greater, with no one monitoring quadrat having less than 50% cover/density, and the collective coverage of *Andropogon* spp. (except *A. liebmannii*) shall not exceed 25% in any one quadrat.
 4. Prescribed fire routinely carries over a minimum of 70% of the community type after each burn. The exception to this would be for extremely wet years in which a burn was implemented to comply with the maximum burn intervals stated in the permit even though the conditions were not ideal from a hydrologic standpoint.
 5. There is an average of at least of 40 species typical of wet flatwoods and prairie such as those listed in Attachment H. Species may be added to the list with the written consent of the Department.
 6. Evidence of flowering by helophytic plant species.
- e. Hardwood Depression Wetlands & 100' Buffer Surrounding Depressions.
1. Less than 15 trees/acre canopy pines (*Pinus* spp.) with a d.b.h. $\geq 4''$ on average within the Depressional Wetlands and less 35 trees/acre on average within the surrounding 100' buffer.
 2. Subcanopy shrub ($>1''$ and $<4''$ d.b.h.) cover/density within the buffer and into the edge of the Depressional Wetlands is less than 20%.
 3. The average cover/density of herbaceous groundcover (including graminoids, forbs and ferns) shall be 70% or greater, with no one monitoring quadrat having less than 50% cover/density, and the collective coverage of *Andropogon* spp. (except *A. liebmannii*) shall not exceed 25% in any one quadrat.
 4. Prescribed fire routinely carries over a minimum of 70% of the perimeter of the depression area and may burn into the depression on occasion. The exception to this would be for extremely wet years in which a burn was implemented to comply with the maximum burn intervals stated in the permit even though the conditions were not ideal from a hydrologic standpoint.
- f. Mixed Forest Wetlands and Baygall.
1. Inspections shall indicate that conditions are not exhibiting signs of degradation or impact.
 2. Management is appropriate to ensure that plants are reproducing naturally, either by normal, healthy vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth and survival.
- g. Hydrologic Enhancements (stream crossing, road removal, ditch blocks).
1. Non-vegetated open water area shall be less than 20%.
 2. All slopes are stabilized with native vegetation.
 3. Restored/abandoned areas shall not be substantially distinct topographically from the surrounding undisturbed areas.

4. Recruitment of native vegetation is demonstrated.
 5. Ditch blocks are in place and stabilized and successfully eliminating water flow through or around the block.
- h. UMAM Assessment: Using monitoring data and reports and in conjunction with the permittee and available members of the Mitigation Bank Review Team, the Department shall inspect the site and conduct a UMAM analysis to ensure that all communities have reached, or are expected to reach and maintain, the “with bank” scores in Attachment F or community descriptions in Attachment C, under the permitted management requirements in Specific Condition 24.
- i. Compliance:
1. The permittee has conducted inspections, monitoring and management, including the appropriate schedule of prescribed burns, as defined herein and in the attachments, and has submitted all required reports to the satisfaction of the Department.
 2. All security measures are established and in working order.
 3. A long term management plan as defined in Specific Condition 24.f. and long term management entity has been submitted and approved, and the long term management trust fund has been funded in compliance with Specific Condition 9.

Pensacola Bay Mitigation Bank
Permit Number: 0284438-001
Date of Issue: March 26, 2009

22. Final Success. The goal of the mitigation is to convert, enhance or preserve the existing communities shown in Figure 4 into the target communities shown in Figure 8 and as described in Attachment B. The bank shall be deemed successful when all of the following criteria, in addition to the community descriptions, have been met for a period of at least one full year without intervention in the form of eradication of undesirable vegetation, pine harvesting or replanting of desirable vegetation. For the purposes of success determination, “woody shrubs” includes those species, typically reduced by fire to coppice, such as titi (*Cyrilla racemifolia*, *Cliftonia monophylla*), gallberry (*Ilex glabra*), fetterbush (*Leucothoe racemosa*, *Lyonia* spp.), yaupon (*Ilex vomitoria*) and wax myrtle (*Myrica cerifera*) that tend to become dominant (weedy) and reduce the diversity of herbaceous species and desirable trees and shrubs (such as those listed for planting in Specific Condition 10) in a fire suppressed system. Slash pine is *Pinus elliottii*, loblolly pine is *Pinus taeda*, and longleaf pine is *Pinus palustris*.

a. Entire Site (UMAM Categories 1-11). Invasive exotic species cover is less than 1% cover in any one acre and not more than a cumulative 2 acres throughout the site.

b. Hydric Pine Flatwoods/Prairie (UMAM Categories 8 and 10).

- 1) The average cover of herbaceous groundcover (including graminoids, forbs, and ferns) shall be 75% or greater, with no one monitoring quadrat having less than 50% cover, and the collective cover of pioneer *Andropogon* spp. (except *A. liebmannii*) shall not exceed 10% in any quadrat.
- 2) Each sampling quadrat within UMAM Category 10 shall contain at least 80% of the total *number* of species identified in the reference wetland sampling (described below), and at least 75% of the quadrat’s species shall be also be found in the reference wetland sampling. Species not found at the reference site shall be species appropriate to the community as demonstrated by the Banker with a literature citation and/or a third party professional botanist/ecologist opinion and agreed to by the Department.

Reference site. The reference wetland site will be identified on lands in close proximity to PBMB on Northwest Florida Water Management District (District) property prior to release of credits beyond the initial “preservation” credit release. This site will be established in association with the District to represent optimal vegetation characteristics of the target community for the Department’s approval. The intent of this reference wetland is to develop a species list to be used to gauge the species diversity success described by this condition. Random vegetation sampling transects within the reference wetland will be completed in April/May and September/ October, 2009. The reference wetland boundary and transects will be GPS-located and identified on an aerial photograph. This reference wetland will be sampled again in 2014 to generate an additional species list to account for any impacts resulting from weather patterns of the previous 5 years. Although the generation of the species list is important to the species richness success criteria, this site will also serve as example of a highly functioning wetland hydric flatwoods/prairie community from which comparisons other than just species presence or absence can be made, and as such, may be used in a qualitative manner at the discretion of the Department to otherwise demonstrate final compliance in this community category.

- 3) Gallberry, yaupon, wax myrtle, fetterbush, titi and other woody shrubs shall be no taller than the coppice sprouts that could have arisen from root crowns following the most recent successful fire.

Areas dominated by woody shrubs (i.e. areas with shrubs averaging 1.5 meters in height and a collective canopy coverage of over 50%) shall be limited to random spots of 1 ac. or less where fire did not burn and shall represent an insignificant feature in this community type.

- 4) The combined canopy (>4" d.b.h.) of slash pine and loblolly pine shall not exceed 15 live trees/acre on average, and in no monitoring quadrat should the tree density be greater than 20 trees/acre.
- 5) Canopy and subcanopy (>1" d.b.h.) longleaf pine shall average between 5 and 100 trees/acre, with no monitoring plot having more than 110 trees/acre.
- 6) Appropriate vegetation is reproducing naturally, either by normal, healthy vegetative spread or through seedling establishment, growth and survival.
- 7) Prescribed fire routinely carries over a minimum of 70% of the community type.

c. Cypress/Gum Wetlands and Bay/Titi Enhancement Areas (UMAM Categories 3-7, and 9).

- 1) Planted and volunteer tree cover is increasing annually, with a minimum of 30% canopy cover (i.e. >4" d.b.h.), excluding titi, and with a species mix consistent with the community descriptions in Attachment B and the planting mix described in Specific Condition 10.
- 2) Total cover of combined tree, shrub and ground strata shall be greater than 70%.
- 3) Non-nuisance, native ground and shrub species are healthy, reproducing naturally and exhibiting the cover and diversity typical of habitat, such as found in Florida Natural Areas Inventory Natural Community Descriptions (FNAI and FDNR. 1990. Guide to the Natural Communities of Florida) or other such literature and Attachment B.
- 4) Titi, gallberry and fetterbush cover shall not exceed 25%.
- 5) Communities have developed so that prescribed fire moves from the flatwoods systems to these target communities without being catastrophic to the existing and recruited hardwoods.

d. Baygall/Mixed Hardwood Preservation (UMAM Categories 1, 2 and 11).

- 1) Inspections and monitoring shall indicate that conditions are not exhibiting signs of degradation and the conditions necessary to maintain functions in the long term are exhibited.
- 2) For any areas of restoration from rutting or ORV activity within this community, the desirable tree cover is increasing annually, with a minimum of 50% cover.
- 3) Within these restoration zones the total cover shall be greater than 70% through a combination of canopy, shrubs and ground cover.

e. Hydrologic Improvements. All low water crossings and ditch fill areas have been installed to the satisfaction of the Department, are stabilized and showing no signs of erosion, and have operated as designed, without the need of repairs for a period of at least three years.

f. Fire and interim success. Success criteria are being achieved at least one full year after the second successful fire and the attainment of the third level of interim success criteria described in Specific Condition 23.

San Pedro Bay Mitigation Bank
Permit Number: 0169184-020
Date of Issue: September 4, 2013
(original issuance February 12, 2002)

Success Criteria

21. Hydrology Success. Phase I was deemed to have attained hydrologic success through a permit modification issued on July 7, 2010. Phases II and III of the bank shall be deemed to have reached hydrologic success when all of the following criteria have been met:
- a. All ditch blocks and low-water crossings shall be constructed in accordance with Specific Condition 11, and shall maintain their structural and functional integrity for at least three consecutive years with no significant repairs beyond routine maintenance described in Specific Condition 30(a).
 - b. Visual inspection and water level data from continuous water level data recorders located in Phase II shall show a reasonable demonstration of greater water depth and duration of inundation, typical of natural, non-drained conditions, when compared to measurements in the “non-restored” areas of Phase III for the same period of record. For Phase III, water depth and inundation duration shall be demonstrably equivalent to successfully restored Phases I and II. These demonstrations shall be made during at least 3 consecutive years (beginning the month following ditch block installation) of monitoring. However, if the data demonstrate exceptional drought conditions during a year, and no hydrologic improvement for that year is anticipated in response, then the drought year will not be considered to “break” the chain of consecutive years; however, the enhancement will be expected to be demonstrated when normal precipitation conditions return.
 - c. The site shall be determined to be jurisdictional wetlands pursuant to Section 373.421, F.S., and with consideration of monitored hydrologic data. Naturally occurring upland communities may be present within the mosaic of wetlands, but would constitute less than 10% of the total acreage.
22. Vegetation Success. Each assessment area within each phase shall be deemed to have reached success when all of the following criteria have been met. Success may be attained separately for each of the three assessment areas/community types. The permittee shall enhance or restore the following wetland polygon types: shrub-bog/marsh mosaic and natural wetland forest as shown on Figures 4, 5, and 7. Vegetation cover, dominance and condition shall be determined by inspection and representative qualitative and quantitative monitoring as described in Attachment G.
- a. **Site-wide:** Invasive exotic vegetation, as listed by the Florida Exotic Pest Plant Council, shall not exceed a total of 2% coverage per acre, and nuisance vegetation shall not exceed a total of 5% coverage per acre.
 - b. **Shrub-Bog/Marsh Mosaic from Harvest:**
 - i. At least 60% of the vegetation cover shall be native, non-nuisance species in the combined shrub, groundcover and submerged strata, and the vegetation is reproducing naturally (i.e., <40% bare ground or open water).

- ii. At least 90% of the vegetation cover (dominance) shall be native facultative (FAC), facultative-wet (FACW), obligate (OBL) or aquatic species in the combined shrub, groundcover and submerged strata.
- iii. At least 60% of the vegetation cover (dominance) shall be native FACW, OBL or aquatic species in the combined shrub, groundcover and submerged strata (i.e., < 40% dominance by FAC or upland species).
- iv. There shall be no more than 20% total projected future cover of slash pine (*Pinus elliotii*) trees, estimated from counts of slash pine seedlings.

c. Shrub-Bog/Marsh Mosaic from Existing Shrub-Bog/Marsh Mosaic:

- i. At least 60% of the vegetation cover shall be native, non-nuisance species in the combined submerged and groundcover strata.
- ii. At least 90% of the vegetation cover (dominance) shall be native FAC, FACW, OBL or aquatic species in the combined submerged and groundcover strata.
- iii. At least 60% of the vegetation cover (dominance) shall be native FACW, OBL or aquatic species in the combined submerged and groundcover strata.

d. Natural Wetland Forest:

- i. At least 60% of seedling and/or sapling trees (<4 inches diameter at breast-height (DBH)) shall be canopy species typical of basin swamps, as listed below.
- ii. The frequency and distribution criteria of natural forest canopy regeneration will be based on the 2012 monitoring of at least six natural forest transects (minimum of 3 in Phase I and 3 in Phase II). Seedlings and/or sapling trees (<4 inches DBH) of the canopy species typical of the basin swamp, as listed below, shall be counted within 1 meter on either side of the transect in addition to 5x5-meter plots in the fall 2012 sampling event to ascertain the measure that is most representative and indicative of natural regeneration on site. This permit condition shall be modified to reflect the data collected.
- iii. At least 10% of the vegetation cover shall be canopy tree species (>4 inches DBH) typical of basin swamps, as listed below.

Canopy Species	
Red maple	<i>Acer rubrum</i>
Loblolly bay	<i>Gordonia lasianthus</i>
Dahoon holly	<i>Ilex cassine</i>
Sweet bay	<i>Magnolia virginiana</i>
Swamp tupelo	<i>Nyssa sylvatica</i> var. <i>biflora</i>
Swamp bay	<i>Persea palustris</i>
Pond pine	<i>Pinus serotina</i>
Pond cypress	<i>Taxodium ascendens</i>

23. Interim and Final Success Criteria: The demonstration of final success depends on the phase's ability to demonstrate that the success criteria defined above can be maintained. The Department will also release the permittee from the monitoring requirements and may make any necessary modifications to the long-term management plan to ensure that the ecological function of the site is maintained or improved in perpetuity. Representative qualitative and quantitative

monitoring data and a site inspection shall be used to determine each level of success. Credits will be released upon completing the following interim levels of success and the final success criteria.

- a. Level 1 Success - Each of the three assessment areas within a phase shall be considered to have met the first level of success when hydrology success criteria (Specific Condition 21) have been met and all of the appropriate assessment area vegetation criteria in Specific Condition 22 have been attained. This success may be attained separately for each of the three assessment areas.
- b. Level 2 Success - Each of the three assessment areas within a phase shall be considered to have met the second level of success when hydrology success criteria (Specific Condition 21) have been met and all of the appropriate assessment area vegetation criteria in Specific Condition 22 have been met and maintained for at least 1 year after the initial attainment determination (Level 1). This success may be attained separately for each of the three assessment areas.
- c. Level 3 Success - Each of the three assessment areas within a phase shall be considered to have met the third level of success when hydrology success criteria (Specific Condition 21) have been met and all of the appropriate assessment area vegetation criteria in Specific Condition 22 have been met and maintained for at least 2 years after the initial attainment determination (Level 1). This success may be attained separately for each of the three assessment areas.
- d. Final Success - The mitigation bank phase shall be determined to have reached final success when:
 - i. Each of the three assessment areas in a phase has achieved the third level of success (Specific Condition 23c);
 - ii. All construction areas have been stabilized. The ditch blocks are effectively curtailing any channelized drainage, low-water crossings are effectively allowing sheet flow, and no structures have required repairs beyond minor maintenance specified in Specific Condition 30 for at least three years; and
 - iii. The permittee has submitted all reports to the satisfaction of the Department.

Sand Hill Lakes Mitigation Bank
Permit Number 227351-001
Date Issued: September 6, 2005

22. Final Success. The goal of the mitigation is to convert, enhance or preserve the existing communities shown in Figure 4 into the target communities shown in Figure 8 and as described in Attachment C. The bank shall be deemed successful when all of the following criteria, in addition to the community descriptions, have been met for a period of at least one full year without intervention in the form of artificial manipulation of water levels, prescribed burns, eradication of undesirable vegetation or replanting of desirable vegetation.

a. Site-wide: Invasive exotic species cover is less than 1% cover in any one acre and nuisance native species are less than 5% cover in any one acre.

b. Preservation Areas (UMAM Areas III and IV): Inspections and monitoring shall indicate that conditions are not exhibiting signs of degradation or impact, and that appropriate management is being conducted to maintain high function in the long term.

c. Upland pine flatwoods/sandhills (UMAM Areas I and II):

- i. Fire-adapted, native herbaceous species shall average at least 70% cover;
- ii. Woody shrubs are limited to a maximum of 20% cover;
- iii. Long leaf pine averages 100-200/ trees per acre. If long leaf pine densities are greater than 200 tree/acre, the pines shall be thinned to achieve the target stocking rate prior to a final determination of success.

c. Wet flatwoods (UMAM Areas V and VII):

- i. Gallberry, Wax Myrtle, Titi, and other woody shrubs are no taller than the coppice sprouts that could have arisen from root crowns following the most recent fire.
- ii. Fire-adapted, native, wet flatwoods/wet prairie herbaceous species shall average at least 55% cover;
- iii. The average cover of graminoids is 60 % or greater of the herbaceous groundcover, and the collective cover of pioneer *Andropogon spp.* (except *A. liebmannii*) does not exceed 25% of the graminoids.
- iv. Long leaf pine averages 100-200/ trees per acre. If long leaf pine densities are greater than 200 tree/acre, the pines shall be thinned to achieve the target stocking rate prior to a final determination of success.

d. Slough area and road removal areas (UMAM Area VI):

- i. Non vegetated open water area shall be less than 20% of Management Unit 5 area.
- ii. Non-nuisance, native wetland ground and shrub species are healthy, reproducing naturally and exhibiting the cover and diversity typical of the habitat as described in Attachment C and reference wetland data, such as found in Florida Natural Areas Inventory or other such literature. Groundcover and emergent species cover are 70% or greater (except in open water area) when canopy cover is less than 30% cover, due to immature trees. As canopy matures, lower percentage groundcover may be appropriate due to shading, and this decrease will not preclude a success determination.
- iii. The desirable canopy tree cover is increasing annually, and determined to be successful when at least 30% canopy cover has been achieved, not including shrub species, such as titi.

- iv. The plants are reproducing naturally, either by normal, healthy vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth and survival.

d. Erosion areas:

- i. Soils are stabilized with no evidence of erosion.
- ii. Non-nuisance, native vegetation is healthy, reproducing naturally and exhibiting the cover and diversity typical of the surrounding landscape.

e. Compliance:

- i. All of the graded areas in the bank are stabilized.
- ii. The bridge, dam and road-removal sites are appropriately vegetated with no signs of erosion, and have required no repairs beyond minor maintenance specified in Specific Condition 25 for at least three years.
- iii. The dam at Black Pond is effectively regulating flow and water elevations have been stabilized at 68.1 ft. NGVD, with no signs of piping or erosion, and has required no repairs beyond minor maintenance specified in Specific Condition 25 for at least three years.
- iv. The permittee has conducted inspections, monitoring and management, including the appropriate schedule of prescribed burns, as defined herein and in the attachments, and has submitted all required reports to the satisfaction of the Department.

f. UMAM Assessment: Utilizing the monitoring data and reports and in conjunction with the permittee and available members of the Mitigation Bank Review Team, the Department shall inspect the site and conduct a UMAM analysis to determine that, under the permitted maintenance requirements, all polygons have reached, or are expected to reach and maintain, the criteria required to attain the “with bank” scores, as shown in Attachment F, that were used to determine the potential credits for the bank.

St. Marks Mitigation Bank
Permit Number 0295847-001
Date Issued: August 5, 2011

17. Final Success. The overall goal of the St. Marks Mitigation Bank is to manage and enhance the communities and hydrology on the site to function as closely as possible to their native, historic condition. The principle goal of the wetland forested communities is the increase in canopy cover with appropriate wetland trees and a reduction of vines and shrubs. The main target for the Mesic Flatwoods and Wet Prairie/Wet Flatwoods communities is to significantly increase fire fuel grasses and herbaceous vegetation density and diversity and to significantly reduce slash pine trees and other woody shrubs. All communities are expected to attain or approach the descriptions in Attachment B.

The bank shall be deemed successful when quantitative, qualitative and photographic monitoring (see Attachment I-Monitoring Plan) that is representative of the site or assessment area, indicate that all of the following criteria, in addition to the stated goals and community descriptions in Attachment B, have been met for a period of at least one full year without intervention in the form of eradication of undesirable vegetation, pine harvesting, or planting. Alternative criteria may be proposed after several monitoring events if actual onsite data indicate that such criteria provide a better assessment of the ecological goals and outcomes upon which credit was assessed. The Department may determine an area to be successful regardless of whether all criteria are met, provided the broad ecological goals are attained, and there is creditable scientific research or evidence provided to support the determination.

For the purposes of success determination, “woody shrubs” includes species that are typically reduced to coppice by fire, such as titi (*Cyrilla racemiflora* and *Cliftonia monophylla*), gallberry (*Ilex glabra*), fetterbush (*Leucothoe racemosa*, *Lyonia* spp.), yaupon (*Ilex vomitoria*), and wax myrtle (*Myrica cerifera*), and that tend to become dominant (weedy) and reduce the diversity of herbaceous species and desirable trees and shrubs in a fire suppressed system. Nuisance vines include blackberry (*Rubus* spp.), grape vine (*Vitis* spp.) and greenbrier (*Smilax* spp.). Slash pine is *Pinus elliottii*, loblolly pine is *Pinus taeda*, and longleaf pine is *Pinus palustris*. Wiregrass is *Aristida stricta beyrichiana*. Sawgrass is *Cladium jamaicense*. Desirable species for specific assessment areas are listed in the descriptions in Attachments B and H and can also be found in pertinent scientific literature.

a. Entire Site (all Assessment Areas):

1. Appropriate plants are reproducing naturally, either by normal, healthy vegetative spread (in ways that will be normal for each species) or through seedling establishment, growth, and survival;
2. All wetland target communities shall meet wetland delineation criteria as defined by 62-340, F.A.C.;
3. Coverage by category I and II invasive exotic plant species (pursuant to the most current list established by the Florida Exotic Pest Plant Council at www.fleppc.org) shall not exceed 1% total coverage per acre;
4. Nuisance species including, but not limited to *Typha*, dog fennel and nuisance vines species such as *Rubus*, *Vitis* and *Smilax*, are controlled to a level that does not inhibit the goals of increased appropriate canopy or groundcover.
5. Vegetation species and structure in each target community is consistent with description in Attachment B. In areas where trees are planted, appropriate immature canopy is considered acceptable structure.
6. The site is appropriately fenced, posted, and secured as against unauthorized entry or activity.

b. Overall Hydrology.

1. All hydrology construction areas have been completed to the satisfaction of the Department, are stabilized and showing no signs of erosion, and have operated as designed without repair for a period of two years;
2. There is no evidence of wash outs, erosion, or other indications of unnatural channelized water flow throughout the site;
3. Random soil samples from wetland assessment areas demonstrate hydric soils.

c. Mesic Flatwoods (Assessment Area 5; ~130 ac.): Representative quantitative and qualitative data shall indicate:

1. There is at least 70% total cover in groundcover stratum by appropriate species (including saw palmetto-*Serenoa*), and herbaceous species $\geq 30\%$ relative cover.
2. Each quantitative sampling transect shall contain at least 25 native, non-nuisance species appropriate* to mesic flatwoods, wiregrass and other fine fuel grasses are among the dominant species, and the cumulative total of appropriate species from qualitative and quantitative transects is >40 .

*Determination of appropriateness of species to a community will be based on pertinent scientific literature and Attachment H.

3. Woody shrubs (excluding saw palmetto-*Serenoa*) are reduced to coppice, typically $<1.5\text{m}$ high and with a total aerial cover in all strata averaging $<30\%$.
4. Total pine saplings and trees are <150 trees per acre, with at least 50 longleaf pine trees per acre taller than grass stage and increasing in height.
5. At least 3 successful prescribed fires have been conducted in this community.

d. Wet Prairie/Wet Flatwoods (Assessment Area 4; ~570 ac.): Representative quantitative and qualitative data shall indicate:

1. There is at least 80% total cover in groundcover stratum by appropriate species, with a relative cover of herbaceous species $\geq 70\%$.
2. Each quantitative sampling transect shall contain at least 40* native, non-nuisance species appropriate to wet prairie/ wet flatwoods, wiregrass and other fine fuel grasses are among the dominant species, and the cumulative total of appropriate species from qualitative and quantitative transects is >60 .

*Areas where sawgrass is a dominant component may lower species richness expectations proportional to sawgrass dominance.

3. Woody shrubs are reduced to coppice, typically $<1.5\text{ m}$ high and with a total aerial cover of all strata averaging $<30\%$. Areas where woody shrubs exceed 1.5 meters in height and have a collective canopy coverage of over 50% shall be limited to random spots of $<1\text{ ac.}$ and shall represent an insignificant feature in this community type.
4. Total slash pine saplings and trees are <75 trees per acre, with an average of 50 longleaf pine/ ac. taller than grass stage and increasing in height.
5. At least 3 successful prescribed fires have been conducted in this community.

e. Cypress/Mixed Hardwoods (Assessment Area 3; ~372 ac.) and Slough Swamp- (Assessment Areas 1&2; ~363 ac.):

1. Native FAC, FACW or OBL tree species canopy cover is $\geq 70\%$ and qualitative assessment indicates FAC species are less than 30% of the relative canopy cover. In areas where trees were planted, the canopy tree species cover demonstrates an annual increase with a minimum of 30% canopy cover. Canopy cover to be estimated from observations in qualitative transects, and supported by extrapolation of quantitative plot data.
2. Planted trees appear healthy, and have attained an average of 8-10 feet.

3. Combined ground, shrub and tree cover is $\geq 80\%$ total cover, and FACW and OBL species are $\geq 80\%$ relative cover (i.e., FAC and UP species including blackberry, redroot, dog fennel or other indicators of disturbance are $\leq 20\%$ relative cover).
4. Woody shrub cover (excluding sapling canopy species) shall be $< 30\%$ total cover or demonstrate an annual decreasing trend, either by fire in the ecotone or shading from canopy tree cover, and titi is $< 30\%$ relative cover. Cover to be estimated from observations in qualitative transects, and supported by extrapolation of quantitative plot data.
5. There is at least 10% relative cover (combined) of the following wetland wildlife mast producing species to ensure a diversity of food sources: *Ilex cassine*, *I. amelanchier*, *I. coriacea*, *I. myrica*, *Vaccinium corymbosum*, *Cephalanthus occidentalis*, *Nyssa* spp. *Persea* spp. and *Magnolia virginiana*.
6. Slash or loblolly pine that is less than 1 ft. dbh is reduced to < 20 stems per acre. Mature, established pine trees greater than 1ft. dbh should not be removed unless the Department directs further reduction of pine density at the time of success determination.
7. For those areas adjacent to Mesic Flatwoods or Wet Prairie/Wet Flatwoods, prescribed fire is effective in shaping a transitional zone with a herbaceous outer ring progressing interior to the forested system. For Cypress/Mixed Hardwoods, fire may maintain a significant portion of this community as a transitional ecotone with reduced canopy and increased groundcover.

f. Freshwater Marsh (Assessment Area-8 - approximately 3 acres):

1. Appropriate composition and cover of groundcover and shrub species.
2. The marsh shall demonstrate appropriate zone or rings of progressively more hydrophytic plants from the boundary to the center,
3. Hardwood and shrub species are $\leq 10\%$ areal coverage.

g. Disturbed Areas: All areas restored from roads, skidder trails, ditches or food plots shall be at natural grade elevation, exhibit at least a 50% cover by native vegetation with reproduction appropriate for the species, and shall exhibit a trend toward its target community type structure and decrease in ruderal species cover.

h. Compliance

1. The permittee, or QMS, has conducted inspections, monitoring and management, including the appropriate schedule of prescribed burns and has submitted all required reports to the satisfaction of the Department;
2. All security measures are established and are in working order;
3. At least three successful prescribed burns have been completed in accordance with Specific Condition 12;
4. An updated, detailed long-term management plan and a long term management entity has been submitted and approved by the Department. The long term management trust fund has been fully funded.

i. UMAM Assessment. Using monitoring data and reports, and in conjunction with the permittee and available members of the Interagency Review Team, the Department shall inspect the site and conduct a UMAM analysis to ensure that all communities have reached, or are reasonably expected to reach, the "with mitigation" scores in Attachment F and community descriptions in Attachment B under the permitted management requirements.

Sweetwater Mitigation Bank
Permit Number 0281744-001
Date of Issue: November 16, 2009

23. Final Success. The overall goal of the mitigation bank is to reduce the planted pine and fire-suppressed plant communities shown in Figure 4 to a dense and diverse herbaceous groundcover with a sparse canopy of pine or cypress and a minor component of coppiced woody subcanopy that grades down to a canopied basin swamp as shown in Figure 7. A graphic representation of the success criteria is shown on Figure 8.

The bank will be deemed successful when all of the following criteria, in addition to the community descriptions in Attachment C, have been met for a period of at least one full year without intervention in the form of eradication of undesirable species, pine harvesting, or replanting of desirable vegetation.

a. Entire Site:

- 1) Cover of Category I and II invasive exotic plant species (pursuant to the FLEPPC) shall not exceed 1% total coverage per acre.
- 2) Wetland hydrology shall indicate the presence, morphology and distribution of seasonal high saturation and seasonal high inundation, and/or hydric soil indicators sufficient to confirm that the appropriate saturation or inundation depths are achieved for the target ecosystem according to the following table for at least 3 typical rainfall winters.

Target Community Type	Depth of Water Table* (ft.)	Months
Bog and Shrub Bog	0 - 1.0**	Dec - May
Basin Swamp	+1.0 - 0**	Dec - May
Wet Prairie	+0.5 - 1.5**	Dec - May
* 0 represents soil surface. A "+" indicates a level above the soil surface and a "-" indicates a level below the soil surface. ** The permittee will not be responsible for meeting hydroperiod requirements during times of natural catastrophes such as flood and drought.		

b. Mesic Pine Flatwoods (Wet Prairie / Flatwoods Credit) shall have:

- 1) At least 40 native, non-canopy species per transect (including coppice shrubs);
- 2) Less than 10% bare ground, leaf litter and water (combined);
- 3) At least 70% relative cover with herbaceous species (less than 30% relative cover with woody shrubs);
- 4) At least 80% shrubs reduced to coppice <2m in height;
- 5) An average of 30-70 pine trees per acre with at least 10% being longleaf pine (*Pinus palustris*) that is taller than grass-stage;
- 6) Wiregrass (*Aristida stricta*) is among the top five dominant species by importance value (as defined in the monitoring plan).

c. Wet Prairie (Wet Prairie / Flatwoods Credit) shall have:

- 1) At least 50 native, non-canopy, wetland (FACW or OBL) species per transect (including coppice shrubs);
- 2) Less than 10% bare ground, leaf litter and water (combined);
- 3) At least 80% relative cover with herbaceous species (less than 20% relative cover with woody shrubs);
- 4) At least 80% shrubs reduced to coppice <2m in height;

- 5) An average of less than 30 trees per acre, excluding cypress;
 - 6) Wiregrass (*Aristida sp.*) among the top five dominant species by importance value (as defined in the monitoring plan).
- d. **Bog** (Wet Prairie / Flatwoods Credit) shall have:
- 1) 40 or more native, non-canopy, wetland (FACW or OBL) species per transect (including coppice shrubs);
 - 2) Less than 20% bare ground, leaf litter and water (combined);
 - 3) At least 60% relative cover with herbaceous species (less than 40% relative cover with woody shrubs);
 - 4) At least 80% shrubs reduced to coppice <2m in height;
 - 5) An average of less than 50 trees per acre, excluding cypress.
- e. **Shrub Bog** (Forested Wetland Credit)
- 1) 40 or more native species per transect (trees, shrubs, herbs combined);
 - 2) Less than 50% bare ground, leaf litter and water (combined);
 - 3) Less than 50% total cover by woody shrubs;
 - 4) At least 70% shrubs reduced to coppice <2m in height;
 - 5) Relative herbaceous cover of at least 30%.
- f. **Basin Swamp** (Forested Wetland Credit) Because of the presence of remnant pitcher plants and of pond cypress in some basin swamp depressions, it is evident that at least portions of this community were historically more open with abundant sunlight, indicating fire regularly or occasionally passed through the depressions. While an intensive re-structuring of this habitat is not proposed (it is proposed for preservation only), no fire exclusion measures will be implemented for any communities onsite. As such, fire may burn across the landscape including basin wetlands and may cause high levels of canopy scorch or tree mortality. In such an event, the permittee shall contact the Department and any available IRT members to determine whether the areas would warrant re-mapping, planting or a modification of the following criteria.
- 1) Vegetation healthy, with no sign of stress and reproducing in a manner appropriate to the species;
 - 2) At least 70% of shrubs in ecotone reduced to coppice.
- g. **Compliance:**
- 1) There shall be at least 3 successful fires for final success ;
 - 2) All low water crossings and ditch fill areas have been installed, are stabilized and showing no signs of erosion;
 - 3) Road removal areas meet community success criteria;
 - 4) The permittee has conducted inspections, monitoring and management, including the appropriate schedule of prescribed burns, as defined in Specific Condition 12, and has submitted all required reports to the satisfaction of the Department;
 - 5) All security measures are established and in working order; and
 - 6) A long term management plan as defined in Specific Condition 26.c. and long term management entity has been submitted and approved, and the long term management trust fund has been funded in compliance with Specific Condition 9.b.
- h. **UMAM Assessment:** Using monitoring data and reports and in conjunction with the permittee and available members of the IRT, the Department shall inspect the site and conduct a UMAM analysis to ensure that all communities have reached, or are expected to

reach and maintain, the “with mitigation” scores in Attachment G or community descriptions in Attachment C, under the permitted management requirements in Specific Condition 26.

Wekiva River Mitigation Bank
Permit Number: 0234803-013
Issue Date: December 4, 2008
(original issuance: June 1, 2005)

22. Final Success: The bank shall be deemed successful when all of the following criteria have been met after a period of at least one (1) full year without intervention in the form of replanting of desirable vegetation or nuisance and invasive exotic vegetation control, beyond what is reasonable long term maintenance. The bank shall enhance or restore an estimated acreage of the following community types within the associated polygons:

Community ^a	Associated Polygon(s)	Acres
Hydric Hammock	Polygon 1R, Polygon 1E, Polygon 1P, and Polygon 2	1,256.6
Sandhill	Polygon 5E	165.6
Mesic Flatwoods	Polygon 6	81.7
Wet Prairie	Polygon 8	12.2

^a See Attachment F for community description text.

The proposed mitigation plan was developed using historical aerial photographs, soils maps, hydrologic computer modeling, and existing condition data and observations. As such, the expectation of actual area for each type of system is approximate. The ultimate goal of the plan is to restore the mosaic of native/historic habitat communities that demonstrate natural and sustainable, functioning ecosystem attributes. This concept shall override the specific acreage values in this permit.

a. Community Requirements:

Hydric Hammock

1. Approximately 1,256.6acres (Polygon 1R, 1E, 1P and 2) shall be enhanced by hydrologic improvement and preserved as hydric hammock, as described in Attachment F and documented by monitoring and ground and aerial photography.
2. Non-nuisance, native wetland ground, shrub, and tree species are healthy and exhibiting the cover and diversity typical of the habitat as described in Attachment F or other scientific literature, such as found in Florida Natural Areas Inventory natural community descriptions.
3. The plants are reproducing naturally, either by normal, healthy vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth, and survival.
4. There shall be at least 20 trees per 600 linear feet of the excavated roadway that are at least 6 feet tall and have a 3 foot diameter healthy canopy or greater.
5. Trees planted within Polygon 1E are at least 6 feet tall and have a 3 foot diameter healthy canopy or greater.

Sandhill

1. Approximately 165.6 acres (Polygon 5E) shall be restored to xeric sandhill communities, as described in Attachment F, and documented by monitoring data and ground and aerial photography.
2. Each sampling transect shall contain at least 25 desirable species from the Plant List in Attachment F. Some species not listed may be determined to be desirable for the purpose of this condition by providing a citation and/or third party professional botanist/ecologist determination, and, upon concurrence by MBRT, will thereafter be added to the list.
3. The total cover by herbaceous species from the Herbaceous-Sandhill plant list in Attachment F shall be at least 70%; total cover by tree and shrub species shall be less than 30%. The average cover of graminoids shall be at least 30% with no individual monitoring transect having less than 20% cover. The collective cover of pioneer *Andropogon* spp. shall not exceed 50% of the graminoids found in each transect. Additionally, each transect shall either attain at least 30% coverage with graminoid species or shall exhibit a clear trend over time of increasing graminoid coverage.
4. The plants are reproducing naturally, either by normal, healthy vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth and survival.
5. At least one prescribed fire has been conducted that covers at least 70% of this polygon and burns into adjacent Polygons 2 and 6.
6. Community demonstrates positive response (growth and seeding, as appropriate) following prescribed fire.

Mesic Flatwoods

1. Approximately 81.7 acres (Polygon 6) shall be enhanced to mesic pine flatwoods community, as described in Attachment F, and documented by qualitative monitoring observations and ground and aerial photography.
2. Non-nuisance, native flatwoods ground, shrub, and tree species are healthy and exhibiting the cover and diversity typical of the habitat as described in Attachment F, or other scientific literature, such as found in Florida Natural Areas Inventory natural community descriptions.
3. The plants are reproducing naturally, either by normal, healthy vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth and survival.
4. At least one prescribed fire has been conducted that covers at least 70% of this polygon, and community demonstrates positive response (growth and seeding, as appropriate) following prescribed fire.

Wet Prairie

1. Approximately 12.2 acres (Polygon 8) shall be restored or enhanced to jurisdictional wet prairie/marsh mosaic habitats as described in Attachment F and documented by monitoring data and ground and aerial photography.
2. Herbaceous cover of species listed in Plant List in Attachment F, and excluding all woody shrub species as well as open water areas, shall be 75% or greater. Woody shrub species shall exhibit no greater than 10% cover.
3. The plants are reproducing naturally, either by normal, healthy vegetative spread (in ways that would be normal for each wetland species) or through seedling establishment, growth and survival.
4. Pond pine population and densities have been reduced to 60 trees per acre or less.

5. At least one prescribed fire has been conducted that covers at least 70% of this polygon, and community demonstrates positive response (growth and seeding, as appropriate) following prescribed fire.
 - b. Hydrology: All of the roadway removal and associated earthwork areas in the bank are stabilized at grade, with no ridges or swales that block or conduct flow, and no erosion is apparent. The low water crossing areas are effective in recreating sheetflow drainage characteristics within the site, culverts are providing increased hydrologic connectivity with no signs of erosion or piping, and these structures have required no repairs beyond minor maintenance specified in Specific Condition 26 for at least three (3) years.
 - c. Functional Assessment: The Sponsor and the MBRT shall inspect the site and, utilizing the monitoring data and reports, conduct a UMAM assessment to determine that all polygons have reached (or, for polygons that were assessed a time lag factor, are expected to reach) the “with bank” scores, as shown in Attachment D, that were used to determine the potential credits for the bank.
 - d. Nuisance species: Nuisance and invasive exotic species are limited to 5% or less cover/acre, of which invasive exotic species are limited to 1% or less cover/acre. Invasive exotic vegetation species are those listed by the Florida Exotic Pest Plant Council as “EPPC Category I” Invasive species.
 - e. Compliance: The permittee has conducted all mitigation, monitoring, inspection and maintenance activities as required, submitted all required reports and fully funded the perpetual management trust fund to the satisfaction of the Department.