

Jeb Bush  
Governor

# Department of Environmental Protection

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Colleen M. Castille  
Secretary

## CERTIFIED MAIL - RETURN RECEIPT REQUESTED

September 6, 2005

Mr. Douglas E. Barr  
Northwest Florida Water Management District  
81 Water Management Drive  
Havana, FL 32333

Dear Mr. Barr:

File No: 0227351-001, Washington County  
Project: Sand Hill Lakes Mitigation Bank

Enclosed is Mitigation Bank Permit, Permit No. 0227351-001 issued pursuant to Part IV of Chapter 373, Florida Statutes, and Title 62, Florida Administrative Code.

The permit contains conditions that must be met when permitted activities are undertaken. Please review this document carefully to ensure compliance with both the general and specific conditions contained herein. If you have any questions about the document, please contact me at 850-245-8492.

Sincerely,

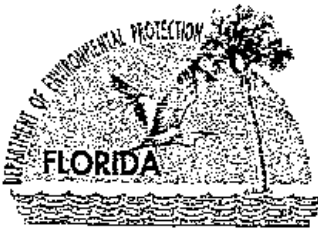
Victoria K. Tauxe  
Office of Submerged Lands and  
Environmental Resources

Enclosed: Final Permit, Figures 1-10, Construction Drawings 1-7, and Attachments A-H

cc: DEP, Office of General Counsel  
Connie Lasher, DEP, Northwest District Office  
Dale Beter, U. S. Army Corps of Engineers  
Haynes Johnson, USEPA, Atlanta  
Hildreth Cooper, US Fish & Wildlife Service, Panama City  
File

"More Protection, Less Process"

Printed on recycled paper.



Jeb Bush  
Governor

# Department of Environmental Protection

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Colleen M. Castille  
Secretary

## MITIGATION BANK PERMIT

### PERMITTEE:

Northwest Florida Water Management District  
c/o Doug Barr  
81 Water Management Drive  
Havana, FL 32333-4712

Permit No.: 0227351-001  
Issue Date: September 6, 2005  
County: Washington  
Project: Sand Hill Lakes Mitigation Bank

---

This mitigation bank permit is issued under the authority of Part IV of Chapter 373, Florida Statutes (F.S.) and Chapter 62-342, Florida Administrative Code (F.A.C.). It constitutes all necessary permits under Part IV of Chapter 373, Florida Statutes (F.S.). It also constitutes certification of compliance with state water quality standards pursuant to Section 401 of the Clean Water Act, 33 U.S.C. 1341. Where applicable (such as activities in coastal counties), issuance of this permit also constitutes a finding of consistency with Florida's Coastal Zone Management Program, as required by Section 307 of the Coastal Management Act.

A copy of this authorization also has been sent to the U.S. Army Corps of Engineers (USACOE). The USACOE may require a separate permit. Failure to obtain this authorization prior to construction could subject you to enforcement action by that agency. You are hereby advised that authorizations also may be required by other federal, state, and local entities. This authorization does not relieve you from the requirements to obtain all other required permits and authorizations.

The above named permittee is hereby authorized to construct the work shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the Department and made a part hereof. This permit is subject to the limits, conditions, and locations of work shown in the attached drawings, and is also subject to the attached General Conditions and Specific Conditions, which are a binding part of this permit. You are advised to read and understand these drawings and conditions prior to commencing the authorized activities, and to ensure the work is conducted in conformance with all the terms, conditions, and drawings. If you are utilizing a contractor, the contractor also should read and understand these drawings and conditions prior to commencing the authorized activities. Failure to comply with all drawings and conditions shall constitute grounds for revocation of the permit and appropriate enforcement action.

Operation of the facility is not authorized except when determined to be in conformance with all applicable rules and with the general and specific conditions of this permit, as described below.

*"More Protection, Less Process"*

*Printed on recycled paper.*

## **PROJECT DESCRIPTION:**

On February 12, 2004, the Northwest Florida Water Management District (NFWFMD or District) applied to the Department of Environmental Protection for a permit/water quality certification to establish the Sand Hill Lakes Mitigation Bank (SHLMB) on a 2,155 acre parcel known as the Carter Tract. The project includes the restoration or enhancement and preservation of upland pine and oak sandhills, wetland flatwoods and savannah, bayhead slopes and cypress communities, as well as preserving the lakes and ponds on the property. Restoration and enhancement will be accomplished by the removal of inappropriate vegetation, establishment of growing season prescribed fires, stabilization of erosion areas and enhancement of hydrologic connections and patterns by repairing an existing water control structure, removing other structures, roads and impediments to flow, and installing bridges. Additionally, the long term management plan, including prescribed burning and limited access, is designed to maintain native habitat. The mitigation was assessed by the Uniform Mitigation Assessment Method (UMAM) (Chapter 62-345, F.A.C.) as having a potential of 298.4 credits.

## **PROJECT LOCATION:**

This project is located approximately 5 miles north of S.R. 20 and 1 mile west of S.R. 77, in Sections 1, 11, and 12, Township 1 North, Range 15 West; Sections 5-8, and 17, Township 1 North, Range 14 West; Section 36, Township 2 North, Range 15 West; and Section 31, Township 2 North, Range 14 West, Washington County, Class III Waters (Figure 1) and has a mitigation service area incorporating portions of Washington, Bay, Holmes, Jackson, Calhoun and Walton counties (Figure 2).

## **GENERAL CONDITIONS:**

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to sections 403.141, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other

**Sand Hill Lakes Mitigation Bank**  
**Permit Number: 0227351-001**  
**Page 3 of 20**

Department permit that may be required for other aspects of the total project which are not addressed in this permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, are required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times, access to the premises where the permitted activity is located or conducted to:
  - a. Have access to and copy any records that must be kept under conditions of the permit;
  - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
  - c. Sample or monitor any substances or parameters at any location reasonable necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
  - a. A description of and cause of noncompliance; and
  - b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance. The permittee shall be

responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by sections 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in rule 62-302.500, F.A.C., shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard.

11. This permit is transferable only upon Department approval in accordance with rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500).

14. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include;

1. the date, exact place, and time of sampling or measurements;
2. the person responsible for performing the sampling or measurements;
3. the dates analyses were performed;
4. the person responsible for performing the analyses;
5. the analytical techniques or methods used; and
6. the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

## **SPECIFIC CONDITIONS:**

### **General**

1. The permittee is hereby advised that no person shall commence any excavation, construction, or other activity involving the use of sovereign or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund or the Department of Environmental Protection under Chapter 253, until such person has received from the Board of Trustees of the Internal Improvement Trust Fund the required lease, license, easement, or other form of consent authorizing the proposed use. Pursuant to Florida Administrative Code Rule 18-14, if such work is done without consent, or if a person otherwise damages state land or products of state land, the Board of Trustees may levy administrative fines of up to \$10,000 per offense.

2. Prior to initiation of earth moving activities, a systematic professional archaeological and historic survey shall be conducted with findings submitted to the Division of Historical Resources (DHR) for review and approval. If historical or archaeological artifacts are discovered at any time within the project site the permittee shall immediately notify the Bureau of Historic Preservation at (800) 847-7278, Division of Historical Resources, R. A. Gray Building, 500 S. Bronough St., Tallahassee, Florida 32399-0250.

### **Commencement requirements**

3. At least 48 hours prior to commencement of the construction authorized by this permit, the permittee shall notify the Department in writing of this commencement.

**Sand Hill Lakes Mitigation Bank**  
**Permit Number: 0227351-001**  
**Page 6 of 20**

4. Unless otherwise specified, all reports, notices and other information required for this permit shall be submitted to the Florida Department of Environmental Protection, Office of Submerged Lands and Environmental Resources, MS 2500, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

5. The permittee shall not commence any construction activities authorized by this permit until the following requirements are completed and the Department has been notified in writing:

- a. A Qualified Mitigation Supervisor is retained as required in Specific Condition 7, and
- b. A copy of the recorded clerk-of-the-court certified Conservation Easement has been received as required in Specific Condition 8.

6. This mitigation bank permit shall automatically expire five years from the date of issuance if the permittee has not recorded a conservation easement in accordance with the permit and Rule 62-342.750 (2) F.A.C. Except as provided above, this mitigation bank permit shall be perpetual unless revoked or modified.

7. Project Oversight. Prior to commencement of any construction activities, the permittee shall retain a Qualified Mitigation Supervisor (QMS) (a person or persons) to oversee all aspects of mitigation bank site implementation, management, monitoring, and corrective actions in this permit until final success criteria are met.

- a. The QMS shall have the responsibility to ensure that the mitigation bank work is conducted in accordance with the permit.
- b. Within 30 days of issuance of this permit, the permittee shall submit the name of the QMS retained to oversee the mitigation work and provide supporting documentation demonstrating that the QMS is qualified to oversee this work. The Department must approve the QMS prior to commencement of the mitigation bank work. The Department shall complete such approval within 30 days of receipt of a written request from the permittee for QMS approval.
- c. Within 30 days of the discharge of any approved QMS, the permittee shall submit the name and supporting documentation of a new QMS to the Department for its review and approval.
- d. The permittee shall have the approved qualified QMS review the conditions of this permit that pertain to environmental improvement. The purpose of this review is to ascertain whether any criteria need to be modified to ensure ecological success. If the Department concurs that any proposed modifications would improve the likelihood of mitigation success, these changes shall be incorporated into this permit as a minor modification.

8. Protection and Preservation. Prior to construction or release of credits, the Sand Hill Lakes Mitigation Bank property shall be preserved and protected in accordance with a conservation easement granted to the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida. A copy of draft language is contained in the permit application file; however, prior to recording the conservation easement, the permittee shall provide the final draft of the easement, survey and title commitment to the Department for approval.

After recording the conservation easement, the permittee shall ~~also~~ provide the following:

- a. A title insurance policy for the easement updated to the date of conveyance.
- b. Subordination, release, or joinder agreements for any lien on the property, as identified by the Title Commitment, unless such lien does not adversely affect the ecological viability of the Bank.
- c. A boundary map/acreage certification and sketches of the conservation easement signed by a Florida registered land surveyor.
- d. A clerk-of-the-court certified copy of the conservation easement.

Perimeter fencing, gates and signs shall be installed in accordance with the Public Recreation & Security Plan in Attachment A. Notwithstanding that the conservation easement is designed to preserve the site in its enhanced condition, limited public access shall be allowed for hunting, fishing, canoeing and other outdoor recreational activities, provided there is no ecological degradation from current condition. Some roads and structures are also allowed in support of these activities and site management. The public access, roads and structures, and security measures to regulate the conservation easement are set forth in Attachment A. Any deviation of public use management activities as described in the Attachment A and permitted herein that are not directly supporting the achievement or maintenance of the ecological goals set forth in Specific Condition 22, shall require a modification of this permit.

9. Financial Assurance. The permittee agrees to establish one or more mitigation fund accounts to receive payment from sales of mitigation credits and to ensure adequate funding for the implementation and long-term management of the bank, in accordance with Ch. 62-342.850, F.A.C. The cost-estimate for the mitigation and management activities defined in this permit are provided in Attachment B. All cost-estimates shall be reviewed and adjusted every two years in accordance with Rule 62-342.700 (11)(a) and (b) F.A.C.

### **Mitigation Activities**

Existing topography and communities on the site are shown in Figures 3 and 4, respectively. Habitat enhancement relies on the successful completion of the following aspects of the mitigation and management plan, as depicted in Figures 5 - 7: harvesting pine plantation and removal of inappropriate vegetation, planting appropriate vegetation, fire management and hydrologic enhancement. The communities expected to result from these enhancements are shown in Figure 8, and described in Attachment C.



10. Community restoration.

a. Pine removal: Within the mitigation bank site, there are approximately 383 acres of upland pine plantation and 11.5 acres of wetland pine plantation, shown as Management Units 11 and 3, respectively, in Figure 7. Within one year after permit-issuance, all of the planted pine in Management Unit 11 will be cut and removed using Best Management Practices (BMP) and any additional precautions to minimize disturbance of groundcover and non-target vegetation. In Management Unit 3, the planted slash pine will be thinned to 200 or fewer trees per acre. Some of the healthiest trees may remain as necessary to accomplish an appropriate density of pine for the target community and the success criteria in Specific Condition 22. Harvesting will occur during dry times using low-impact equipment so that there is minimum soil disturbance.

b. Brush reduction: In Management Unit 12, the permittee shall reduce densities of turkey oak and live oak trees and saplings to attain an average of no more than 150 trees per acre. This reduction in oak density will further enhance the groundcover and the effectiveness of fire management. Oaks will be cut at ground level by chainsaw and the stump sprayed with herbicide to prevent re-growth. Oak reduction shall also be conducted in portions of Management Unit 10 as directed by the QMS to facilitate fire management or enhance groundcover development. Additionally, within the wet flatwoods areas, Management Units 2 and 3, the standing biomass of shrubs (primarily titi, gallberry and fetterbush) and slash pine saplings shall be reduced by roller chopping, gyrotrak or hydro-axe in such a way as to diminish the density of shrubs to promote the carrying of fire and to enhance the growth of herbaceous groundcover. Vegetation reduction activities will be under the direction of the QMS.

c. Re-vegetation: A planting plan for each management unit is detailed in Attachment D, and key aspects of this plan are highlighted as follows. After the initial removal of the planted slash and sand pine in the sandhill community, Management Units 11 and 12, longleaf pine seedlings shall be planted in a random pattern to ensure adequate pine density to attain the success criteria in Specific Condition 22. Remnant wire grass cover currently occurs throughout these Management Units. Following planted pine removal or oak reduction, wire grass cover will be evaluated. Supplemental seeding and/or plantings of wire grass tubelings will occur in all areas where the wire grass cover is less than 25%. In areas where the cover of wire grass or other native herbaceous forbes and grasses is insufficient to carry fire, additional seeding of the uplands with 2-5 pounds of wire grass seed per acre will occur in year 5.

Road fill removal areas in Management Unit 9 will be planted with cypress and black gum saplings (similar proportion to the adjacent communities) at a rate of 300 trees per acre. Shrub and understory species are anticipated to naturally regenerate. However, if after two years, less than 50% cover of desirable understory is present, native wetland species

appropriate to the community will be planted. Following the removal of the Dykes Mill control structure, a mixture of cypress and black gum saplings will be planted in Management Unit 5 at a rate of 300 trees per acre. Herbaceous and shrub species are anticipated to naturally regenerate. However, if after two years, the native wetland understory cover is less than 50%, native wetland species appropriate to the community will be planted on 6' centers.

Finally, for the wetland flatwoods community, Management Units 2 and 3, a mixture of long leaf and slash pine seedlings will be planted within Management Unit 2 to ensure adequate pine density to attain the success criteria in Specific Condition 22, and wire grass tubelings will be planted on 3' centers in both Management Units. In addition, direct seeding of wet flatwood and wet prairie species will occur where desirable wet prairie and wet flatwood species cover is less than 40% after year 2. Direct seeding may occur over a period of 3 years depending on the availability of appropriate seed source.

11. Prescribed fire. The fire management plan to be used is detailed in Attachment E. If the appropriate climatic conditions exist, the initial burn shall be conducted within 6 months after permit issuance 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 1-7 years (depending on fuel and climatic conditions) to promote the reproduction and establishment of desirable species. A prescribed fire will be defined as "successful" if at least 80% of the appropriate areas within a burn unit are burned.

12. Hydrologic enhancements. Hydrologic enhancements include the complete removal of 3 fill-road crossings, installation of bridges at 5 crossings and a culvert at 1 crossing, the removal or replacement of 2 failing water control structures, the remediation of 10 erosion areas and the stabilization of 1 boat launching site. Figures 5, 9 and 10, and the Construction Drawing Sheets 1-7 provide the location and detail for these activities, along with the following conditions:

a. Three fill-road crossings of wetland or stream connections shall be removed to restore natural contours and vegetation. The road fill and any culverts shall be excavated to attain natural grade or, when apparent, to the native soils. Fill material will be removed to an appropriate upland site. Care will be taken to leave a surface area that has appropriate soils for colonization by native plants and that blends with the surrounding areas. During construction and stabilization, silt fences and staked hay bales shall be used to minimize turbid run-off into waters of the State. In addition, the graded areas shall be stabilized and seeded with a season-appropriate, non-invasive annual grass to reduce potentially turbid runoff.

b. Five bridge crossings of wetland or stream connections shall be installed to maintain road crossings with minimal impact on natural contours and vegetation. The removal of

road fill and any culverts shall be executed in accordance with 12.a. above. Additional excavation and stabilization of stream banks necessary to install and stabilize a railcar bridge or equivalent shall be executed in accordance with the construction drawings and overseen by the QMS to insure minimal impact or turbid discharge into waters of the State. In addition, at one bridge crossing (site #10B on Figure 10), a culvert will be placed in an adjacent, currently impounded channel of the flow-way to accommodate higher flows and enhance sheet-flow.

c. The existing water control structures at Dykes Mill and Black Pond shall be removed in a manner to minimize turbid run-off and impacts to the associated wetland. During removal and stabilization, silt fences and turbidity barriers will be used. All water control structure debris will be removed from the wetland and disposed of in an approved upland dump site. At Dykes Mill Pond, the area shall be excavated and stabilized, as necessary, to achieve natural grade and restore un-impeded flows. At Black Pond, a new structure shall be constructed in accordance with BMPs and the attached construction drawings. The new structure will incorporate adjustable stop-logs to provide flexibility and facilitate management during construction and stabilization; however, the final elevation shall not exceed the existing elevation of 68.1' NGVD, unless authorized by a minor modification of this permit.

d. Ten sites where extensive erosion has occurred shall be stabilized and re-vegetated using techniques deemed appropriate by the QMS, as anticipated in the following table. Stabilization techniques may include contouring, use of railroad ties, and use of biodegradable fabrics.

<b>EROSION STABILIZATION SITES</b>					
<b>Site</b>	<b>Location</b>	<b>Acres</b>	<b>Severity</b>	<b>Proposed Work</b>	<b>Timeframe</b>
1	Cat Pond – Northwest	0.0272	Moderate	Re-vegetation; railroad ties / contouring may be necessary	Within 1 year of permit issue
2	Cat Pond – East	0.0371	Moderate	Re-vegetation; railroad ties / contouring may be necessary	“
3	Deep Edge / Little Deep Edge	0.1063	Moderate	Vehicle exclusion; Re-vegetation	“
4	Greenhead Branch	0.1927	Severe	Vehicle exclusion; Re-vegetation	“
5	Greenhead Crossing – South	0.2002	Severe	Vehicle exclusion; Re-vegetation	“
6	Little Deep Edge / Dykes Mill	0.0321	Low	Vehicle exclusion; Re-vegetation	“
7	Greenhead Crossing – North	0.2471	Moderate	Vehicle exclusion; Re-vegetation	“
8	Dykes Mill Dam	0.0741	Low	Vehicle exclusion; Re-vegetation	“
9	Power Line / Warmouth Ditch	0.0173	Severe	Re-vegetation	“
10	Boggy Branch	0.1161	Severe	Re-vegetation; railroad ties / contouring may be necessary	“
TOTAL =		1.0502			

- e. At fill and dam removal sites and erosion re-vegetation sites, planting will occur in accordance with Attachment D and under the direction of the QMS to ensure rapid stabilization of soils and progression to the success criteria in Specific Condition 22.
- f. To ensure public safety and sediment stabilization, a 10 X 20 foot boat launch ramp will be installed at an existing dirt launching area on Dry Pond. The ramp will consist of interlocking concrete revetment installed at existing grade with revetment gaps and the launch-dirt road interface areas filled with crushed rock.
- g. All culverts, internal fencing and rubbish, including silt fences (after graded areas are stabilized) shall be removed from the site to an appropriate disposal area.
- h. Within 30 days after construction activities are successfully completed, the permittee shall submit a written statement of completion and certification and "as-built" engineering drawings. The certification and drawings shall be signed and sealed by an engineer registered in the State of Florida. The statement of completion and certification shall be based on on-site observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. If any deviation from the approved drawings is discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawing. All surveyed dimensions and elevations shall be certified by a registered surveyor. Additionally, this submittal shall be accompanied by a written statement from the QMS summarizing the construction activities and testifying that, within his/her supervision, those activities were conducted in accordance with permit drawings and conditions or indicating why, when, and where any construction plans were altered.
- i. After submittal of the as-built report, the permittee shall arrange a post-construction site visit including the Department, the QMS, the construction engineer, if possible, and any MBRT members that are available to inspect the construction, review the permit drawings and conditions, and discuss the next management/compliance activities. The permittee shall submit a summary of the site visit for the file to facilitate future compliance reviews.

13. Turbidity controls. Best management practices for the control of turbidity and erosion shall be implemented during all work on site. All construction activities shall be conducted in accordance with state and federal NPDES regulations as set forth in Section 403.0885, F.S., Chapter 62-621.300(4), F.A.C. and an approved Stormwater Pollution Prevention Plan (SWPPP). Erosion and turbidity control measures shall be inspected regularly and turbidity monitored in accordance with Specific Condition 24 until work has been completed to ensure that water quality standards are not violated.

**Sand Hill Lakes Mitigation Bank**  
**Permit Number: 0227351-001**  
**Page 12 of 20**

The graded areas shall be stabilized within 48 hours of attaining final grades and at any other time necessary to prevent erosion, siltation and turbid discharges in violation of state water quality standards.

The following measures shall be taken by the permittee whenever construction activities result in turbidity levels within waters of the state surrounding the project site exceed state water quality standards pursuant to Rule 62-302, F.A.C.:

- a. Immediately cease all work contributing to the exceedence of the water quality standard.
- b. Modify the work procedures that were responsible for the exceedence, install more turbidity controls if necessary, and repair any non-functioning turbidity containment devices.
- c. Notify the Office of Submerged Lands and Environmental Resources at 850-245-8492, or local DEP District office within 24 hours of the time the exceedence is first detected.

14. Work schedule. Bank activities are expected to occur over a five to six year period. The sequence of activities and dates given below are relative estimates to be used as guidelines. Variations in this schedule may be authorized with concurrence of the Department upon written request.

Activity	Estimated Completion Date
Conservation Easement, QMS	2005
Fencing and signage of site.	Completed 3/05
Site security / law enforcement / internal gating / road closures	Ongoing
Stabilization of 10 erosion sites	2005/2006
Hydrologic enhancements -Replacement of Black Pond dam -Removal of Dykes Mill Pond dam -Removal of road-fill at (3) sites -Construction of (5) bridges	2005/2006
Removal of pine plantation and replanting with longleaf pine	2006
Removal of oak overgrowth and replanting with longleaf	2006
80% completion of initial growing-season burns in areas to be maintained as oak / pine community	2006
Initial thinning, roller chopping and fuel-reduction burns in hydric pine	2006
Supplemental wiregrass seeding if necessitated by onsite conditions.	2006
Installation of water level gages.	2005
Baseline assessments of vegetation.	2004/2005
Fire Management / Monitoring Year 1 / Annual Report preparation.	2007/2008(report)
Fire Management / Monitoring Year 2 / Annual Report preparation.	2008/2009(report)
Fire Management / Monitoring Year 3 / Annual Report preparation.	2009/2010(report)
Fire Management / Monitoring Year 4 / Annual Report preparation.	2010/2011(report)
Fire Management / Monitoring Year 5 / Final Report preparation.	2011/2012(report)
Perpetual ecological management.	2012+

### **Banking Operations**

15. This permit authorizes the permittee to implement a mitigation bank. The permittee is obligated to perform certain actions described herein. A material part of the reasonable assurances the Department is relying upon in issuing this permit is that the permittee will timely and completely implement all of the conditions in this permit. Failure to timely and completely comply with all of the conditions of this permit may result in a revocation or suspension of the permit, and release and withdrawal of mitigation credits may be suspended.

16. As specified in Rule 62-342.470(6) F.A.C., if at any time the bank is not in material compliance with the terms of this permit, no mitigation credits may be withdrawn. Mitigation credits shall again be available for withdrawal if the permittee comes back into compliance.

17. Potential Credits. The total number of potential of credits was determined by the UMAM methodology, with calculations detailed in Attachments F. The 298.4 total potential credits for the bank are allocated as 29.2 “herbaceous” (wet prairie, marsh and pond), 123.1 “flatwoods” (wet flatwoods, longleaf/wiregrass) and 146.1 “mixed hardwood” (cypress, mixed wetland hardwood, oak sandhills). These credits will be released and withdrawn in accordance with Specific Conditions 19.

18. Ledger. In order to track credit releases and withdrawals, a ledger shall be kept by both the permittee and the Department indicating all potential, released, withdrawn and available credits. The format for the ledger, indicating potential credits, is attached as Attachment G.

19. Credit Release Schedule. Mitigation credits will be released for use according to the following Credit Release Schedule table based on the timeframes anticipated in Specific Condition 14. The actual credit release will be determined by when the specified activity is completed or criteria achieved, which may be before or after the estimated date in Specific Condition 14.

All credit releases shall be allocated as “herbaceous”, “flatwoods” and “mixed hardwoods” in the same ratio as the bank’s total potential credits, according to the following table.

Upon completion of a credit release activity, the permittee may submit a minor modification request (with fee), along with supporting documentation, for the release of the appropriate number of credits. This request shall be made in writing to the Office of Submerged Lands and Environmental Resources. The Department shall review the documentation, conduct a site visit to determine if the documentation is representative of on-site conditions, and perform a compliance review of the permit, prior to the issuance or denial of the minor modification to release credits. An updated ledger indicating the additional available credits shall be attached to the minor modification.

CREDIT RELEASE SCHEDULE*						
Task	Specific Conditions	% Credit Release	Flatwoods Credits	Mixed Hardwoods Credits	Herbaceous Credits	Total Credits
CE, QMS, financial, fencing	7, 8, 9	25	30.8	36.5	7.3	74.6
-Hydrologic enhancements	12	10	12.3	14.6	2.9	29.8
-Erosion stabilization	12					
-Removal of upland pine plantation, oak, roller chop / hydro-axe	10	10	12.3	14.6	2.9	29.8
-Planting longleaf pine	10					
- successful completion of initial growing-season burns (80%)	11	10	12.3	14.6	2.9	29.8
1 <sup>st</sup> year attainment of interim success criteria	23	5	6.2	7.3	1.4	14.9
2 <sup>nd</sup> year attainment of interim success criteria	23	5	6.1	7.3	1.5	14.9
3 <sup>rd</sup> year attainment of interim success criteria	23	10	12.3	14.6	2.9	29.8
4 <sup>th</sup> year attainment of interim success criteria	23	10	12.3	14.6	2.9	29.8
Attainment of success criteria Final	22	15	18.5	22.0	4.5	45.0
		100	123.1	146.1	29.2	298.4

\* Reflects slight adjustments for rounding

20. Mitigation Credit Withdrawal. Withdrawal of the mitigation bank credits as mitigation for wetland impacts shall be accomplished through a minor modification of this permit. Modification requests for credit withdrawal shall not require a modification fee. Modification requests shall be made in writing to the Office of Submerged Lands and Environmental Resources in Tallahassee. Minor modification requests shall only be submitted by the bank permittee. The modification request shall include:

- a complete list of all Department permits (or other applicable regulatory actions) that require mitigation credits from the Sand Hill Lakes Mitigation Bank,
- the permit number, issue date and wetland resource permit processor/reviewer,
- an identification of the number and type of wetland credits required under each of these permits.

Minor modification approvals for credit withdrawal shall be issued only to the bank permittee. An updated mitigation bank credit ledger sheet shall be included by the Department as an attachment to each minor modification approval for credit withdrawal.

21. Mitigation Service Area. The mitigation service area (MSA) is the geographic area within which adverse impacts may be offset by the bank. The MSA for the Sand Hill Lakes Mitigation Bank includes portions of Washington, Bay, Holmes, Jackson, Calhoun and Walton counties as shown in Figure 2. The MSA represents portions of the Choctawhatchee River and the St. Andrew Bay basins. The bank will be available to offset losses to freshwater herbaceous (wet prairie, marsh and pond), flatwoods (wet flatwoods, longleaf/wiregrass) and mixed hardwoods (cypress, mixed wetland hardwoods, oak sandhills) wetlands within the MSA, as determined on a case-by-case method by the reviewing agency of the impact proposal.

### **Success Criteria**

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.



**Sand Hill Lakes Mitigation Bank**

**Permit Number: 0227351-001**

**Page 16 of 20**

**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.

23. Interim release criteria. Progressive environmental enhancement or trending toward success provides environmental lift for which credit may be released incrementally prior to achieving all the final success criteria delineated in Specific Condition 22. Thirty percent (~89 credits) of the total potential credits are reserved for interim releases as indicated in Specific Condition 19. Credits will be released annually whenever representative inspection and monitoring data provided in Annual Reports, as verified by a Department site inspection, indicate that:

- a. There is less than 2% exotic vegetation cover per acre;
- b. Preservation areas are maintaining or improving in function;
- c. Upland pine flatwoods and wet flatwoods are attaining success criteria or are measurably increasing in herbaceous groundcover and decreasing in woody vegetation cover;
- d. Targeted oaks have been effectively reduced and are showing minimal re-growth;
- e. Adequate numbers of planted pines necessary to reach success are surviving and healthy, but do not occur in an abundance that has a negative impact on the groundcover;
- f. Planted slough area (UMAM VI) has enough healthy trees per acre (except the allowable 20% area for open water) to attain success and which, collectively, demonstrate annual measurable growth beginning 2 years after planting;
- g. Prescribed burns have been conducted in accordance with the season and schedule described in Attachment E;
- h. Erosion and road removal areas are stabilized and have increasing vegetation cover;
- i. The project is in compliance with this permit.

24. Turbidity Monitoring. Monitoring during construction activities is intended to ensure compliance with best management practices, to minimize wetland impacts and to ensure that there are no turbidity plumes or violations of state water quality standards.

Turbidity monitoring shall be conducted daily during construction. The background monitoring site shall be upstream of the construction area, in the same waterbody, outside of the influence of construction activity. The compliance monitoring site shall be within 10 feet downstream of the turbidity containment area within any visible plume or in the main channel of the waterbody. Turbidity monitoring data shall be compiled and submitted to the Department on a weekly basis. It is the responsibility of the permittee to rectify any problems found and to inform the Department by phone, FAX or e-mail (with follow-up written memo) of these maintenance activities, according to Specific Condition 13.

25. Management and Maintenance. Monitoring data, observation and the QMS's professional judgement will dictate the type and frequency of management activities. Regular bank management requirements are summarized in the following table.

**Sand Hill Lakes Mitigation Bank**  
**Permit Number: 0227351-001**  
**Page 18 of 20**

UMAM	Management Units	Community Description	Long Term Management Requirements
I	12	Sandhill Enhancement by long-leaf planting	Annual monitoring for invasive exotic and nuisance vegetation species, pine/oak/woody shrub management (fire, manual removal and/or herbicide). Supplemental planting, as necessary. Fire 1-5 years.
II	11	Sandhill Restoration from Plantation	Annual monitoring for invasive exotic and nuisance vegetation species, pine/oak/woody shrub management (fire, manual removal and/or herbicide). Supplemental planting, as necessary. Fire 1-3 years.
III	10	Oak/Sandhill Preservation	Annual monitoring for invasive exotic and nuisance vegetation species. Fire 3-7 years. Oak thinning as necessary to promote groundcover.
IV	1, 4, 6, 7, 8, 13, 14	Pond, marsh and Cypress/Gum Preservation	Annual monitoring for signs of degradation and for invasive exotic and nuisance vegetation species presence (manual removal and/or herbicide application).
V	2	Wet flatwoods Restoration from Plantation	Annual monitoring for invasive exotic and nuisance vegetation species, pine/woody shrub management (fire, manual removal and/or herbicide). Supplemental planting, as necessary. Fire 3-5 years.
VI	5, 9	Cypress/Gum Restoration	Annual monitoring for invasive exotic/nuisance species presence (manual removal and/or herbicide). Supplemental planting, as necessary.
VII	3	Wet flatwoods Enhancement	Annual monitoring for invasive exotic and nuisance vegetation species, pine/woody shrub management (fire, manual removal and/or herbicide). Supplemental planting, as necessary. Fire 1-3 years.

The following management activities shall also be required to achieve success and in the long term to ensure that success criteria are maintained:

- a. Conducting prescribed burns in accordance w/ attached plan at a frequency and season optimal to promote desirable vegetation and wildlife, with a minimum of one growing season burn every 5 years in pine communities and every 7 years in oak sandhill communities;
- b. Conducting exotic and nuisance plant control, as necessary, to avoid infestation of these species. At no time shall the cover of these species exceed 5% in any one acre prior to remedial eradication activities;
- c. Quarterly inspection of the property for signs of trespassing, poaching or dumping and to ensure that the structures and security features are in good working order;
- d. Reporting and timely maintenance, restoration, stabilization or repair of any damaged structures, fencing, equipment, roads or erosion areas identified in the quarterly inspection;
- e. Removing feral/exotic animals that threaten the mitigation activities or success, such as feral hogs;
- f. Annually collecting hunting, fishing and public use data, assessing the information to determine if such use is having a negative impact on wildlife or mitigation bank goals, and revising the public use criteria, as necessary, to prevent such impacts; and
- g. Submitting an annual end-of-the-year report summarizing the activities conducted during the year and describing the current conditions of the property.

**Sand Hill Lakes Mitigation Bank**

**Permit Number: 0227351-001**

**Page 19 of 20**

26. Monitoring. Qualitative and quantitative monitoring of vegetation and community structure shall be required until the bank is determined to have achieved the success criteria in Specific Condition 22. The Department has reviewed the proposed monitoring plan in Attachment H. This plan has been determined to be substantively adequate to evaluate progress toward restoration goals, identify potential roadblocks or impacts that may hamper attaining those goals, provide opportunities for scientific assessment of wetland functions and processes, and ultimately demonstrate that the Bank's success criteria have been met. However, in order to accommodate any changes necessitated by permitting conditions and/or operational restrictions, the permittee shall submit, for the Department's written approval, a final monitoring plan 60 days prior to conducting monitoring for this permit. The Department shall complete such approval within 60 days of receipt of a written submittal of the final monitoring plan. This plan shall include the following attributes:

- a. a figure showing all sampling locations;
- b. a table indicating all sampling frequencies and/or dates;
- c. a detailed description of all sampling methodologies to be utilized;
- d. samples of field and data tables;
- e. photographic information.

In addition, this monitoring plan shall include a section detailing the proposed analyses and reporting that will be conducted utilizing the collected data. This section shall include:

- f. proposed reporting format;
- g. sample data summary tables and graphs;
- h. proposed analytical assessments and discussion contents; and
- i. a success/progress assessment.

27. Progress Reports. Beginning the first June or December after permit issuance and every 6 months thereafter until final success determination, the permittee shall submit semi-annual status reports or letters containing the following information regarding the project:

- a. Date permitted activities were begun or are anticipated to begin;
- b. Brief description and extent of work completed since the previous report or since permit was issued;
- c. Copies of permit drawings indicating areas where work has been completed;
- d. A description of problems encountered and solutions undertaken;
- e. A brief description of the work and/or site management the permittee anticipates commencing, continuing or completing in the next six months; and
- f. Site management undertaken, including type of management and dates each type was undertaken.

28. Annual Reports. The Annual Report is a summary of the yearly monitoring for success and an assessment of the degree to which the bank is attaining success. This report shall be submitted after completion of the vegetation monitoring (conducted at end of growing season) and shall be prepared according to the format required and approved in accordance with Specific Condition 26. This report is due by January 1 and shall be submitted annually until the Bank site has been determined to be successful. The permittee may synchronize the reporting required in

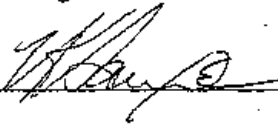
Specific Condition 27 such that alternate progress reports may be included as a section in the Annual Report. The Annual Report that requests a determination of final success in accordance with Specific Condition 22 shall also include the following information:

- a. a summary of all previous Annual Reports, including, as appropriate, timeline graphics;
- b. a list of each success criterion and documentation of how and when it was attained;
- c. a notation of problems encountered in attaining the success criteria and how the problems were solved, and a notation of any exceptionally successful management activity;
- d. a summary of compliance and/or enforcement submittals or actions during the implementation of the bank; and
- e. any other information helpful for the continued success of the mitigation.

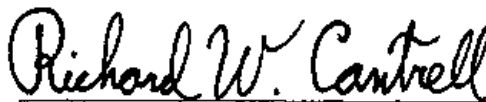
The Report requesting the final success determination shall be submitted to both the Department and the long-term manager.

**List of Attachments:**

Attachment A - Public Recreation and Security Plan  
Attachment B - Cost Estimate  
Attachment C - Community Descriptions  
Attachment D - Planting Plan  
Attachment E - Fire Management Plan  
Attachment F - UMAM Assessment  
Attachment G - Ledger  
Attachment H - Monitoring Plan

Recommended by:   
73 pages attached.

STATE OF FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION



Richard W. Cantrell  
Deputy Director  
Division of Water Resource Management

**FILING AND ACKNOWLEDGMENT:** FILED, on this date, pursuant to 120.52(9), F.S., with the designated Department Clerk, receipt of which is hereby acknowledged.

\_\_\_\_\_  
Clerk

\_\_\_\_\_  
Date

Figure 1 - Location Map

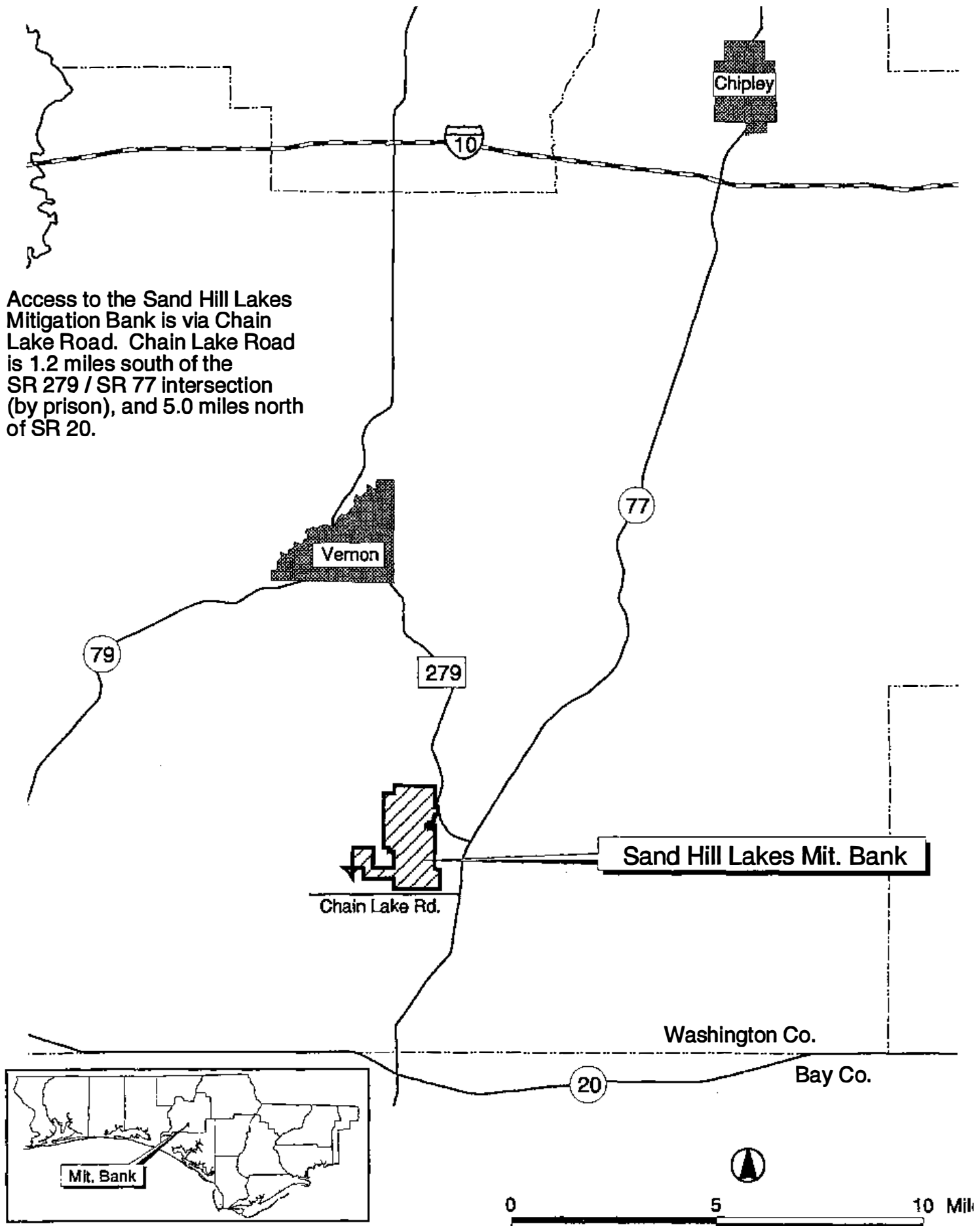


Figure 2 - Mitigation Service Area

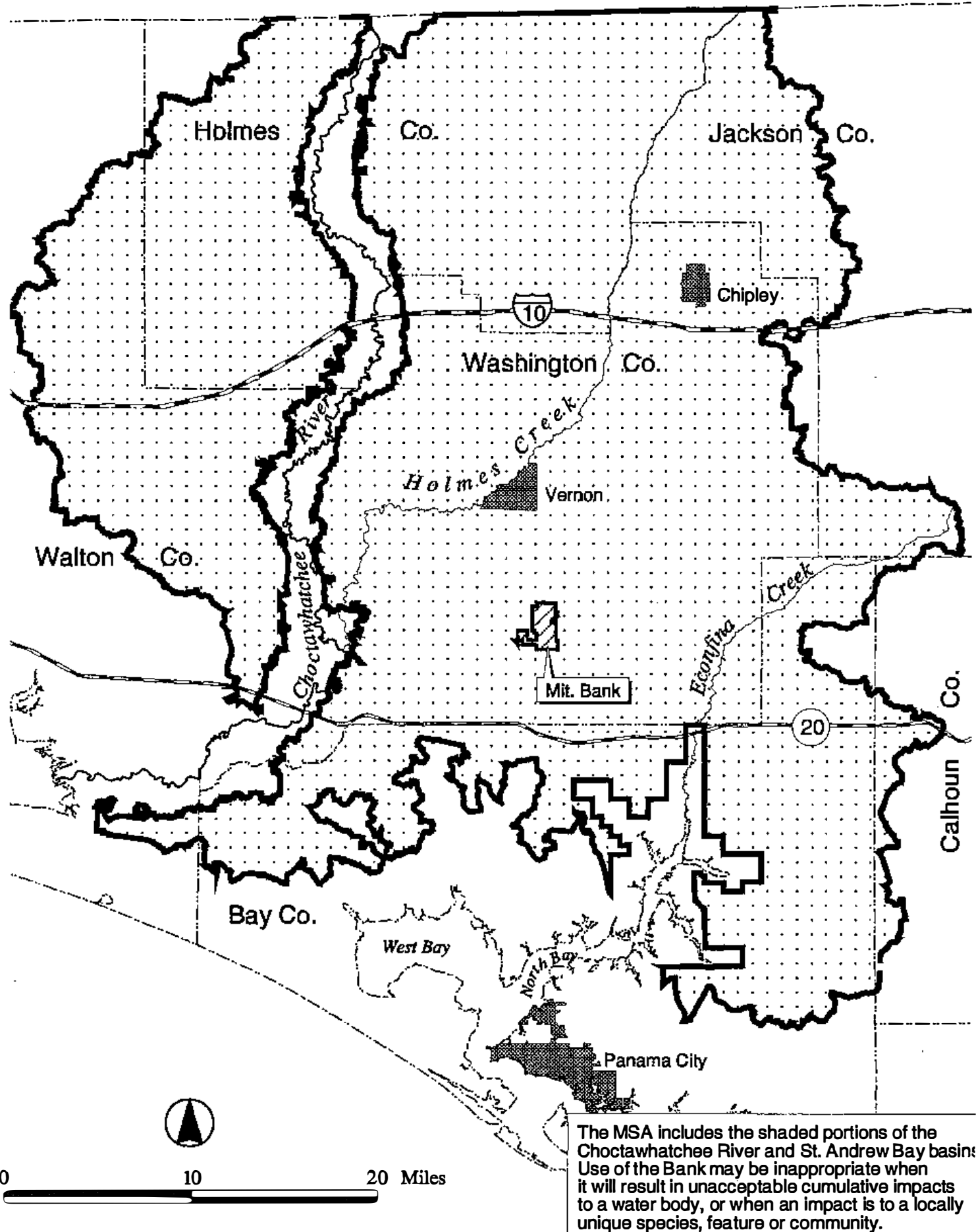
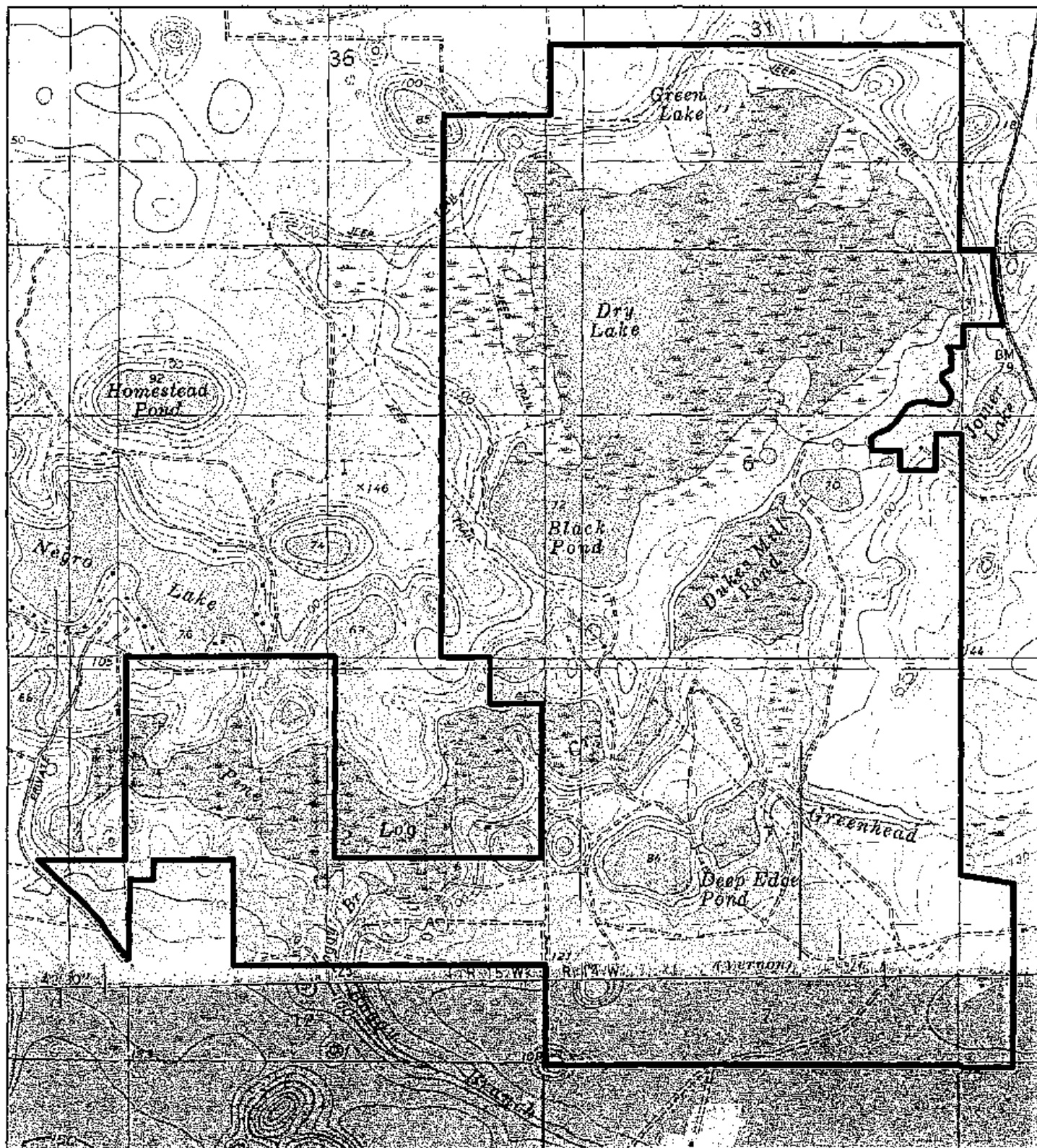


Figure 3 - USGS Quad Map



1 0.5 0 1 Miles





Figure 4 - Existing FLUCCS

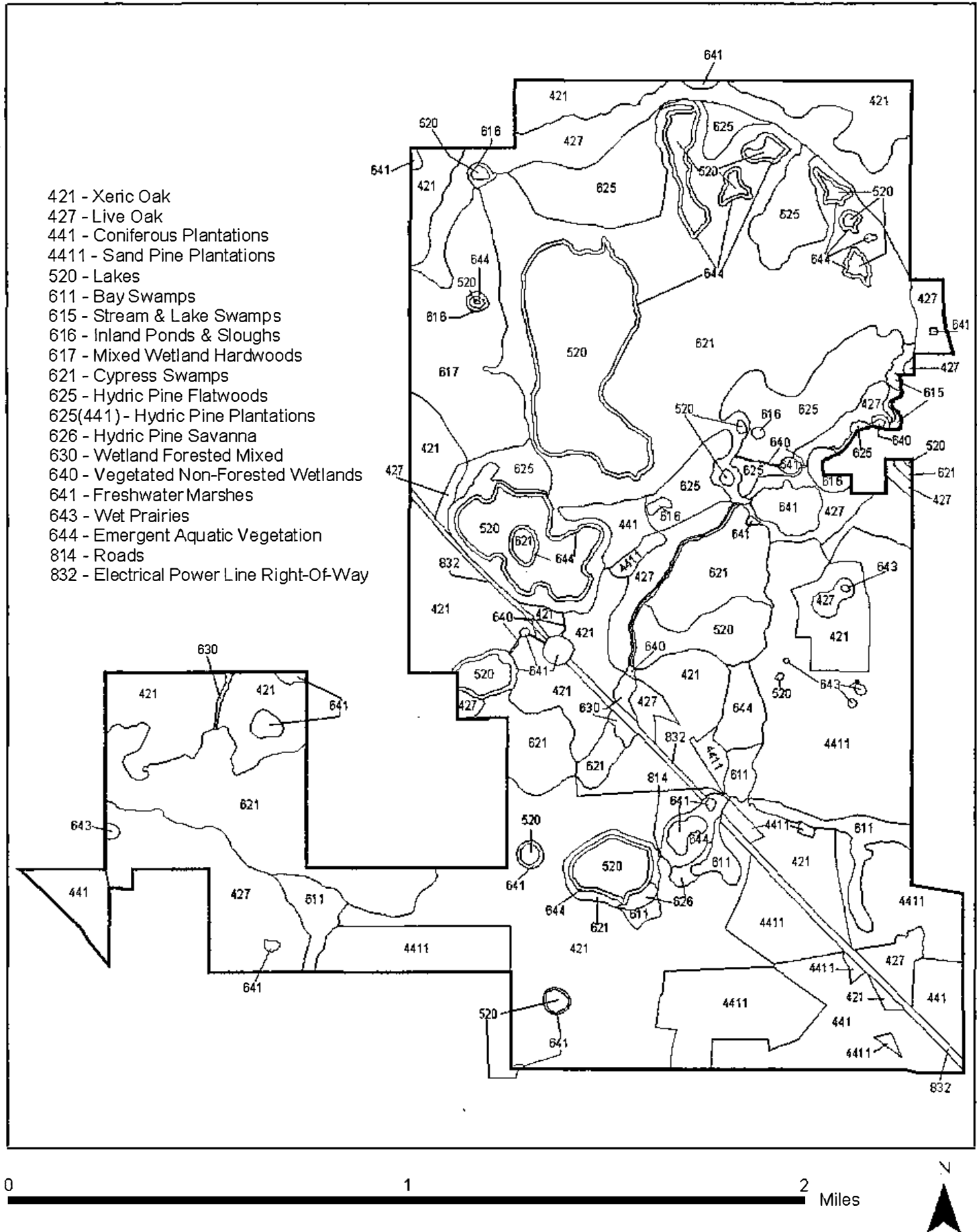
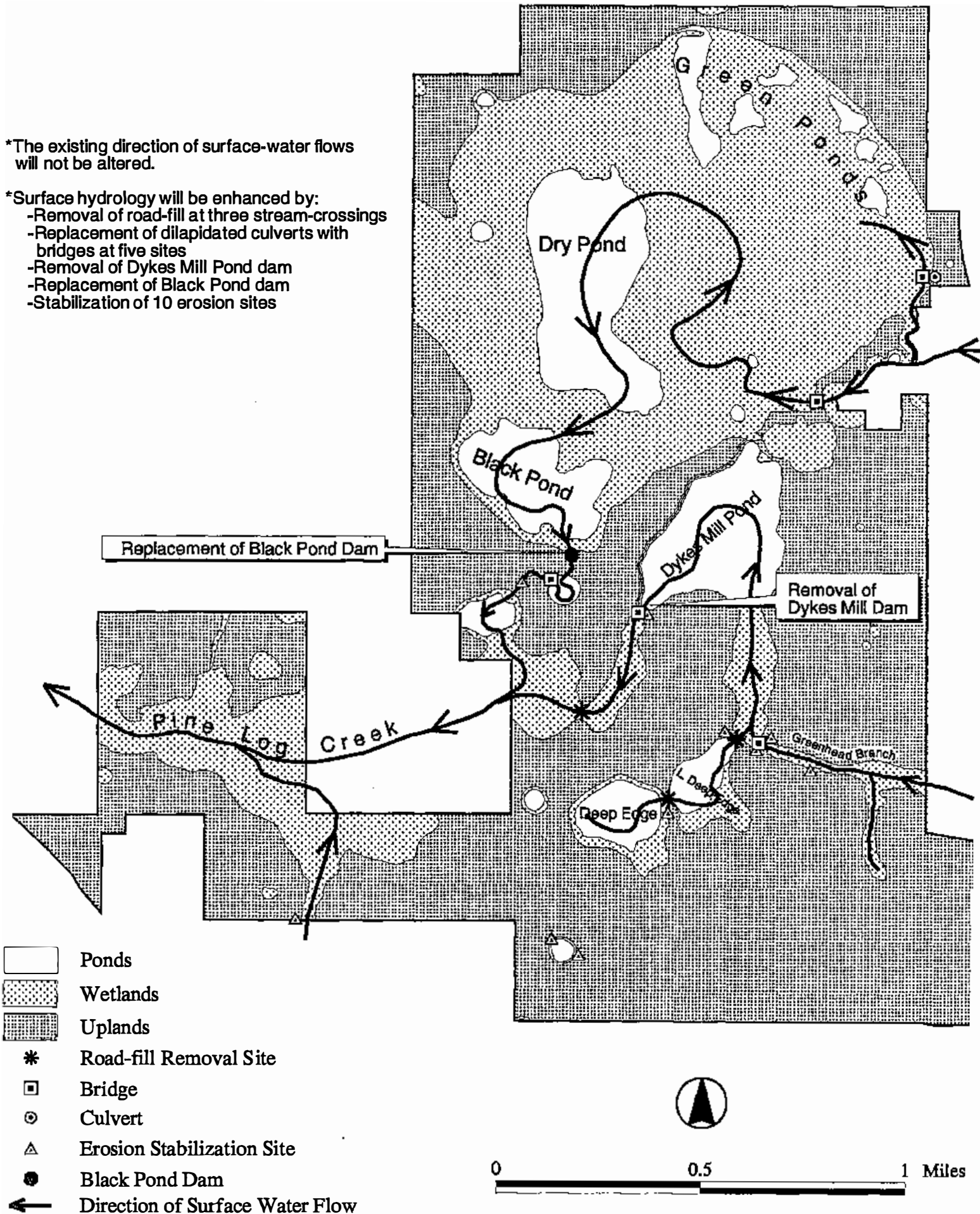


Figure 5 - Hydrologic Features and Activities

\*The existing direction of surface-water flows will not be altered.

\*Surface hydrology will be enhanced by:

- Removal of road-fill at three stream-crossings
- Replacement of dilapidated culverts with bridges at five sites
- Removal of Dykes Mill Pond dam
- Replacement of Black Pond dam
- Stabilization of 10 erosion sites



# Figure 6 - Mitigation Activities

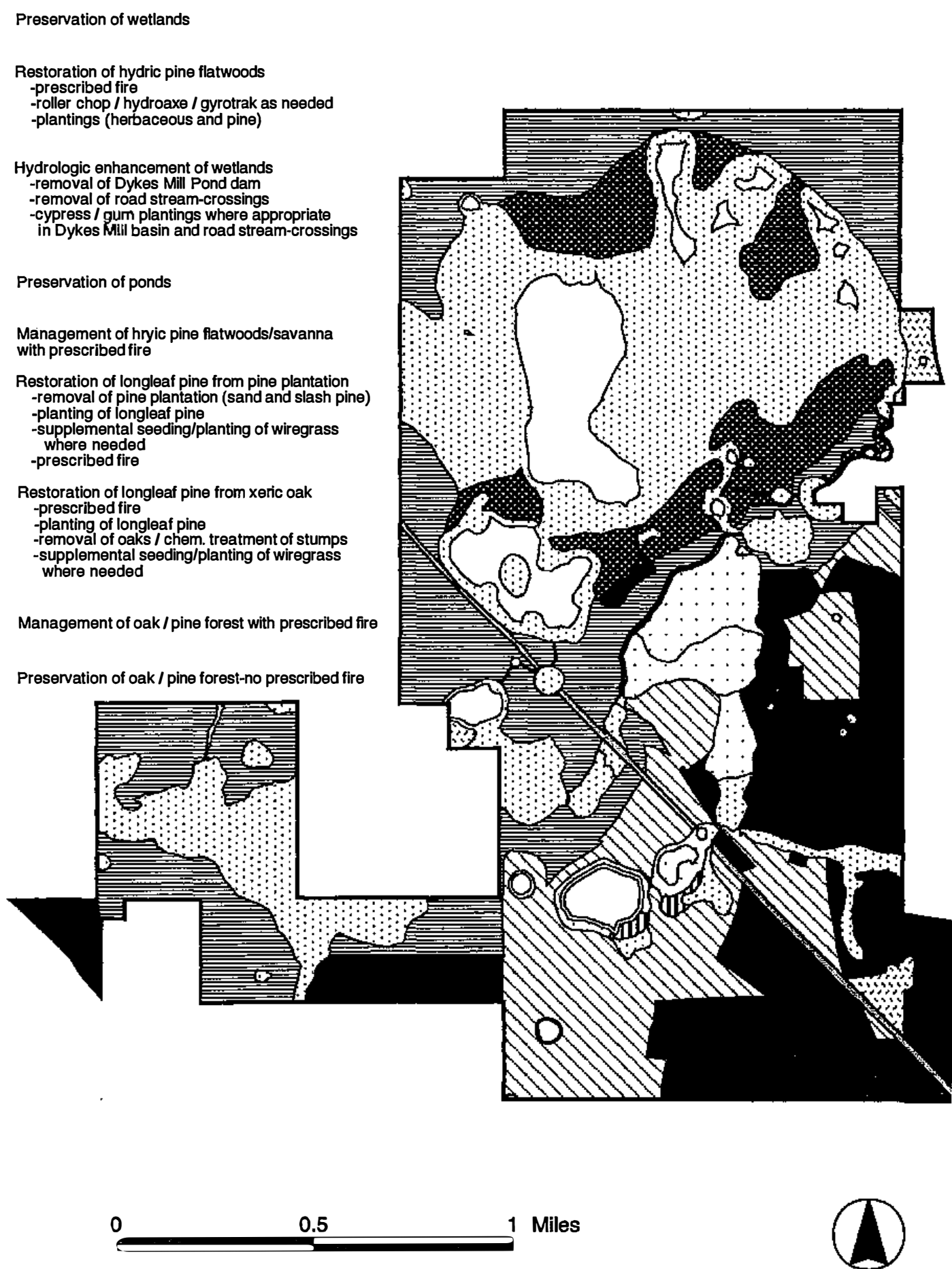


Figure 7 - Management Units

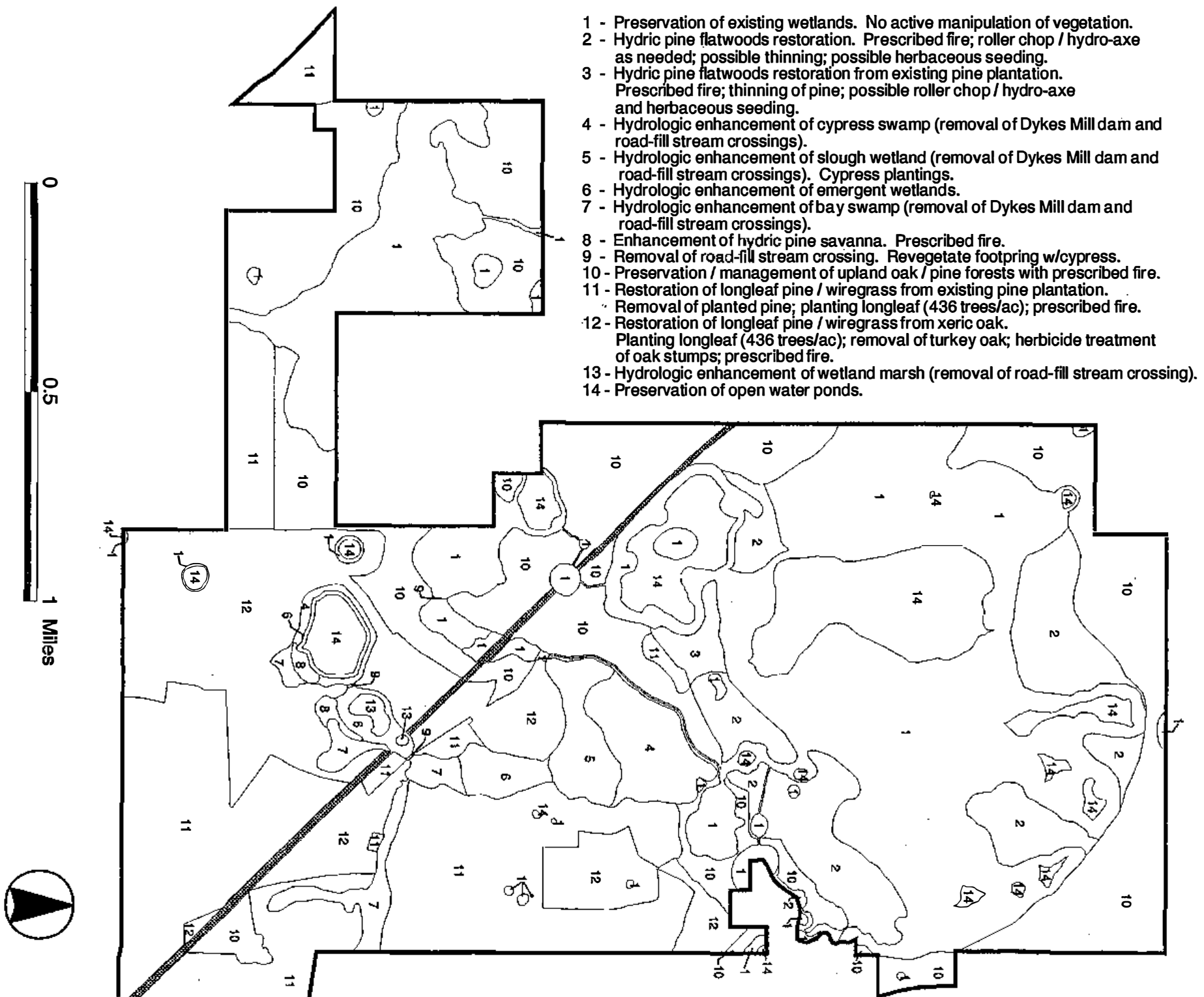
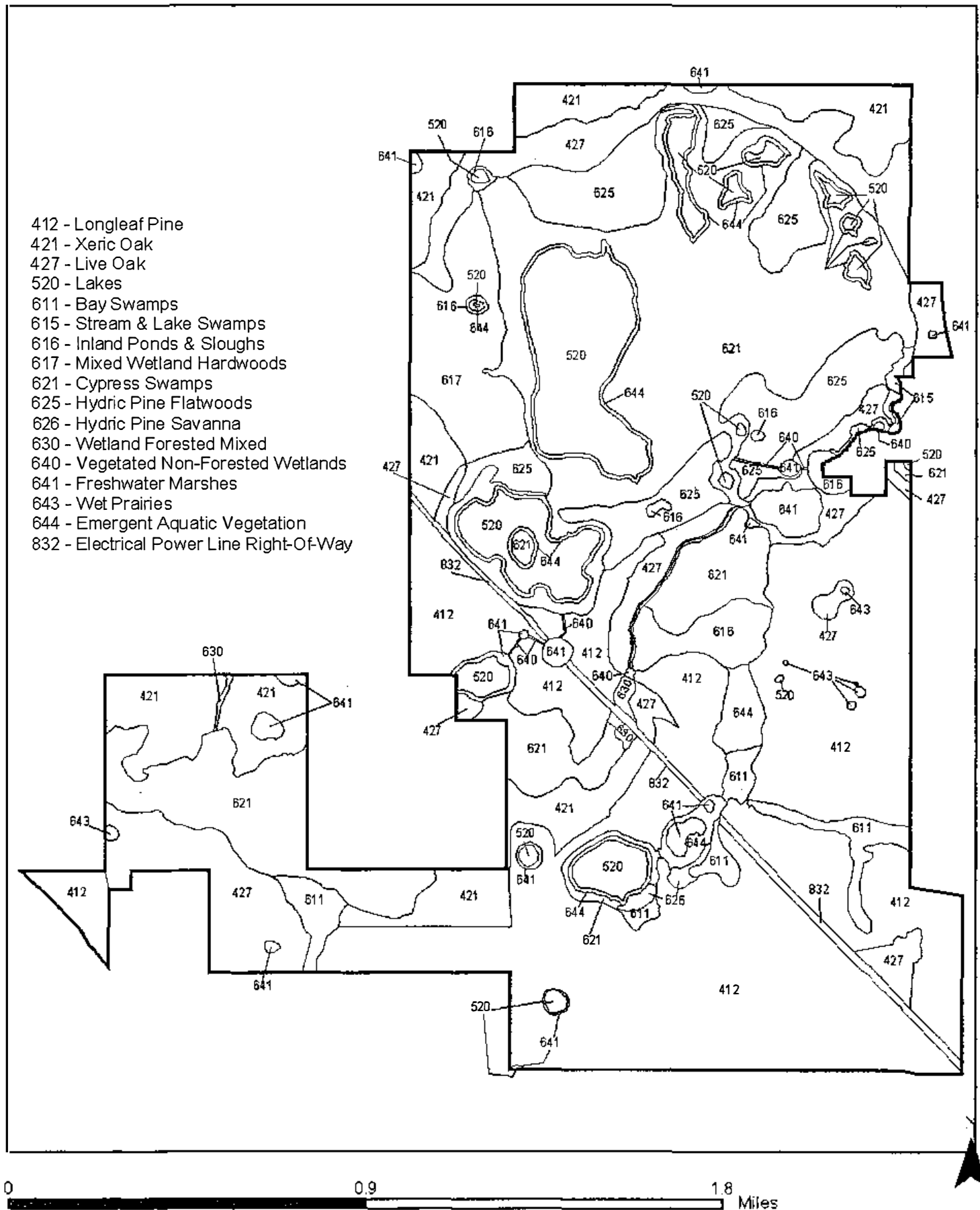


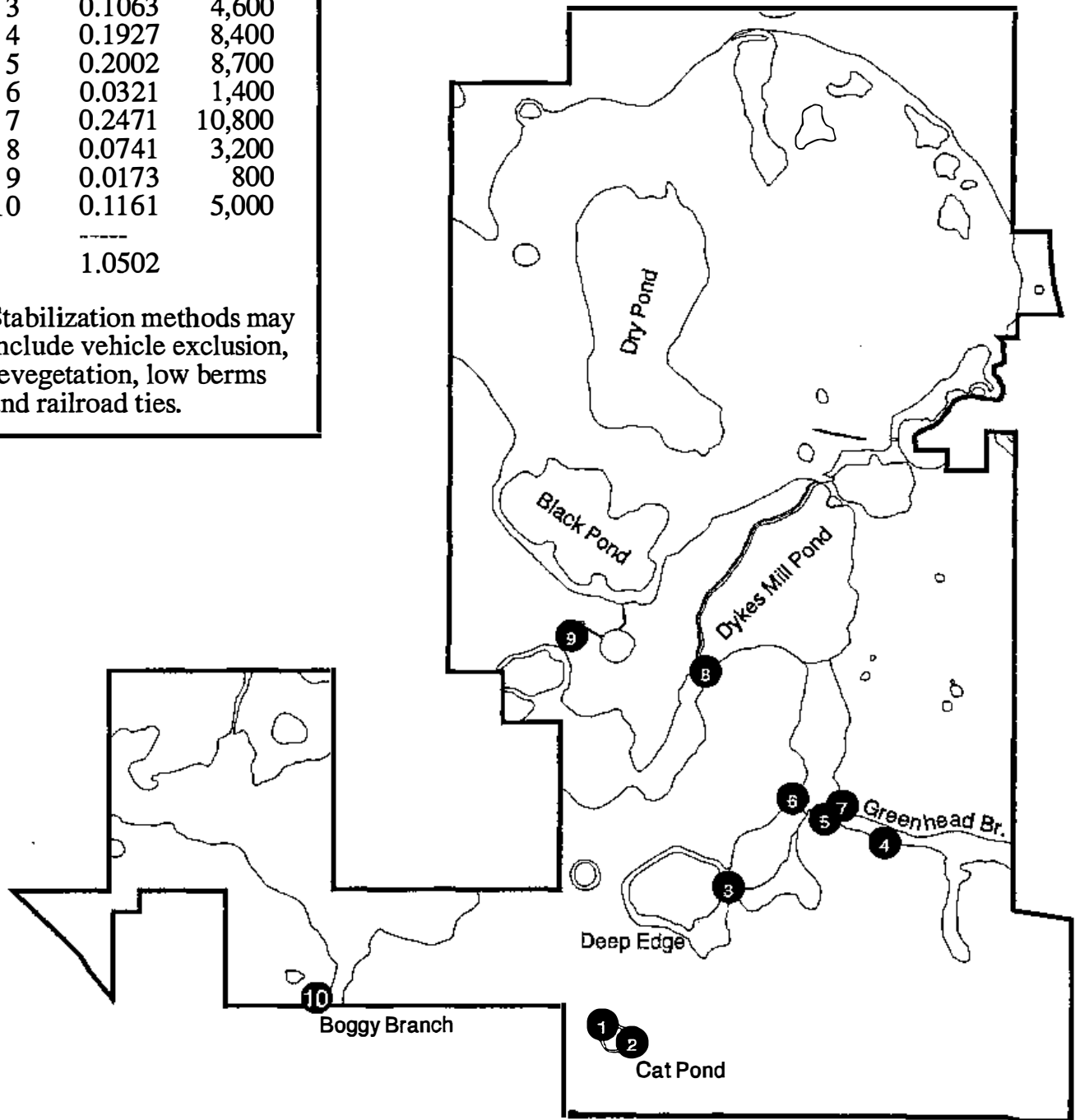
Figure 8 - Post-restoration FLUCCS



# Figure 9 - Erosion Stabilization Sites

Site	Acres	Sq. Ft.
1	0.0272	1,200
2	0.0371	1,600
3	0.1063	4,600
4	0.1927	8,400
5	0.2002	8,700
6	0.0321	1,400
7	0.2471	10,800
8	0.0741	3,200
9	0.0173	800
10	0.1161	5,000
-----		
	1.0502	

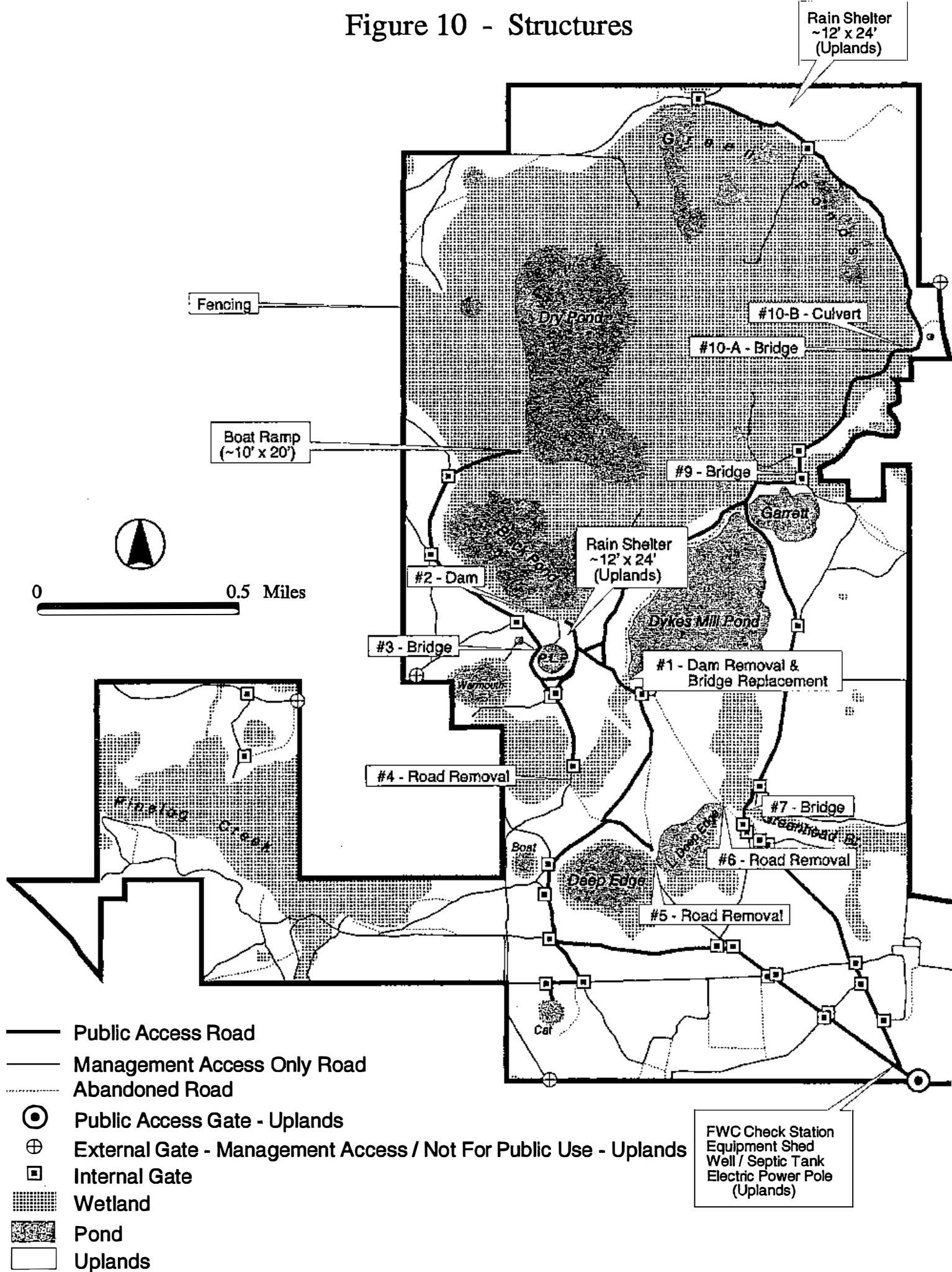
Stabilization methods may include vehicle exclusion, revegetation, low berms and railroad ties.



0 0.5 1 1.5 2 Miles



Figure 10 - Structures



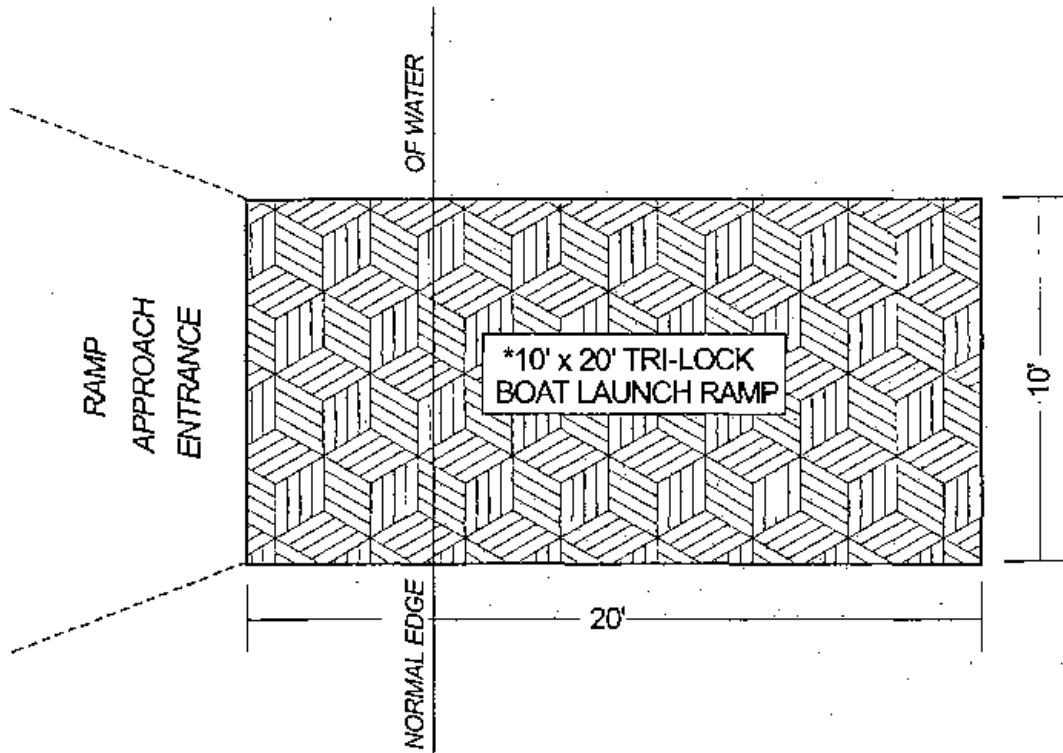
## **CONSTRUCTION DRAWINGS SHEETS 1-7**

SHEET 1 .....	Boat Ramp
SHEET 2 .....	Typical Bridge Design
SHEET 3 .....	Typical Road Cut
SHEET 4 .....	Culvert Details
SHEET 5 .....	Black Pond Weir – Front Oblique
SHEET 6 .....	Black Pond Weir – Plan View
SHEET 7 .....	Black Pond Weir – Cross Section

See “Figure 10 – Structures” for location of above detail drawings.

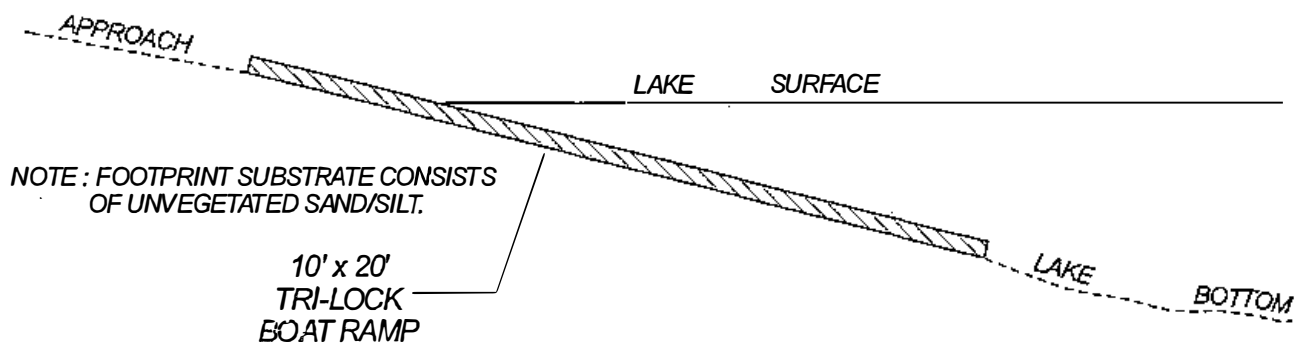


# BOAT RAMP



## PLAN VIEW

\*TRI-LOCK (ARTICULATED CONCRETE REVETMENT) OR SIMILAR MATERIAL.  
USE CRUSHED ROCK TO BACKFILL VOIDS IN CONCRETE BLOCKS.

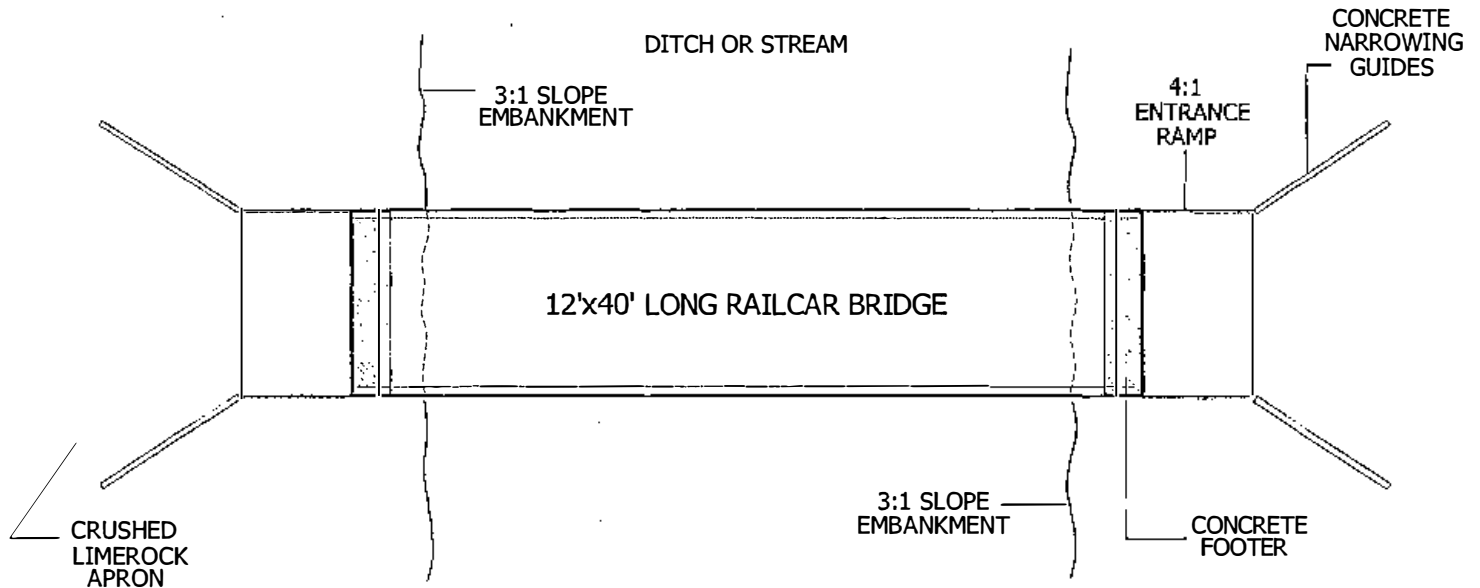


## PROFILE

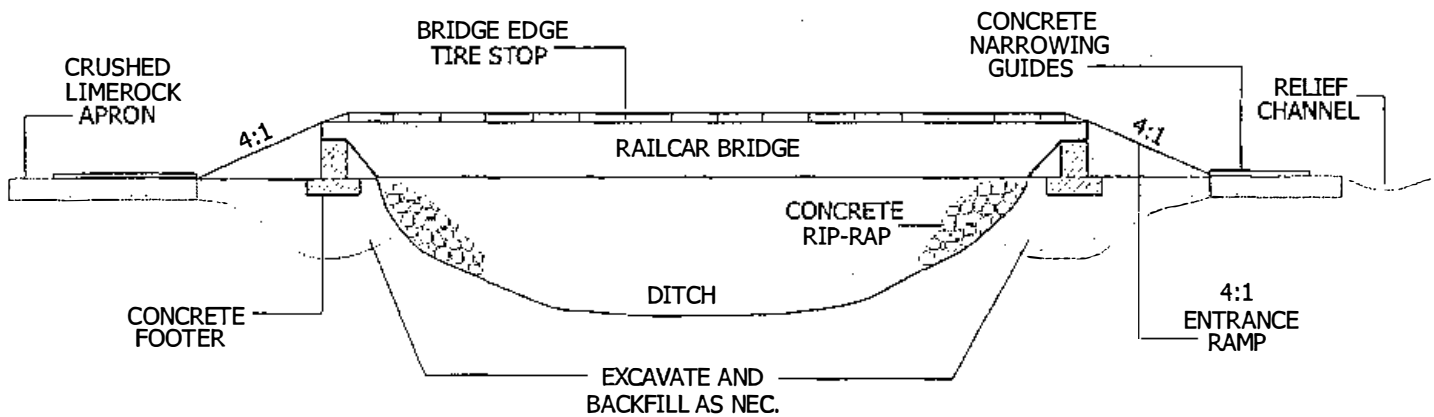
*Bradley L. McManis*  
6/22/05

# TYPICAL BRIDGE DESIGN

NOT TO SCALE



PLAN VIEW

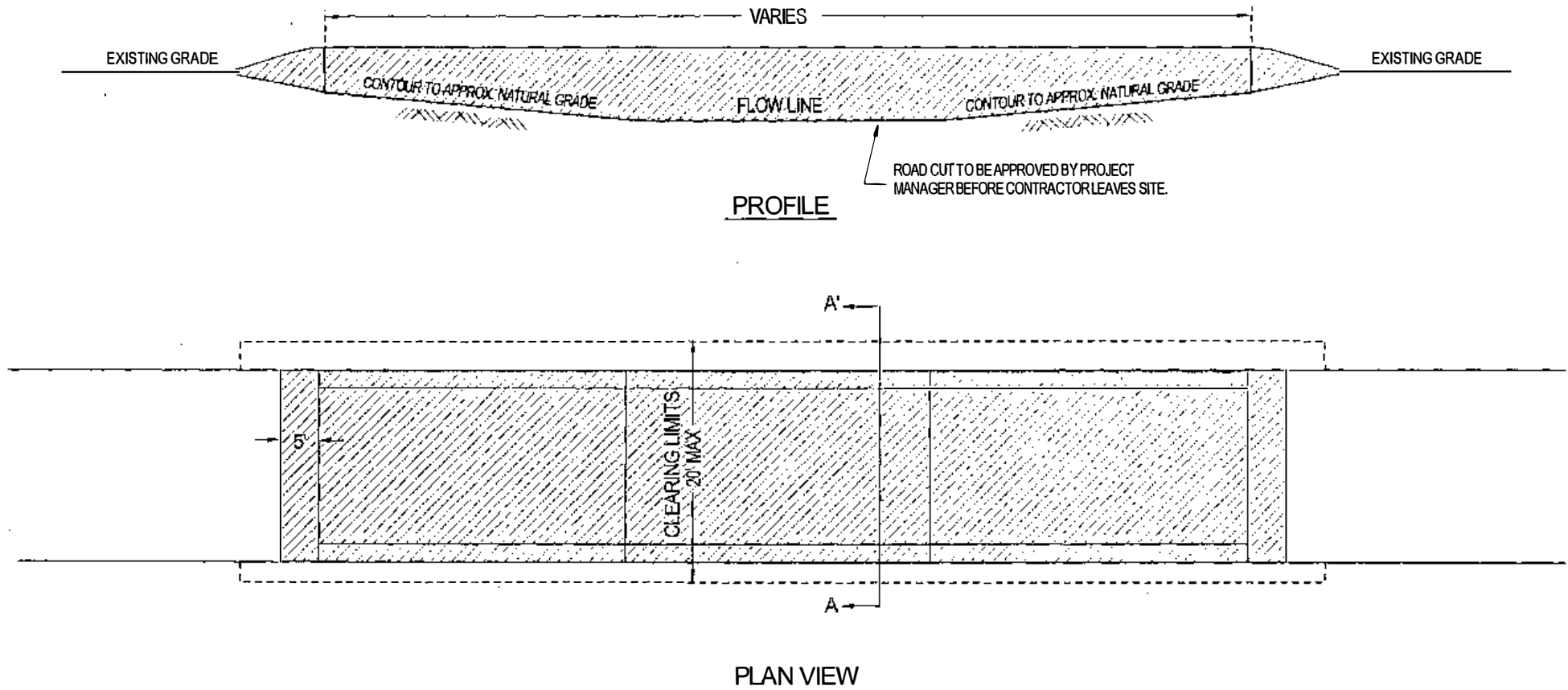


PROFILE VIEW

*Brady To The Main  
8/22/05*

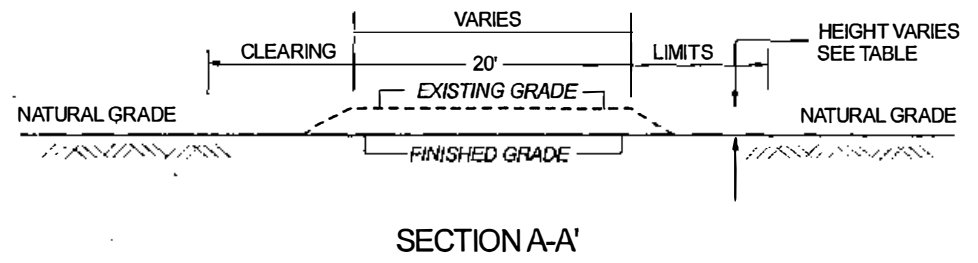
# TYPICAL ROAD CUT

(NOT TO SCALE)



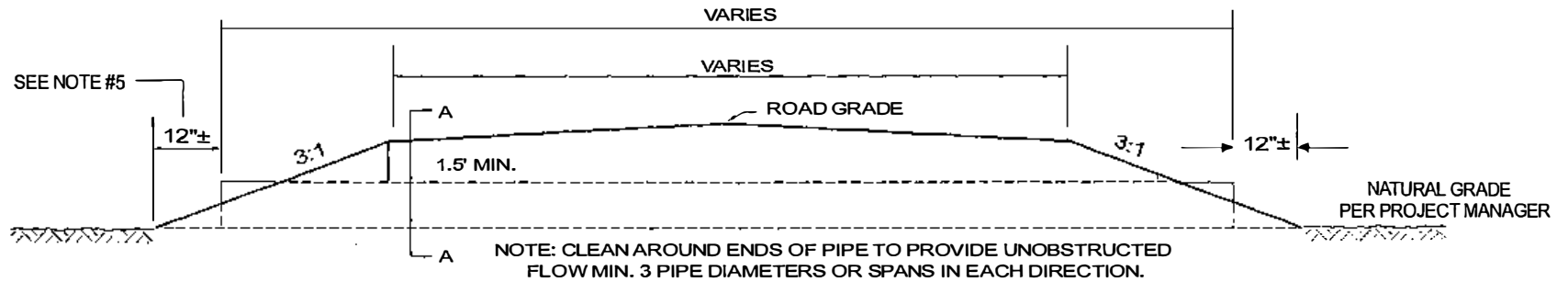
## NOTES:

1. REMOVED MATERIAL TO BE PLACED IN ERODING UPLANDS OR OTHER APPROPRIATE UPLAND DISPOSAL SITE.
2. ALL MATERIALS TO BE PROVIDED FROM SITE.
3. VEGETATION ALONG SIDES OF ROAD TO BE REMOVED BY CONTRACTOR WHERE NECESSARY.
4. REPLANT FORMER ROAD FOOT PRINT TO MATCH SURROUNDING COMMUNITY.

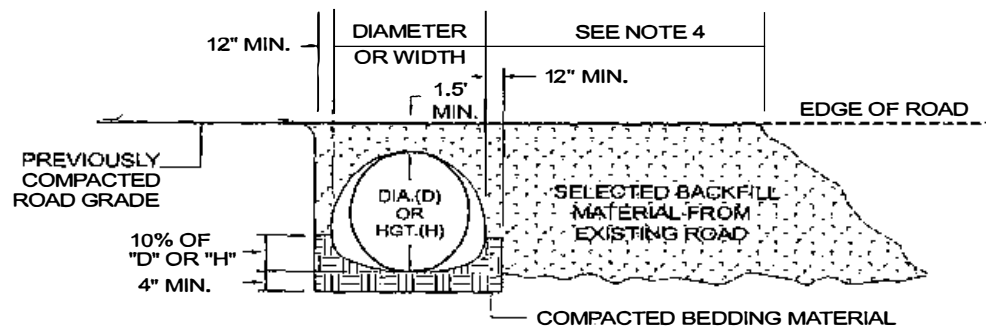


*Grady to the Marsh*  
 8/27/05

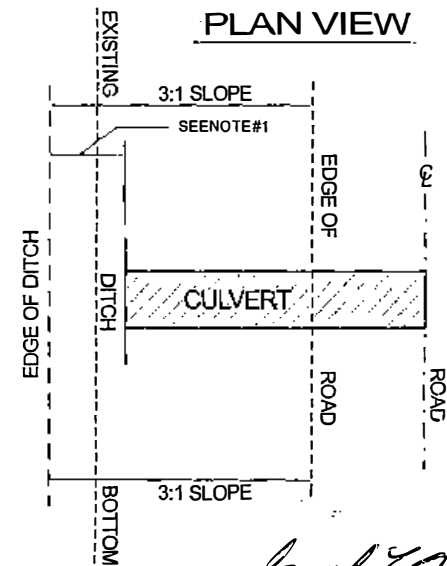
# CULVERT INSTALLATION



## PROFILE



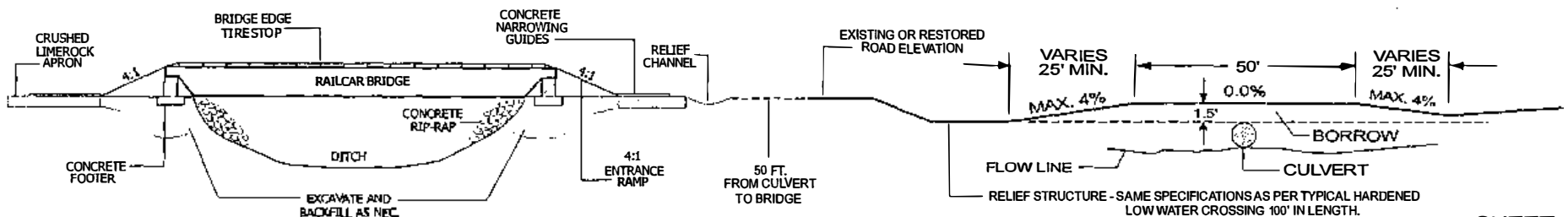
## SECTION A-A



## PLAN VIEW

# RAILCAR BRIDGE (10A) AND CULVERT (10B) INSTALLATION

## ROAD PROFILE AT BRIDGE & CULVERT LOCATION



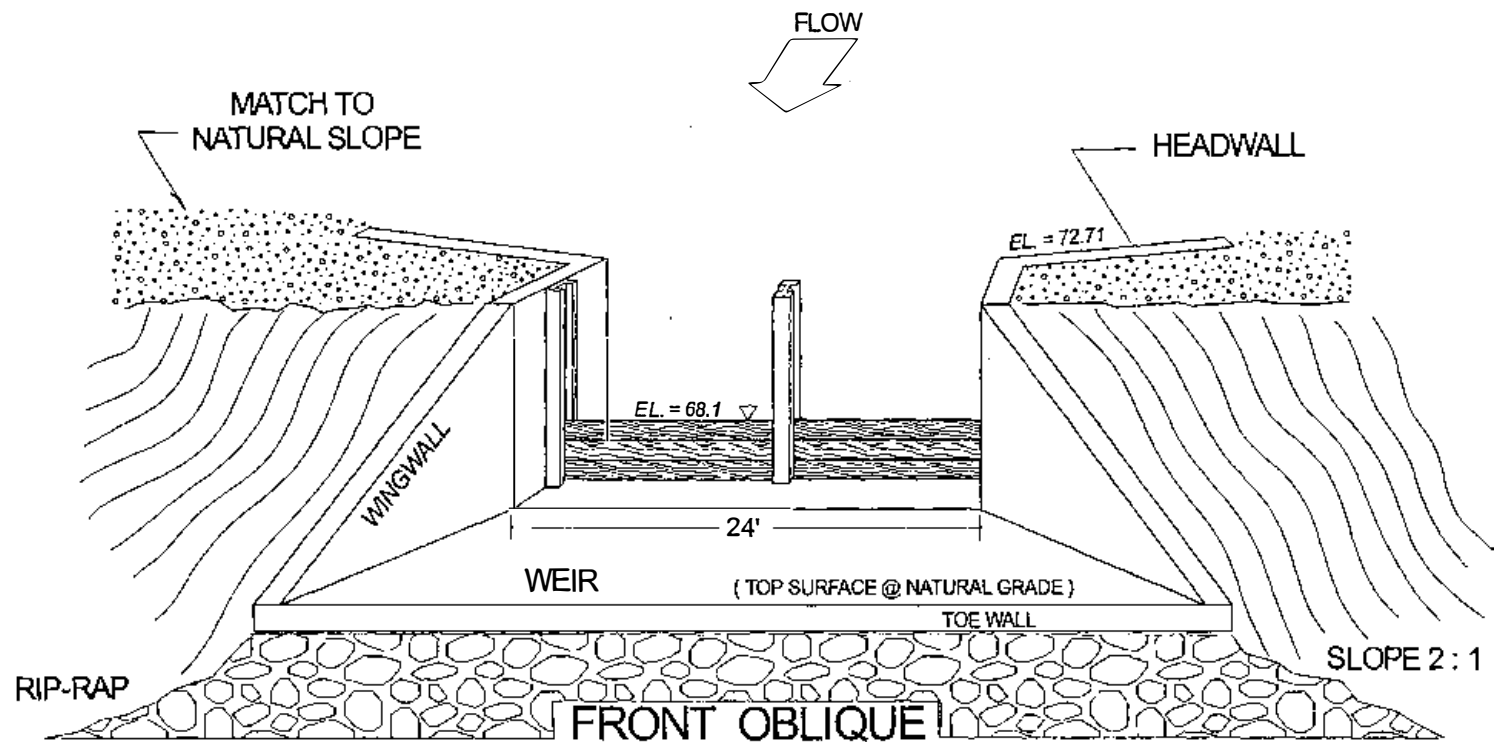
*Analysis by Mr. [Name] 8/22/05*

# BLACK POND

## WEIR DETAIL

N. T. S.

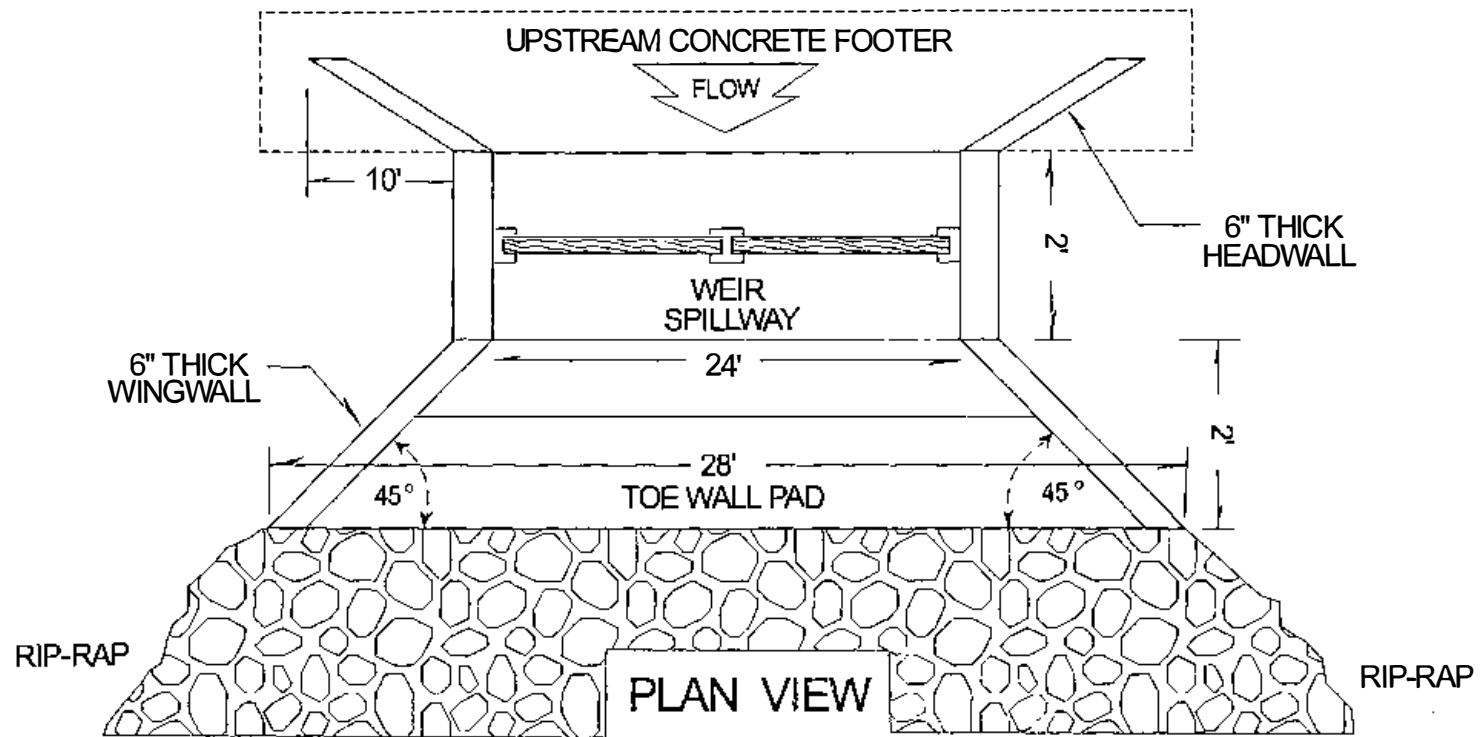
ALL MEASUREMENTS ARE APPROXIMATE



# BLACK POND WEIR DETAIL

N. T. S.

ALL MEASUREMENTS ARE APPROXIMATE



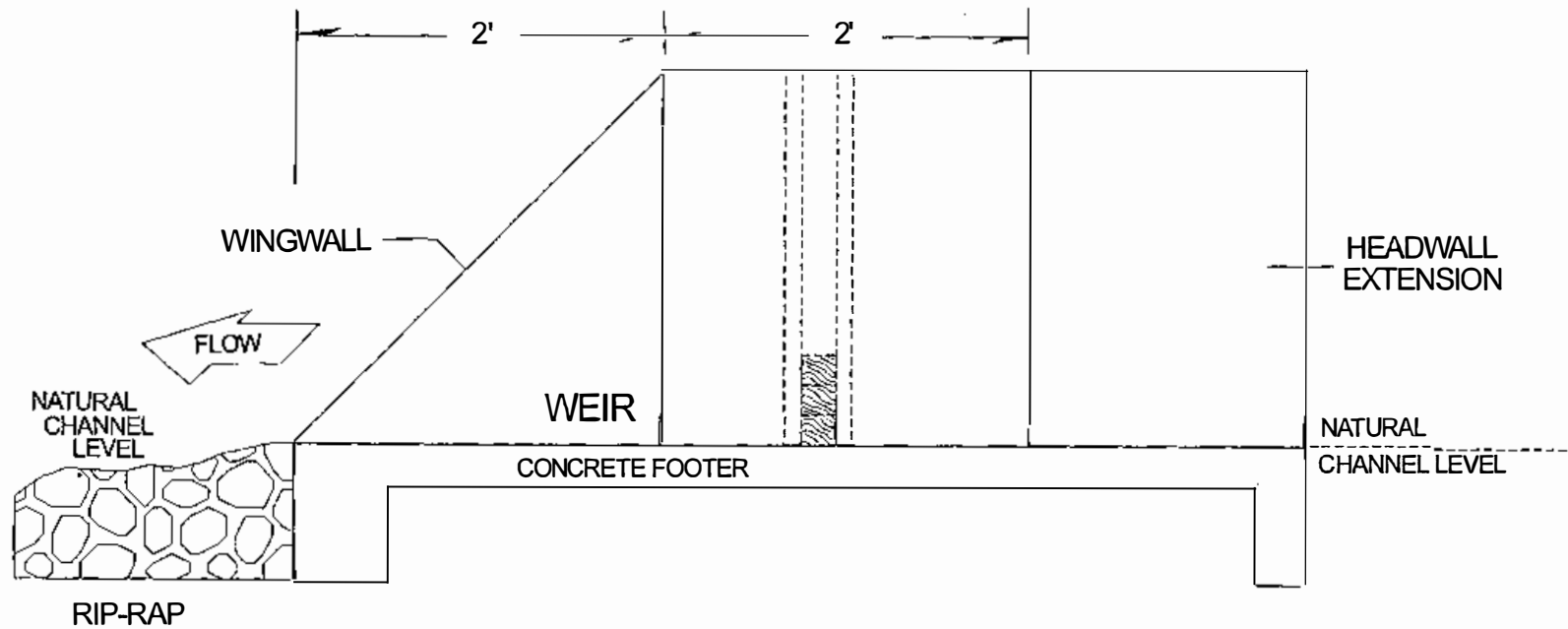
*Grady E. P. Mendenhall*  
6/22/05

# BLACK POND

## WEIR DETAIL

N. T. S.

ALL MEASUREMENTS ARE APPROXIMATE



## CROSS - SECTION

*Grady & Son Inc.*  
5/22/05

## ATTACHMENT A: SECURITY AND PUBLIC USE PLAN

The Sand Hill Lakes Mitigation Bank (Bank) consists of 2,155 acres in southern Washington County in the Sand Hill Lakes region of the Florida Panhandle. Contained within the Bank are over 1,000 acres of wetlands and aquatic habitat including high quality cypress swamp, karst ponds, lakes, streams, hydric pine flatwoods, seepage slopes and bayhead communities. Upland habitats are presently composed of sand and slash pine plantation, xeric and live oak hammock, mixed upland hardwood and other degraded sand hill communities. The Bank exists for the express purpose of restoration and protection of natural habitats, both wetlands and uplands. Public access for hunting, fishing and passive recreation will be allowed only to the extent that it does not interfere with the goals and ecological protection of the Bank.

**Security:** The Bank property will be fenced and posted with signs indicating NFWMD ownership. All perimeter gates will be locked at all times, except for the main entrance during operating hours. Permit Figure 10 shows the location of the fence, the main entrance, and all internal roads and gates. The main entrance will allow controlled public access to selected dirt roads. The public will be barred from using bicycles, all-terrain vehicles (ATV), off-highway vehicles (OHV), dirt bikes or other vehicles that could easily leave the public roads. The road will be maintained by the NFWMD in a passable condition so that no new trails are forged around obstacles. Management roads, secured with locked gates, are for use by authorized personnel for monitoring and management. Parking is allowed outside the gate for walk-in users.

The Bank is part of the Florida Fish and Wildlife Conservation Commission (FWC) Econfinia Creek Wildlife Management Area. The FWC will manage site security and the limited hunting and fishing program described below. A FWC-manned check station, located at the public access gate off of Chain Lake Road, will regulate access during hunting and/or fishing days, currently anticipated to be daylight hours, up to 5 days a week. Passive pedestrian use is allowed during daylight hours 7 days a week. All public access for any purpose, vehicular and pedestrian, shall be via the FWC check station on Chain Lake Road. Persons accessing the property at any other point shall be subject to prosecution for trespass. Additionally FWC will conduct random daily patrols throughout the year and enforcement of adopted hunting, fishing, passive use and trespassing rules.

If adverse impacts or conflicts associated with public access are identified, the MBRT will be consulted and the public access plans revised accordingly. Public access is limited to daylight hours. Activities forbidden under all circumstances include swimming, horseback riding, use of bicycles, use of ATVs, off-road use of vehicles, use of private electric or motor boats, use of jet skis, game or fish feeding stations, target practice or random shooting of weapons, and hunting with dogs (other than bird dogs or retrievers). Other activities may also be barred or limited if they are found to conflict with the goals of the mitigation bank, or safety considerations of the NFWMD. Passive usage allowed at the Bank will include hiking, bird watching, nature study, canoeing and kayaking (canoes/kayaks must be clean of all vegetation, and trailers are not allowed). Persons walking dogs on the property must have control over their animals at all times.



Hunting will be limited to approximately 60 days per year, with fishing to be allowed up to five days per week throughout the year. Initially, no more than 15 hunters and 20 fishermen at a time will be allowed onsite per day, as regulated by the FWC at the entry gate. If no adverse ecological impacts are observed, then the number of hunters and fishermen allowed onsite may be increased upon approval from the Mitigation Bank Review Team (MBRT). The number of persons allowed for passive recreation (e.g., hiking, nature study, etc.) shall not be limited, except that no more than 50 people total (hunters, fishers and others) will be allowed access on any one day. However, if conflicts between the goals of the Bank and the number of persons accessing the site are identified, the NFWFMD, in consultation with the MBRT, may also limit the number of persons accessing the site for passive recreation.

**Hunting:** In contrast to ten or eleven months of nearly continuous and overlapping hunting seasons on other sections of the Econfina Creek Wildlife Management Area, hunting at the Bank will be limited to approximately 60 days scattered from October to April plus a special 6 day September duck season (see the following Figure 1). Details and restrictions for all hunting on the property are outlined in the Regulations Summary and Area Map brochure for the Econfina Creek Wildlife Management Area that is released annually by the FWC. The Bank property is referred to in the pamphlet as the Fitzhugh Carter area. There will be no hunting of otter or bob cat within the Fitzhugh Carter area. Archery hunting will be limited to ~16 days in October, early muzzleloading gun to ~3 days in November, small game to ~16 days in December, general gun to ~4 days in November and ~9 days in January, and spring turkey to ~3 days in March and ~6 days in April. Migratory birds may only be taken during open seasons that coincide with archery, muzzleloading gun and general gun hunts. Each hunter must have a quota permit obtained through the FWC for archery, muzzleloading gun, general gun and spring turkey hunts. No hunting for otter or bobcat will be allowed following the 2005-06 season. In contrast to other hunting on the SHLMB, no quota permit is required during small game season and the special September waterfowl duck season although the number of hunters during those periods will still be limited to fifteen. If numbers of feral hogs and beavers dictate active management, the NFWFMD has an ongoing contract for feral hog and beaver damage management activities on mitigation lands with the US Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services.

**Figure 1: Example hunt calendar for the Econfina Creek Water Management Area.**  
Schedule for the Bank (also known as Fitzhugh Carter Area) is shown at top of table.

Sand Hill Lakes Mitigation Bank (Fitzhugh Carter Area)											
Waterfowl	Archery		Muzzleloading Gun				Spring Turkey				
		General Gun	Small Game		General Gun						
Econfina Creek WMA											
Waterfowl		Muzzleloading Gun			Archery & Muzzle Gun						
	Archery		Small Game								
		General Gun				Spring Turkey					
			Raccoon						Raccoon		
SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG

**Fishing:** Over a dozen ponds, with open-water ranging from 1- 80+ acres, occur at the Bank. The larger ponds open to limited fishing include Dry Pond, Black Pond, Green Pond, Deep Edge Pond, Garret Pond, Power Line Pond and Boat Pond. The FWC will conduct an assessment of fish populations by gathering and analyzing data related to size, structure, relative abundance, length, age, annual mortality and condition factor. This information will be used to establish appropriate species, size and number limits in order to maintain high quality, sustainable fish populations.

The FWC proposes to open the Bank to fishing for a maximum of five days per week. The public will be barred from bringing boats or motors onsite, although a total of 12 aluminum jonboats will be placed on several lakes for public use on a first-come-first-serve basis. The jonboats will be equipped with paddles only. The small, onsite boats will not require the development of launching and parking infrastructure usually associated with boat launch facilities, although low-impact, pervious, geotechnical material or other soil stabilization techniques may be required, as a modification to this permit, to prevent small-scale erosion on footpaths at points where jonboats are accessed. If no deleterious impacts are observed, the number of jonboats may, with MBRT approval, be increased. Motorized boats may be used, as necessary, by FWC, NFWFMD or authorized contractors for approved management purposes. The dirt boat ramp at Dry Pond will be upgraded with Tri-Lock ® or equivalent pervious stabilization (approximately 10' x 20' footprint) to accommodate authorized motor boats required by management activities, as shown in the Construction Drawings. Measures, such as cleaning of engine props prior to launch, will be enforced to ensure no introduction of hydrilla to the system.

**Hiking, Birding, Canoes and Kayaks:** A dedicated hiking loop trail following existing or abandoned roads may be established. With abundant and diverse birdlife on the property, a future partnership may be sought with local organizations to develop birding trails and a species list. Although the use of canoes and kayaks may be allowed at the Bank, hardened launching or parking areas will not be needed. Two rain shelters (approximately 12' x 24' footprints) may be constructed in upland areas near the Green Ponds and Black Pond.

**Conservation Easement Allowances:** Notwithstanding that the conservation easement is designed to preserve the site in its enhanced condition, the above limited public access shall be provided there is no ecological degradation from current condition. The dirt roads, gates, Check Station with electricity, water and septic tank facilities (in uplands) and rain shelters, as noted in Figure 10 of the permit are also allowed in support of these activities and site management. Fish management may require the use of a motorboat and boat launch as specified above. Fire management may also require certain equipment, such as tractors, dozers, ATVs and water trucks for safe implementation. Any deviation of management activities as described herein that are not directly supporting the achievement or maintenance of the ecological goals set forth in Specific Condition 22, shall require a modification of this permit.

Any of the public uses of the Bank site may be limited if it is determined that there is an unacceptable safety risk or if it has a deleterious affect on the goals of the mitigation.

# ATTACHMENT B: COST ESTIMATES

Sand Hill Lakes Mitigation Bank

Projected Costs (in 2005 dollars)

Item							Annual Costs		Annual Costs	
No.	Task	Year 1	Year 2	Year 3	Year 4	Year 5	Years 6-24	Year 25	Years 26-49	Year 50
	(Bridges)									
1	Dykes Mill Pond Bridge - Site #1	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$50,000
2	Power Line Pond Bridge - Site #3	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$50,000
3	Greenhead Branch Bridge - Site #7	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$50,000
4	Joiner/Dry Bridge - Site #9	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$50,000
5	Joiner/Green Bridge and Culvert - Site #10	\$75,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$75,000
	(Road-fill Removal)									
6	Rd-removal - Pine Log Cr. - Site #4	\$10,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
7	Rd-removal - Deep Edge / L. Deep Edge - Site #5	\$15,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
8	Rd-removal - L. Deep / Dykes Mill Pond - Site #6	\$15,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	(Dams)									
9	Removal of Dykes Mill Pond dam	\$5,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
10	Replacement of Black Pond dam	\$25,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$25,000
11	Site Security / FWC Law Enforcement	\$88,000	\$88,000	\$88,000	\$88,000	\$88,000	\$88,000	\$88,000	\$88,000	\$88,000
12	Fencing	\$109,000	\$0	\$0	\$0	\$0	\$0	\$109,000	\$0	\$109,000
13	Boundary Fence Mowing / Maintenance	\$0	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$0	\$1,000	\$0
	(Longleaf Pine / Wiregrass Restoration)									
	(From Existing Pine Plantation - 380 Acres)									
14	Removal of sand/slash pine	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
15	Planting of longleaf pine (436 trees / acre)	\$28,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
16	Planting of supplemental wiregrass where/if needed	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
17	Additional sand pine eradication where/if needed	\$0	\$0	\$0	\$0	\$15,000	\$0	\$0	\$0	\$0
	(Longleaf Pine / Wiregrass Restoration)									
	(From Existing Xeric Oak Community - 260 Acres)									
18	Removal of oak ( ≤ 12" dbh) / herbicide stumps	\$13,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
19	Planting of longleaf pine (436 trees / acre)	\$19,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
20	Planting of supplemental wiregrass where/if needed	\$40,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	(Restoration of Hydric Pine Flatwoods - 160 Acres)									
21	Roller Chop / Hydro-axe	\$33,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
22	Supplemental herbaceous seeding where/if needed	\$10,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	(Prescribed Fire)									
23	Longleaf Pine areas - 640 acres	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000
24	Oak / Pine communities - 490 acres	\$7,000	\$7,000	\$7,000	\$7,000	\$7,000	\$7,000	\$7,000	\$7,000	\$7,000
25	Hydric Pine Flatwoods - 150 acres	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
26	Hog / Beaver control	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$1,000	\$1,000	\$1,000	\$1,000
27	General management	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
28	Internal gating / road maintenance	\$50,000	\$50,000	\$25,000	\$10,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
29	Installation of 10 staff gages / 3 recorders	\$16,725	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
30	Monthly monitoring of staff gages / recorders	\$5,400	\$5,400	\$5,400	\$5,400	\$5,400	\$5,400	\$5,400	\$5,400	\$5,400
31	Stabilization of 10 erosion sites	\$25,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
32	Vegetation and other monitoring activities	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$2,000	\$2,000	\$2,000	\$2,000
Totals		\$915,125	\$227,400	\$202,400	\$187,400	\$197,400	\$170,400	\$278,400	\$170,400	\$578,400

## **ATTACHMENT C: COMMUNITY DESCRIPTIONS (FLUCCS<sup>1</sup>)**

**FLUCCS 412 – Longleaf Pine / Xeric Oak (644 ac.).** This category is roughly synonymous with the FNAI “Sandhill” classification. Canopy trees are about 66% dominated by longleaf pine, with an understory of turkey or other oaks, and a wiregrass-dominant groundcover.

**FLUCCS 421 – Xeric Oak (266 ac.).** This category is similar to FLUCCS 412 except that the canopy is more dominated by oaks instead of pine. Species common to this class include sand live oak, bluejack oak, turkey oak and sand post oak. In many cases longleaf pine may have been present in significant numbers prior to harvesting yet were never regenerated.

**FLUCCS 427 – Live Oak (232 ac.).** Often referred to as upland temperate hammock, this forest community is one in which live oak is either pure or predominant in the canopy. The principal associates of this cover type include sweetgum, magnolia, holly and laurel oak. This community is common along the upper banks of Florida’s lakes and streams.

**FLUCCS 520 – Lakes (146 ac.).** At the Bank, this category consists of perennial open water associated with isolated sinkholes, formerly isolated sinkhole ponds that are now through-flow systems via extensive ditching, and large, gently-sloped solution ponds connected by ditching and natural flow paths.

**FLUCCS 611 – Bay Swamp (42 ac.).** Tree canopy is generally dominated by loblolly bay, sweetbay magnolia, and swamp bay. Slash pine and loblolly pine are often associated with these communities. The understory is generally dominated by titi, and often includes gallberry, fetterbush, and wax myrtle.

**FLUCCS 615 – Stream and Lake Swamp (3 ac.).** This community is essentially bottomland hardwood forest with common components that may include red maple, river birch, water oak, sweetgum, willow, tupelo, water hickory, bays, water ash and buttonbush. Associated species may include cypress, slash pine, loblolly pine and spruce pine.

**FLUCCS 616 – Inland Ponds and Sloughs (33 ac.).** At the Bank, cypress and gum are the dominant canopy species in these areas.

**FLUCCS 617 – Mixed Wetland Hardwoods (75 ac.).** These areas are composed of a large variety but ill defined mixture of hardwood species tolerant of hydric conditions.

**FLUCCS 621 – Cypress Swamp (455 ac.).** This community is composed of pond cypress or bald cypress which is either pure or predominant.

**FLUCCS 625 – Hydric Pine Flatwoods (158 ac.).** These areas are characterized by a moderate canopy of slash pine with some longleaf pine possibly occurring in higher spots. The groundcover contains wiregrass, forbs, and may contain sparse saw palmetto along drier edges.

---

<sup>1</sup> Descriptions of post-restoration vegetation communities have been modified from “Florida Land Use, Cover and Forms Classification System” Handbook, FDOT, January, 1999.

**FLUCCS 626 – Hydric Pine Savanna (4 ac).** These areas have a sparse canopy of slash pine and/or longleaf pine, with a groundcover of grasses, forbs, some pitcher plants and wetland shrubs.

**Undifferentiated FLUCCS 630 – Wetland Forested Mixed (5 ac.).** This category consists of mixed wetland forest communities in which neither hardwoods nor conifers achieve a >66% canopy dominance.

**Undifferentiated FLUCCS 640 – Vegetated Non-Forested Wetland (3 ac.).** This consists of seasonally flooded basins, meadows and ditches with a tree canopy closure of less than 10%.

**FLUCCS 641 – Freshwater Marshes (31 ac.).** These communities are dominated by species such as maidencane, needlerush, common reed and buttonbush.

**FLUCCS 643 – Wet Prairies (2 ac.).** These communities are dominated by grassy vegetation on hydric soils, and are generally less wet than freshwater marshes.

**FLUCCS 644 – Emergent Aquatic Vegetation (57 ac.).** These areas are adjacent to ponds and include species such as duck weed, water lily and *Panicum* spp.

**FLUCCS 810/830 – Transportation/Utilities (19 ac.).** This area consists of the power line right-of-ways which will be maintained as native shrub and prairie vegetation and associated dirt roads, but was not included in the credit assessment.

**Attachment D: Planting Plan for the SHLMB**

Management Unit	Target FLUCCS	Activity	Species Planted	Planting Rate
1	-	Preservation / Management	None	N/A
2	625	Hydric pine flatwoods restoration	Longleaf and slash pine bare-root seedlings Wiregrass tubelings*	436 seedlings per acre 3' centers
			Seeding with collected wet flatwood species	2-5 pounds seed per acre
3	625	Hydric pine flatwoods restoration	Wiregrass tubelings*	3' centers
			Seeding with collected wet flatwood species*	2-5 pounds seed per acre
4	-	Preservation / Management	None	N/A
5	616	Dam removal and habitat restoration	Cypress and black gum seedlings	300 trees per acre
6	-	Preservation / Management	None	N/A
7	-	Preservation / Management	None	N/A
8	-	Preservation / Management	None	N/A
9	615 616 621	Removal of road-fill and restoration of wetland footprint	Cypress or cypress and black gum seedlings	planted on 6' centers
10	421 427	As determined by QMS, portions of Management Unit 10 may be planted	Longleaf pine – bare-root seedlings Wiregrass tubelings*	436 seedlings per acre 6' centers or direct seeding at 2-5 lbs./ac.
		Erosion Stabilization (Site No. 10)	Same As Above	Same As Above
		Erosion Stabilization (Site No. 9)	Appropriate slope stabilization vegetation as determined by QMS	To be determined
11	412	Restoration of longleaf pine / wiregrass sandhills from pine plantation	Longleaf pine – bare-root seedlings Wiregrass tubelings or direct seeding*	436 seedlings per acre 6' centers or direct seeding at 2-5 lbs./ac.
		Erosion Stabilization (Site No. 7)	Same As Above	Same As Above
12	412	Restoration of longleaf pine / wiregrass sandhills from xeric oak habitat	Longleaf pine – bare-root seedlings Wiregrass tubelings or direct seeding*	436 seedlings per acre 6' centers or direct seeding at 2-5 lbs./ac.
		Erosion Stabilization (Site Nos. 1-6, 8)	Same As Above	Same As Above
13	-	Preservation / Management	None	N/A
14	-	Preservation / Management	None	N/A

\* Direct planting or seeding when wiregrass cover is less than 25%

## ATTACHMENT E: FIRE MANAGEMENT PLAN

The Bank is divided into 14 Management Units that range from 0.25 to ~580 acres (Figure 1). Prescribed fire will be an integral component of the management, enhancement and restoration for six of these units (Management Units 2, 3, 8, 10, 11, 12), and will also be used for management of portions of the power line ROW. The remaining Management Units are aquatic systems and wetlands not typically managed with fire, although fire from adjacent Units may be allowed to burn into them when conditions allow and when doing so would not result in a catastrophic burn. Prescribed burns will generally be conducted during the growing season (March through August), although initial dormant-season fuel-reduction fires may be required in some areas. Burns are planned for 1-3, 3-5 and 5-7 year cycles (Figure 2), although fuel levels, prevailing weather patterns and other on-site conditions may necessitate modification of burn cycles. Burn coverage of 80% or more within a polygon will be considered a successful burn.

Prescribed fire is intended to inhibit succession of woody species, promote fire-adapted species, and stimulate seed production of desirable herbs. Fire prescriptions will be written to comply with open burning laws (Florida Statutes 590) and liability considerations. Safety and protection of property will be the priority concern of the Florida Certified Prescribed Burn Manager (FCMB).

MANAGEMENT UNITS				
Unit	Approx. Acres	Fire?	Approx. Burn Acres	Target Community and/or Notes
1	579	no	0	Forested and non-forested wetlands. Fire may be allowed to burn into some of these areas as conditions allow. These systems are not expected to carry fire except for wet prairies during drought.
2	147	YES	150	Hydric pine flatwoods. One-time dormant-season burn after vegetation reduction by roller chopping, gyro-trak, hydro-axe, or similar method, followed by successive growing-season burns. Anticipated 3-5 year burn cycles.
3	11.5	YES	11.5	Hydric pine flatwoods. One-time dormant-season burn following thinning and vegetation reduction by roller chopping, gyro-trak, hydro-axe, or similar method as needed, followed by growing-season burns. Anticipated 1-3 year burn cycles.
4	40	no	0	Restored cypress swamp.
5	25	no	0	Inland ponds and sloughs.
6	23	no	0	Emergent aquatic vegetation.
7	29	no	0	Bay swamp.
8	4.5	YES	4.5	Hydric pine savanna. Anticipated 1-3 year burn cycles.
9	0.25	no	0	Cypress and bay swamp.
10	494	YES	473	Oak / pine sandhills. Anticipated 3-5 and 5-7 year burn cycles.
11	383	YES	383	Longleaf pine / wiregrass community restored from pine plantation. Anticipated 1-3 year burn cycles (may be modified when planted longleaf pine are in vulnerable stages of growth).
12	264	YES	264	Longleaf pine / wiregrass community restored from turkey oak "regrowth" community. Anticipated 1-3 and 3-5 year burn cycles (may be modified when planted longleaf pine are in vulnerable stages of growth).
13	4	no	0	Freshwater marsh.
14	165	no	0	Lakes
Total Burn Acres			1286	



## **General Burn Protocol**

- Implemented fire regime shall, as far as practical, mimic natural burn cycles. Burn cycles within a Management Unit will promote diversity of site.
- Burns will generally be growing-season burns on 1-3, 3-5, and 5-7 year cycles. Burn cycles may be altered, as necessary, to protect planted longleaf pine during vulnerable stages. Initial dormant-season fuel-reduction burns may be necessary. Fuel levels may force changes in anticipated burn cycles.
- Appropriate smoke management plans shall be implemented for all prescribed fires.
- Firebreaks (natural and anthropogenic) shall be inspected prior to each prescribed fire, with reinforcement measures (e.g., disking) implemented as necessary.
- Public safety and protection of property will have the highest priority.
- Any known archaeological and historical sites will be protected from damaging fires.
- If a prescribed fire escapes and requires suppression methods that cause ecological damage (e.g., emergency, bulldozer-plowed firebreaks), good faith efforts shall be made to rehabilitate the impacted area within two weeks of the incident.
- All burns shall comply with Florida Statutes 590 relating to prescribed fire.

## **Firebreaks**

Management Units at the Bank are generally bordered by dirt roads, wetlands and fence lines that will serve as preexisting firebreaks. Some sections will require reinforcement via disking. Disking causes minimal soil disturbance and generally creates a sufficient firebreak. Plowing, which leaves a much more extensive scar on the landscape, will be implemented only when other means of firebreak reinforcement have been exhausted.

## **Safety**

All burns will be supervised by a FCMB. All personnel participating on a prescribed burn will follow LCES standards (Look-outs, Communications, Escape Routes, Safety Zones). Lookouts will be posted at strategic locations to monitor smoke and any fire brand that might cause a spot over, or any other problem that could arise during a prescribed burn. Communications among personnel shall be maintained at all times during a prescribed fire. Escape routes, generally the system of dirt roads at the Bank, shall be identified prior to initiation of a burn. Safety zones, which may include dirt roads, burned-out sections, upwind and wetland areas will be identified prior to prescribed fires.

Personal protective equipment (PPE) shall be worn by all burn personnel. Smoke warning signs will be kept at the ready in case smoke becomes a problem on nearby county and state roads. Adjacent landowners who may be affected by smoke will be contacted prior to burning.

## **Smoke Management**

Leisure Lake Rd., SR 279, SR 77 and homes adjacent to the Bank are considered smoke-sensitive areas. The location of a prescribed fire within the Bank, wind speed and direction, and other ambient conditions will determine if a smoke-sensitive area may be impacted by a burn. If the FCBM determines that a smoke-sensitive area is likely to be affected by a burn, the following measures must be implemented and conditions met:

- Smoke hazard signs will be placed on roads that may be impacted by smoke produced by the prescribed burn and will face both traffic directions.
- Mixing height on the day of the prescribed burn must be greater than 1,700 feet.
- Transport windspeed on the day of the prescribed burn must be 9 mph or greater.
- Background visibility must be at least 5 miles inside the potted area.
- If rough is older than 2 years, use a backing fire. If burn can be completed 3 hours before sunset other firing techniques may be used.
- Prompt mop-up operations will be conducted to reduce residual smoke.
- If a smoke-sensitive area is in the overlapping trajectory of two smoke plumes, it should be one mile or more from both sources.
- All stumps, snags and logs will be extinguished to prevent a residual smoke problem.
- Daytime Dispersion Index values between 41 and 60 are adequate for small low burning activity prescribed fires. This value should be higher as the number of acres and the burning activity increases.

### **Tracking of Acreage Burned**

After each prescribed burn, GIS coverages and Excel spreadsheets shall be updated. Data recorded shall include number of acres burned, estimates of success (e.g., did fire cover  $\geq 80\%$  of intended burn area), date of burn and any additional notes (e.g., problems encountered, etc.).

### **Prescribed Burning Method**

Base lines will be established with a backing fire on the down-wind side of the burn unit, then a progression of either strip-heading fires, flanking fires or point source ignition will be delivered working up wind, depending on the required fire intensity described in the prescribed burn plan. The FCBM will be responsible for determining the burning method according to site conditions and desired fire intensity. Site specific conditions may require alternate techniques during a prescribed burn.

### **Prescription Parameters**

The Keetch-Byram Drought Index evaluates the effects of long-term drying of litter and duff on fire behavior. FCBM must consider this index before proceeding with a prescribed burn. A low drought index value is necessary when burning polygons that contain a high abundance of litter and duff. Higher drought index values can be used in polygons that contain wiregrass and other herbaceous materials as the primary fire carrier. With drought index values of 400-600, the FCBM may conduct a burn with caution because fire intensity increases as the drought index value. The FCBM will not conduct prescribed burning when the Keetch-Byram Drought Index is above 600, except with approval of the NFWMD Lands Management Division Director.

The following prescribed burning parameters are a guideline for the FCBM. These parameters could change depending on the unit conditions and results from previous burns. Specific parameters have been developed for units burned during the growing season at 1-3-year, 3-5-year and 5-7-year intervals and also for dormant season burns.

#### Growing Season Burns at 1-3-year Intervals

Parameter	Low	High
Temperature	70°	95°
Relative Humidity	35%	70%
Wind Direction	Any – discretion of the FCBM	N/A
Wind Speed (20 ft. forecast)	3 mph	20 mph
Transport Wind	9 mph	20 mph
Transport Wind Direction	Any – discretion of the FCBM.	N/A
Mixing Height	1,700	6,500
Day Time Dispersion Index	30	70

#### Growing Season Burns at 3-5-year Intervals

Parameter	Low	High
Temperature	70°	92°
Relative Humidity	40%	70%
Wind Direction	Any – discretion of the FCBM.	N/A
Wind Speed (20 ft. forecast)	3 mph	15 mph
Transport Wind	9 mph	17 mph
Transport Wind Direction	Any – discretion of the FCBM.	N/A
Mixing Height	1,700	6,500
Day Time Dispersion Index	30	70

#### Growing Season Burns at 5-7-year Intervals

Parameter	Low	High
Temperature	70°	90°
Relative Humidity	45%	70%
Wind Direction	Any – discretion of the FCBM.	N/A
Wind Speed (20 ft. forecast)	3 mph	10 mph
Transport Wind	9 mph	15 mph
Transport Wind Direction	Any – discretion of the FCBM.	N/A
Mixing Height	1,700	6,500
Day Time Dispersion Index	30	70

#### Dormant Season Burns

Parameter	Low	High
Temperature	40°	80°
Relative Humidity	30%	50%
Wind Direction	Any – discretion of the FCBM.	N/A
Wind Speed (20 ft. forecast)	3 mph	15 mph
Transport Wind	9 mph	20 mph
Transport Wind Direction	Any – discretion of the FCBM.	N/A
Mixing Height	1,700	6,500
Day Time Dispersion Index	30	70

Figure 1 - Management Units

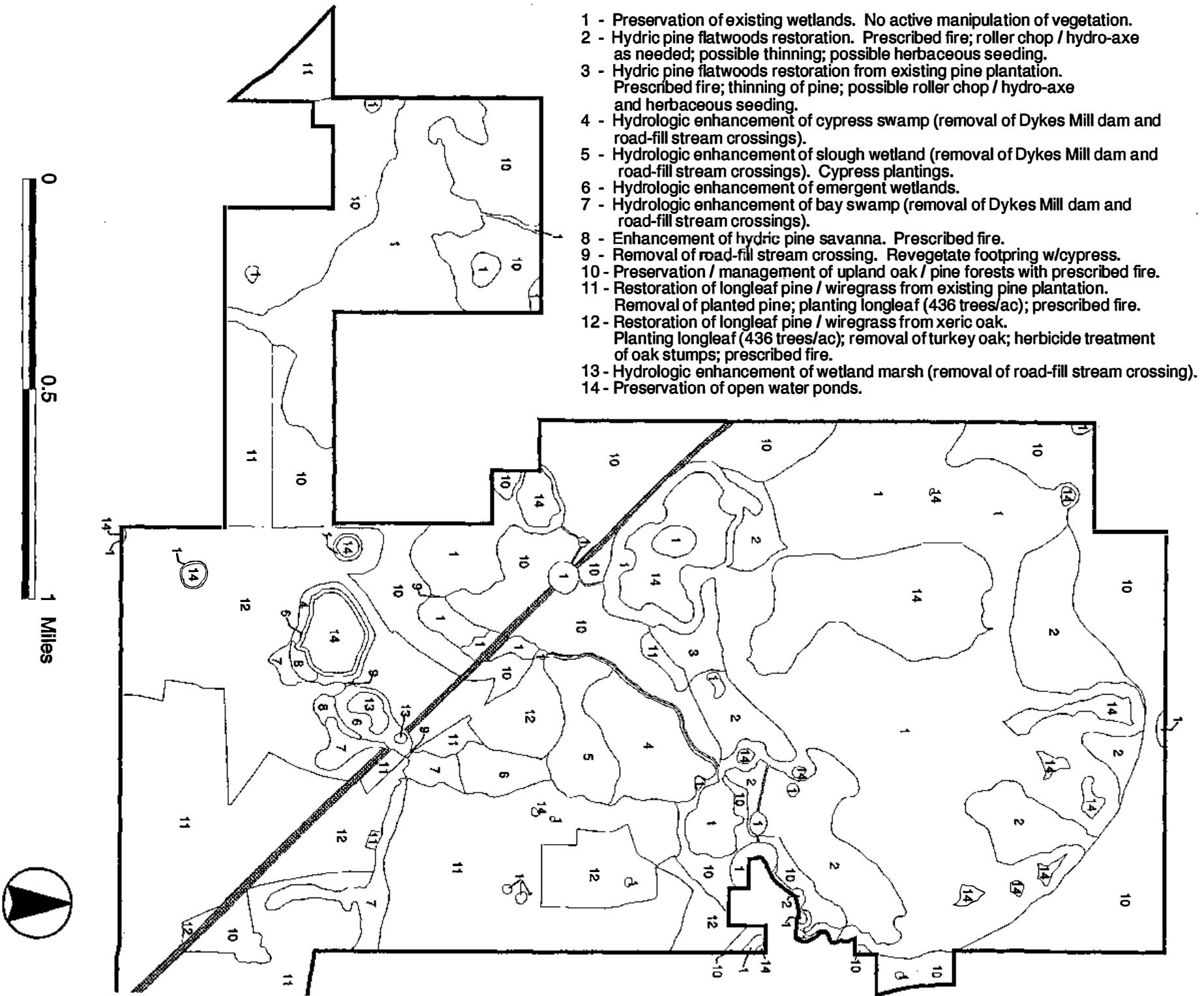
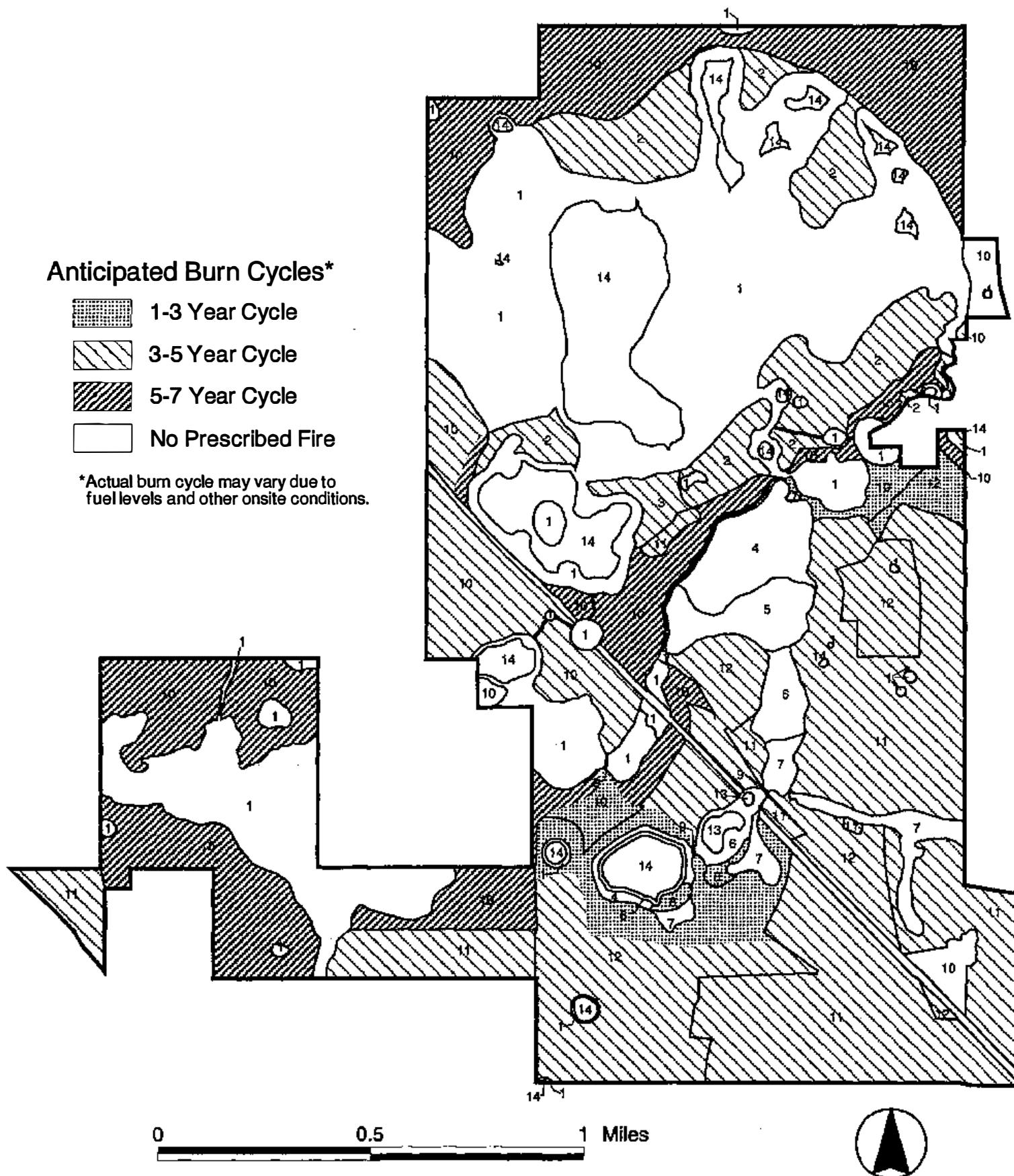


Figure 2 - Anticipated Burn Cycles



Note: Numbers refer to Management Unit No.

## ATTACHMENT F - UMAM Assessment

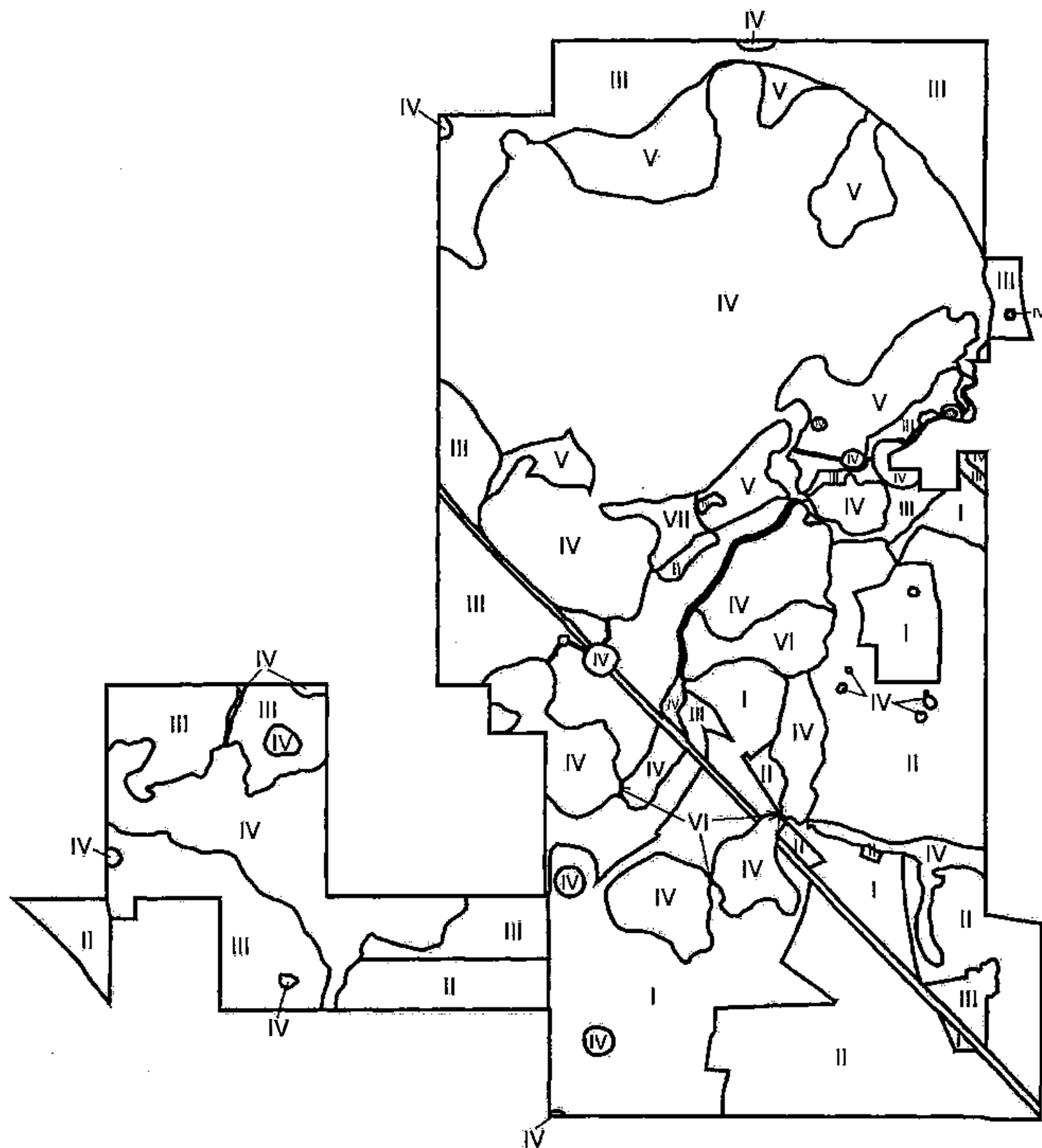
Credit Assessment - DEP UMAM 8/04-revised 10/04

Sand Hill Lakes Mitigation Bank - UMAM Assessment																
ASSESSMT AREA	MITIGATION CATEGORY	AREA (acres)	SCORE						UMAM W/OUT MIT.	UMAM WITH MIT.	DELTA	TIME LAG	F FACTOR	RISK	RFG	CREDIT
			AND LANDSCAPE		WATER ENVIRONMENT		COMMUNITY STRUCTURE									
			W/OUT or CUR.*	WITH MIT.	W/OUT or CUR.*	WITH MIT.	W/OUT or CUR.*	WITH MIT.								
I	Cutover sandhills to Longleaf/Wiregrass	263.52	8	10			7	9	0.75	0.95	0.20	1.14		1.00	0.18	46.2
II	Pine plantation to Longleaf/Wiregrass	383.48	7	9			7	9	0.70	0.90	0.20	1.25		1.25	0.13	49.1
III	Oak Sandhill Preservation	493.85	6	8			6	8	0.60	0.80	0.20	1.00	0.70	1.00	0.14	69.1
IV	High Quality Wetland Preservation	830.27	8	10	9	10	7	10	0.80	1.00	0.20	1.00	0.60	1.00	0.12	99.0
V	Hydric Pine Flatwood Enhancement	147.09	8	10	9	10	6	9	0.77	0.97	0.20	1.14		1.00	0.18	25.8
VI	Cypress-Gum Restoration	25.13	6	10	6	9	5	9	0.57	0.93	0.37	1.46		1.00	0.25	6.3
VII	Pine plantation to Hydric flatwoods	11.53	6	9	7	9	5	9	0.60	0.90	0.30	1.25		1.25	0.19	2.2
TOTALS		2154.88														298.4

\* For preservation assessment areas, use 'without' preservation, otherwise use 'current' condition/ Preservation areas shaded

NOTE: For the purpose of the ledger, credits derived from Assessment Areas I, II, V, and VII were defined as "flatwoods" credits. Credits derived from Assessment Areas III and VI were defined as "mixed hardwood" credits. Credits derived from Assessment Area IV were defined as "mixed hardwood" credits or "herbaceous" credits in proportion to the acreage of forested (cypress, gum) (587.2 ac./70.4 credits) or non-forested (herbaceous, emergent or pond) areas (243.1 ac./29.2 credits)

# Florida UMAM Analysis - Polygons



0 0.5 1 Miles

1 : 20,000



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

Site/Project Name  Sand Hill Lakes Mitigation Bank		Application Number		Assessment Area Name or Number  Polygon "I" - Sandhill-Xeric Oak	
FLUCCs code  412 (Current), 411 (Target)		Further classification (optional)  "Cutover" Sandhills Community		Impact or Mitigation Site?  Mitigation (upland enhancement)	
				Assessment Area Size  263.520	
Basin/Watershed Name/Number Chocatwhatchee and St. Andrew Bay Watersheds		Affected Waterbody (Class)  III		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)  None	
<p>Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands</p> <p>Part of a mosaic of karst ponds, lakes, hardwood swamps, hydric pine flatwoods, seepage slopes, wet prairies, bayheads, and streams surrounded by uplands with deep sandy soils supporting upland sandhills vegetation.</p>					
<p>Assessment area description</p> <p>The vegetation in this polygon is dominated by turkey oak, and sand live oak with some post oak, and blue jack oak. Most of the long leaf pine that historically had dominated the site has been harvested. Remnant long leaf pines populations occur adjacent to lakes and streams or in areas difficult to harvest. Understory has become overgrown due to absence of fire yet the wiregrass understory across much of the landscape is still intact and dense. Despite the absence of fire, a diverse assemblage of understory sandhill species remain.</p>					
Significant nearby features  North of Deer Point Lake (water supply for Panama City); Pine Log Creek, an important tributary to the Choctawhatchee River.		<p>Uniqueness (considering the relative rarity in relation to the regional landscape.)</p> <p>Karst solution lakes adjacent to sandhill communities are unique to several counties in the Panhandle, yet fairly common within the region. Development pressure within these areas is high and increasing with significant natural habitat lost to housing projects.</p>			
Functions  Water storage and recharge; ecotonal habitat for species noted below; nutrient input		<p>Mitigation for previous permit/other historic use</p> <p>Natural fire cycle suppressed; most of longleaf pine harvested off the property.</p>			
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found )  Oak toad, cricket frog, chorus frog, black racer, oak snakes, pygmy and diamondback rattlesnakes, hawks, cotton mouse, rabbit, raccoon, opossum, skunk, bobcat, deer.		<p>Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)</p> <p>Southeastern American Kestrel (T), Gopher Tortoise (SSC), Florida Pine Snake (SSC), Eastern Indigo Snake (T), Gulf Coast Lupine (T), Flowering Crab Apple (T).</p>			
<p>Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):</p> <p>Southeastern kestrel, gopher tortoise, Florida pine snake, anole, oak toad, black racer, race runner, southeastern five lined skink, deer, rabbit, squirrel, field mouse, armadillo, raccoon (tracks), coyote, morning dove, black vulture, fish crow, mockingbird, blue jay, titmouse, red shouldered hawk, turkey, wild hog (tracks). opossum (tracks), pygmy rattlesnake.</p>					
<p>Additional relevant factors:</p> <p>Housing developments are encroaching within the region. Significantly more development pressure associated with lands adjacent to the karst ponds and lakes. Powerline traverses property. Mitigation is to restore/enhance the community toward a true longleaf/wirgrass community by: thinning oak, frequent fire, seeding/planting groundcover, as necessary and planting longleaf. Long-term management is principally frequent fire.</p>					
Assessment conducted by:		Assessment date(s):			



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

Site/Project Name Sand Hill Lakes Mitigation Bank - "II" Polygons		Application Number		Assessment Area Name or Number Polygons "II" - Sand and Slash Pine Plantation	
FLUCCs code 441 & 441 (current), 411 (target)		Further classification (optional) Sand and Slash Pine Plantation		Impact or Mitigation Site? Mitigation-upland enhancement/restoration	Assessment Area Size 383.484
Basin/Watershed Name/Number Choctawhatchee and St. Andrew Bay Watersheds		Affected Waterbody (Class) III		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) None	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Part of a mosaic of karst ponds, lakes, hardwood swamps, hydric pine flatwoods, seepage slopes, wet prairies, bayheads, and streams surrounded by uplands with deep sandy soils supporting upland sandhills vegetation.					
Assessment area description Sand Pine Plantation: Dominant species is planted sand pine. Majority of understory absent, though some wire grass persists in the more open areas. Slash Pine Plantations: Overstory of slash pine, some minor disturbance due to bedding, with low to moderate diversity observed in the understory.					
Significant nearby features North of Deer Point Lake (water supply for Panama City); Pine Log Creek, an important tributary to the Choctawhatchee River.			Uniqueness (considering the relative rarity in relation to the regional landscape.) Karst solution lakes adjacent to sandhill communities are unique to several counties in the Panhandle yet fairly common within the region. Development pressure within these areas is rapidly increasing with significant natural habitat lost to housing projects.		
Functions Water storage and recharge; ecotonal habitat for species noted below; nutrient input			Mitigation for previous permit/other historic use These areas were primarily long leaf pine dominated sandhills. Natural fire regime suppressed. Tree densities greatly increased; naturally occurring longleaf pine replace with offsite sand pine.		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)  Oak toad, black racer, rabbit, raccoon, opossum, deer.			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area).  None		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):  Green anole, black racer, race runner, deer (tracks), rabbit (droppings), and blue jay.					
Additional relevant factors:  Housing developments are encroaching within the region. Likelihood of continued silviculture. Significantly more development pressure associated with lands adjacent to the karst ponds and lakes. Power line traverses property. Mitigation involves the removal of all sand pine and most slash pine, frequent prescribed fires, seeding/planting groundcover as necessary, planting longleaf, and managing for exotic infestations.					
Assessment conducted by:			Assessment date(s):		

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

Site/Project Name <b>Sand Hill Lakes Mitigation Bank</b>		Application Number		Assessment Area Name or Number <b>Polygons "III" - Xeric Oak</b>	
FLUCCs code <b>421</b>		Further classification (optional) <b>Sandhills vegetation degraded by long-term fire suppression.</b>		Impact or Mitigation Site? <b>Mitigation-upland preservation</b>	
Assessment Area Size <b>493.852 Acres</b>					
Basin/Watershed Name/Number <b>Pine Log Creek/Chocatwhatchee (Ecofina Groundwater)</b>		Affected Waterbody (Class) <b>III</b>		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance) <b>None</b>	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands  Part of a mosaic of karst ponds, headwater lakes, hardwood swamps, hydric pine flatwoods, seepage slopes, wet prairies, bayheads, and streams surrounded by uplands with deep sandy soils supporting upland sandhills vegetation.					
Assessment area description  The vegetation in this polygon is dominated by sand live oak with some live oak. Understory is often bare with patches of remnant sandhill species and some wire grass. The area appears to be transitioning from an historic pine, oak and wiregrass-type community to an established and functional xeric hammock-type community.					
Significant nearby features  North of Deer Point Lake (the water supply for Panama City); Pine Log Creek, an important tributary to the Choctawhatchee River.		Uniqueness (considering the relative rarity in relation to the regional landscape.) Karst solution lakes adjacent to sandhill communities are unique to several counties in the Panhandle yet fairly common within the region. Development pressure within these areas is high and increasing with significant natural habitat lost to housing projects.			
Functions  Water storage and recharge; ecotonal habitat for species noted below.		Mitigation for previous permit/other historic use  Natural fire cycle suppressed; conversion of sandhill community to xeric oak.			
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found).  Black racer, oak snakes, rabbit, raccoon, armadillo, opossum, skunk, bobcat, deer.		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)  Southeastern American Kestrel (T)			
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):  Anole, black racer, race runner, southeastern five lined skink, squirrel, armadillo, raccoon (tracks), blue jay, and titmouse.					
Additional relevant factors:  In the near future, continues fire suppression would degrade groundcover and develop potential for catastrophic fire. Additionally, housing developments are encroaching within the region. Significantly more development pressure associated with these uplands adjacent to the karst ponds and lakes, and with homes and access, increased amount of ATV use and more roads. Powerline traverses property. Minor threat of exotic vegetation. Mitigation will preserve current functional condition and be managed with fire to retain or enhance a more open understory.					
Assessment conducted by:			Assessment date(s):		

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

Site/Project Name <b>Sand Hill Lakes Mitigation Bank</b>		Application Number		Assessment Area Name or Number <b>Polygons "IV" - High Quality Wetlands Preservation</b>	
FLUCCs code <b>520, 611, 615, 616, 617, 621, 626, 630, 640, 641, 643, 644</b>		Further classification (optional) <b>basin, depression</b>		Impact or Mitigation Site? <b>Mitigation-wetland preservation</b>	
				<b>Assessment Area Size 830.629 Acres</b>	
Basin/Watershed Name/Number <b>Pine Log/Choctaw R (Ecofina Groundwater)</b>		Affected Waterbody (Class) <b>III</b>		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) <b>None</b>	
<p>Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands</p> <p>Part of a mosaic of openwater solution ponds w/ sandy overburden that supports upland vegetation, high water table flats-pine and wet prairie that has wet/seepage slopes, mostly wooded down to cypress dominated bottomlands, forested wetlands, marshes, mixed hardwood swamps, seepage slopes, bayheads, and ponds.</p>					
<p>Assessment area description</p> <p>The assessment area consists of the high quality wetlands and open waters contained on the property. The area includes all forested and herbaceous wetlands, and other waterbodies on the property. The wetlands onsite are very diverse representing both isolated and connected wetland systems. Additionally, there are 3 very small areas where roads that traverse the wetlands will be removed and replanted in native wetland species.</p>					
Significant nearby features		Uniqueness (considering the relative rarity in relation to the regional landscape.)			
North of Deer Point Lake (water supply for Panama City); Pine Log Creek, an important tributary to the Choctawhatchee River.		Fairly common throughout the region, though nearly pristine cypress systems rare. The wetlands are mostly in excellent shape and reflect a diverse assemblage of wetland systems, several of these such as seepage slopes and seepage streams in their natural condition are			
Functions		Mitigation for previous permit/other historic use			
Water storage and recharge; ecotonal habitat for species noted below		Past altered hydrology.			
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found).		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)			
Raccoon, Ibis, piliated woodpecker, warblers, wood duck, belted kingfisher, sliders, little blue heron, anhinga, great white egret, great blue heron, alligator, osprey, deer.		Cinnamon Fern (CE), Smooth Barked St. John's Wort (State E, Federal SSC), Alligator (SSC), Alligator Snapping Turtle (SSC), Bogbuttons (T). Water sundew (T), White topped pitcher plant (E), Kraal's yellow-eyed grass (E).			
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):					
Raccoon, Ibis, piliated woodpecker, warblers, wood duck, belted kingfisher, sliders, soft shelled turtle, little blue heron, anhinga, great white egret, great blue heron, osprey, deer, alligator, ribbon snake, leopard frog, bull frog.					
Additional relevant factors:					
Housing developments are beginning to be constructed within the region associated with the larger lakes. Powerline traverses property. Mitigation is to preserve the current condition of these wetlands, restore natural connections at the road crossings and manage to maintain free of exotic vegetation.					
Assessment conducted by:		Assessment date(s):			

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

Site/Project Name  Sand Hill Lakes Mitigation Bank		Application Number		Assessment Area Name or Number  Polygons "V" - Hydric Pine Flatwoods	
FLUCCs code  625		Further classification (optional)  Enhancement of Hydric Pine Flatwoods		Impact or Mitigation Site?  Mitigation-wetland enhancement	
Assessment Area Size  147.091 Acres					
Basin/Watershed Name/Number Choctawhatchee and St. Andrew Bay Watersheds		Affected Waterbody (Class)  III		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)  None	
<p>Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands</p> <p>Part of a mosaic of karst ponds, lakes, hardwood swamps, hydric pine flatwoods, seepage slopes, wet prairies, bayheads, and streams surrounded by uplands with deep sandy soils supporting upland sandhills vegetation.</p>					
<p>Assessment area description</p> <p>Thick titi/lyonia/myrtle-leaved holly with remnant slash pine; lack of fire regime. Hydrology basically intact.</p>					
Significant nearby features		Uniqueness (considering the relative rarity in relation to the regional landscape.)			
North of Deer Point Lake (water supply for Panama City); Pine Log Creek, an important tributary to the Choctawhatchee River.		This mosaic of wetlands and uplands is unique to several counties in the Florida Panhandle. Hydric pine flatwoods are common within the region and are rapidly being developed.			
Functions		Mitigation for previous permit/other historic use			
Water storage and recharge; ecotonal habitat for both forested wetland and upland communities. Habitat and ecotone for species noted below		Nature fire regime has been suppressed for the last 50+ years. Past harvesting of pine, with natural re-generation. Very few slash pine currently occur within the area.			
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found).		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)			
Oak toad, cricket frog, chorus frog, black racer, oak snakes, pygmy and diamondback rattlesnakes, hawks, cotton mouse, rabbit, raccoon, opossum, skunk, bobcat, deer		Spoon-leaved Sundew (T), Cinnamon Fern (CE), (Kraal's Yellow-eyed Grass (E), White-topped Pitcher Plant (E), Water Sundew (T)			
<p>Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):</p> <p>Oaktoad, southern cricket frog, chorus frog, southern leopard frog, rabbit (droppings), deer (tracks), hog (tracks), black vulture, raccoon (tracks)</p>					
<p>Additional relevant factors:</p> <p>Housing developments are beginning to be constructed within the region associated with the larger lakes. Powerline traverses property. Enhancement will include shrub reduction and fire (initially dormant-season burns, then frequent growing-season burns), potential re-seeding with grass and hydric pine species. Herbicide use only in consultation with MBRT</p>					
Assessment conducted by:		Assessment date(s):			

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

Site/Project Name  Sand Hill Lakes Mitigation Bank		Application Number		Assessment Area Name or Number Polygons "VI" - Dykes Mill Pond / Road-fill Sites	
FLUCCs code  611, 616, 621		Further classification (optional)  basin, depression		Impact or Mitigation Site?  Mitigation-wetland enhancement/restoration	
Assessment Area Size  25.130 Acres					
Basin/Watershed Name/Number Choctawhatchee River and St. Andrew Bay Watersheds		Affected Waterbody (Class)  III		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)  None	
<p>Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands</p> <p>Part of a mosaic of openwater solution ponds w/ sandy overburden that supports upland vegetation, high water table flats-pine and wet prairie that has wet/seepage slopes, mostly wooded down to cypress dominated bottomlands, forested wetlands, marshes, mixed hardwood swamps, seepage slopes, bayheads, and ponds.</p> <p>Assessment area description</p> <p>The assessment area consists of an open water pond that had been converted from a deep swamp to a pond by a dam. Remnant dead and stressed cypress are apparent.</p>					
Significant nearby features  Just North of Deer Point Lake, the water supply for Panama City.		<p>Uniqueness (considering the relative rarity in relation to the regional landscape.)</p> <p>Fairly common throughout the region, though nearly pristine cypress systems rare. The wetlands are mostly in excellent shape and reflect a diverse assemblage of wetland systems, several of these such as seepage slopes and seepage streams in their natural condition are</p>			
Functions  Water storage and recharge; ecotonal habitat for species noted below		<p>Mitigation for previous permit/other historic use</p> <p>Past altered hydrology.</p>			
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found).		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)			
Raccoon, Ibis, piliated woodpecker, warblers, wood duck, belted kingfisher, sliders, little blue heron, anhinga, great white egret, great blue heron, alligator, osprey, deer.		Cinnamon Fern (CE), Smooth Barked St. John's Wort (State E, Federal SSC), Alligator (SSC), Alligator Snapping Turtle (SSC), Bogbuttons (T), Water sundew (T), White topped pitcher plant (E), Kraal's yellow-eyed grass (E).			
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):					
raccoon, Ibis, piliated woodpecker, warblers, wood duck, belted kingfisher, sliders, soft shelled turtle, little blue heron, anhinga, great white egret, great blue heron, osprey, deer, raccoon, alligator, ribbon snake, leopard frog, bull frog.					
Additional relevant factors:					
Housing developments are beginning to be constructed within the region associated with the larger lakes. Powerline traverses property. Mitigation consists of removing the dam and restoring the natural connection. Cypress and gum will be planted.					
Assessment conducted by:		Assessment date(s):			

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

Site/Project Name  Sand Hill Lakes Mitigation Bank		Application Number		Assessment Area Name or Number Polygons "VII" - Hydric Pine Restoration from Bedded Slash Pine Plantation	
FLUCCs code  625 (restored from 441)		Further classification (optional)  Bedded slash pine plantation on hydric site.		Impact or Mitigation Site?  Mitigation-wetland enhancement/restoration	
Assessment Area Size  11.532 Acres					
Basin/Watershed Name/Number Choctawhatchee River and St. Andrew Bay Watersheds		Affected Waterbody (Class)  III		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)  None	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands  Part of a mosaic of karst ponds, lakes, hardwood swamps, hydric pine flatwoods, seepage slopes, wet prairies, bayheads, and streams surrounded by uplands with deep sandy soils supporting upland sandhills vegetation.					
Assessment area description  Uneven stands of slash pine with thick titi/lyonia/myrtle-leaved holly understory, fire suppression. Bedding affects sheet-flow and probably causes some de-watering					
Significant nearby features  North of Deer Point Lake (water supply for Panama City); Pine Log Creek, an important tributary to the Choctawhatchee River.				Uniqueness (considering the relative rarity in relation to the regional landscape.)  This landscape is unique to several counties in the panhandle. Wet flatwoods are common within the region and are rapidly being developed.	
Functions  Water storage and recharge; ecotonal habitat for both forested wetland and upland communities. Habitat and ecotone for species noted below.				Mitigation for previous permit/other historic use  Nature fire regime has been suppressed for the last 50+ years; currently in bedded slash pine.	
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found).  Oak toad, cricket frog, chorus frog, black racer, oak snakes, pygmy and diamondback rattlesnakes, hawks, cotton mouse, rabbit, raccoon, opossum, skunk, bobcat, deer				Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)  Spoon-leaved Sundew (T), Cinnamon Fern (CE), (Kraal's Yellow-eyed Grass (E), White-topped Pitcher Plant (E), Water Sundew (T)	
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):  Oak toad, southern cricket frog, chorus frog, southern leopard frog, rabbit (droppings), deer (tracks), hog (tracks), black vulture, raccoon (tracks)					
Additional relevant factors:  Housing developments are beginning to be constructed within the region associated with the larger lakes. Powerline traverses property. Mitigation is to thin slash pine to <200 trees per acre for hydric pine flatwoods. Brush reduction and prescribed fire (initial dormant-season burns); re-seeding with grass species if desirable grass species do not develop from understory.					
Assessment conducted by:				Assessment date(s):	

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

Site/Project Name Sand Hills Mit. Bank - "I" Polygons	Application Number	Assessment Area Name or Number Sandhill-Xeric Oak
Impact or Mitigation Mitigation-upland enhancement	Assessment conducted by:	Assessment date: 263.520 Acres

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

.500(6)(a) Location and Landscape Support  w/o pres or                      with <div>8</div> <div>10</div>	Current - Surrounding landuse is about 1/2 silviculture (mostly on upland side), and 1/2 natural lands (mostly high quality wetlands). Sufficient buffer and diversity of surrounding habitat and larger landscape to support most functions, but is compromised in optimal support by an altered vegetation community. Does not provide optimal landscape support for the adjacent wetlands because of its lack of tall pines and somewhat overgrown groundcover. "With" - ensure protection from exotics; improves the capacity of the area to support adjacent wetlands by providing more natural habitat for ecotonal species. Fire will release additional nutrients to and from surrounding lands. No expectation of significant obstacles to prevent area from achieving optimal landscape support.
.500(6)(b)Water Environment (n/a for uplands)  w/o pres or                      with <div>0</div> <div>0</div>	N/A
.500(6)(c)Community structure  1. Vegetation and/or 2. Benthic Community  w/o pres or                      with <div>7</div> <div>9</div>	Current - The sandhill community is overgrown from 50 years of fire suppression. History of longleaf pine timber removal (although not as plantation) without replanting. Woody species have invaded and shrubby understory species have become dominant in the landscape. Oak species, primarily Turkey Oak ( <i>Quercus laevis</i> ) and Sand Live Oak ( <i>Quercus geminata</i> ) have become the dominant overstory species. Groundcover is somewhat matted, and the wiregrass has become sparse in some areas and has no signs of recent blooming. Regardless, most wetland functions dependant on this upland vegetation are supported. "With" - Many of the oaks will be cut and burned. The re-introduction of fire will significantly aid in habitat restoration. Most wetland functions provided by this upland will be realized following a series of burns designed to restore the wire grass community. Some long leaf pines are in place and others will be planted at a rate of 436 trees per acre, but will take time to replace some functions. Expectations are for excellent recovery, but perhaps slightly less than optimal in vegetation structure.

Score = sum of above scores/30 (if uplands, divide by 20)
or w/o pres                      with <div>0.75</div> <div>0.95</div>

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

For impact assessment areas

Delta = [with-current]
0.2

If mitigation
Time lag (t-factor) = 1.14
Risk factor = 1

For mitigation assessment areas
Potential Credits = delta/(t-factor x risk) x acres = 46.2

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

Site/Project Name Sand Hills Mit. Bank - "II" Polygons	Application Number	Assessment Area Name or Number Pine Plantation (Sand and Slash Pine)
Impact or Mitigation Mitigation	Assessment conducted by:	Assessment date: 383.484 Acres

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

.500(6)(a) Location and Landscape Support  w/o pres or                      with <div>7</div> <div>9</div>	Current - Surrounding landuse are predominately high quality wetlands or fire-suppressed natural sandhills. Sufficient buffer and diversity of surrounding habitat to support most functions, but is compromised in optimal support by an altered vegetation community. Provides support to most functions, but does not provide optimal landscape support for the adjacent wetlands because of its altered community. "With" - ensure protection from exotics; improves the capacity of the area to support adjacent wetlands by providing more natural habitat for ecotonal species. Fire will release additional nutrients to and from surrounding lands. Optimal support limited due to proximity to off-site ag and silviculture operations.
.500(6)(b)Water Environment (n/a for uplands)  w/o pres or                      with <div>0</div> <div>0</div>	N/A
.500(6)(c)Community structure  1. Vegetation and/or 2. Benthic Community  w/o pres or                      with <div>7</div> <div>9</div>	Current- The natural sandhills community has been replaced with planted sand pine and slash pine. The majority of the understory vegetation has been shaded out by the dense pine. Some remnant understory sand hill species and wire grass remain but in greatly reduced numbers. However, adequate vegetation structure remains to support some, if not most, associated wetland functions. "With" - The sand pine and slash pine will be harvested and the site burned. The site will be seeded with wire grass and sand hill species from seed collected on the property. Following seeding the site will be planted with 436 trees per acre of long leaf pine. Growing-season fire will be restored to the system at 1-4 year intervals after the long leaf pine has become well established. Full recovery of groundcover and optimal overstory structure not anticipated within reasonable timeframe, however very good restoration expected within 10 years after success criteria are met.

Score = sum of above scores/30 (if uplands, divide by 20)
or w/o pres                      with <div>0.7</div> <div>0.9</div>

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

For impact assessment areas

Delta = [with-current]
0.2

If mitigation
Time lag (t-factor) = 1.25
Risk factor = 1.25

For mitigation assessment areas
Potential Credits = delta/(t-factor x risk)*acres =61.4



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

Site/Project Name Sand Hills Mit. Bank - "III" Polygons	Application Number	Assessment Area Name or Number Sandhill-Xeric Oak
Impact or Mitigation Mitigation	Assessment conducted by:	Assessment date: 493.852 Acres

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

.500(6)(a) Location and Landscape Support  w/o pres or                      with <div>6</div> <div>8</div>	<p>"Without" - Without preservation the area is likely be impaired by declining groundcover and increased susceptibility to catastrophic fires. Additionally, in private ownership is might be expected to be developed for low-moderate density housing with associated roads and access and increased anthropomorphic alterations of the natural communities. This would further fragment the natural communities within the region. "With" - should ensure continued protection from exotics; will improve the capacity of the area to support adjacent wetlands by providing more natural habitat for ecotonal species. Fire will release additional nutrients to and from surrounding lands. Optimal support threatened by potentially developed offsite landuses.</p>
.500(6)(b)Water Environment (n/a for uplands)  w/o pres or                      with <div>0</div> <div>0</div>	N/A
.500(6)(c)Community structure  1. Vegetation and/or 2. Benthic Community  w/o pres or                      with <div>6</div> <div>8</div>	<p>"Without" - The sandhill is likely to be impaired by declining groundcover and increased susceptibility to catastrophic fires. Additionally, it is increasingly susceptible to development into low-moderate density housing. The sandhill vegetation could be cleared to some extent and replaced with lawns and landscaping, and with additional disturbance, more likelihood of exotic infestations and other anthropomorphic disturbances. "With" - Site managed to maintain current condition with prescribed fires on an average of 5 year cycle to keep groundcover somewhat open and protect area from intense fire. Optimal long-term support threatened by offsite development.</p>

Score = sum of above scores/30 (if uplands, divide by 20)
or w/o pres                      with <div>0.6</div> <div>0.8</div>

If preservation as mitigation,
Preservation adjustment factor = 0.7
Adjusted mitigation delta = 0.14

For impact assessment areas

Delta = [with-current]
0.2

If mitigation
Time lag (t-factor) = 1
Risk factor = 1

For mitigation assessment areas
Potential Credits = delta/(t-factor x risk) x acres = 69.1

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

Site/Project Name Sand Hill Lakes Mitigation Bank	Application Number	Assessment Area Name or Number Polygons "IV"
Impact or Mitigation	Assessment conducted by:	Assessment date: 830.269 acres

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

.500(6)(a) Location and Landscape Support  w/o pres or                      with 8                                      10	W/O Preservation- Without preservation portions of the site could be logged, decreasing its support for a variety of wildlife functions. Fragmentation could occur with multiple landowners attaining access and managing for different purposes. Existing dam on Black Pond could become further degraded, leading to increased erosion problems and unstable water levels. Exotic vegetation infestation could occur. With- should ensure continued protection from exotics and be managed to maintain a single connected natural system. Dam and erosion stabilized.
.500(6)(b)Water Environment (n/a for uplands)  w/o pres or                      with 9                                      10	W/O- preservation- the property will likely be developed as moderate to upper end housing development. Minor increase to turbidity from property clearing, impacts to ponds from the run off of lawn fertilization and nutrient additional impact to ponds from septic tanks. In addition the vegetation in the littoral fringe will likely be removed by landowners, impacting the wetland vegetation. The use of motor boats will increase the possibility of oil and gas release into the aquatic environment. With - hydrology will continue to support natural systems. Surrounding habitat will be returned to a natural condition which will improve nutrient release with fire and more natural ET from a restored upland habitat; some minor alterations of natural hydrology to remain.
.500(6)(c)Community structure  1. Vegetation and/or 2. Benthic Community  w/o pres or                      with 7                                      10	W/O Preservation: The wetland vegetation is likely to be impacted by adjacent land owners who clear areas for swimming and to allow a clear view of lake. Exempt docks will impact both the vegetation and lake bottom by shading out vegetation. Increased nutrients to the ponds will likely change species dominance and increase exotic plant growth. Some of the cypress will likely be harvested for timber prior to development. The use of motor boats will increase the change of exotic species introduction into the lakes. With- Wetland vegetation would be preserved. Low nutrient system will likely continue. Exotic species invasion would be limited by lack of motor boat use on site.

Score = sum of above scores/30 (if uplands, divide by 20)
current or w/o pres                      with 0.8                                      1

Delta = [with-current]
0.2

If preservation as mitigation,
Preservation adjustment factor = .60
Adjusted mitigation delta = 0.12

If mitigation
Time lag (t-factor) = 1
Risk factor = 1

For impact assessment areas

For mitigation assessment areas
Potential Credits = delta x acres = 99.6

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

Site/Project Name Sand Hill Lakes Mitigation Bank	Application Number	Assessment Area Name or Number Polygons "V"
Impact or Mitigation	Assessment conducted by:	Assessment date: 147.091 Acres

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

.500(6)(a) Location and Landscape Support  current                      with 8                              10	Current- Has sufficient buffer and diversity of surrounding habitat to support most functions, but is compromised in optimal support by an altered vegetation community; does not provide optimal buffer for the adjacent wetlands because of altered community. With- should ensure continued protection from exotics; will improve the capacity of the area to support adjacent wetlands by providing more natural habitat. Fire will release additional nutrients to and from surrounding lands. No expectation of significant obstacles to prevent area from achieving optimal landscape support.
.500(6)(b) Water Environment (n/a for uplands)  current                      with 9                              10	Current-Hydrology and water quality are mostly natural and support functions, but are slightly impaired by altered community and fire regime (increased evapo-transpiration (ET) and decreased nutrient release) - With - nutrient release with fire and more natural ET. No expectation of significant obstacles to prevent area from achieving optimal water environment.
.500(6)(c) Community structure  1. Vegetation and/or 2. Benthic Community  current                      with 6                              9	Current- Much more titi, lyonia and vines than natural condition and creates a denser understory and restricts many species adapted to grassy, open habitats. With- The hydric pine flatwoods will have shrub reduction and be burned on a short cycle to restore a wet flatwoods habitat. Once the shrub layer has been greatly diminished, wire grass and long leaf pine will be re-introduced. The hydric pine flatwoods will be restored by using seed sources from adjacent hydric pine communities, though woody species are still likely to be more abundant and herbaceous species less diverse than a natural system. The re-introduction of fire will significantly aid in habitat restoration. Most wetland functions provided by this area will realized following a series of burns designed to restore the groundcover. Some pines are in place and others will be planted, but will take time to replace some functions. Expectations are for excellent recovery, but perhaps slightly less than optimal in vegetation structure

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0.97

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

For impact assessment areas

Delta = [with-current]
0.2

If mitigation
Time lag (t-factor) = 1.14
Risk factor = 1.0

For mitigation assessment areas
Potential Credits = delta/(t-factor x risk) x acres = 25.8

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

Site/Project Name Sand Hills Mit. Bank - "VI" Polygons	Application Number	Assessment Area Name or Number Polygons "VI" - Dykes Mill / Road-fill
Impact or Mitigation Mitigation	Assessment conducted by:	Assessment date: 25.130 Acres

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

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

<p>.500(6)(a) Location and Landscape Support</p> <p>w/o pres or                      with</p> <p>6                      10</p>	<p>Current- Has sufficient buffer and diversity of surrounding habitat to support the functions. Does not provide optimal support for the adjacent wetlands because it is open water rather than the swamp and deep marsh that would be the natural condition. With- should ensure continued protection from exotics; will improve the capacity of the area to support adjacent wetlands by providing more natural habitat. No expectation of significant obstacles to prevent area from achieving optimal landscape support.</p>
<p>.500(6)(b)Water Environment (n/a for uplands)</p> <p>w/o pres or                      with</p> <p>6                      9</p>	<p>Current-Areas is impounded and has flooded the natural wetland systems, but water levels are more similar to historic because of the failing dam. "With" - Enhancement will restore system to a natural state, will remove impoundment of water, but may be slightly less than optimal because of the historic alterations</p>
<p>.500(6)(c)Community structure</p> <p>1. Vegetation and/or 2. Benthic Community</p> <p>w/o pres or                      with</p> <p>5                      9</p>	<p>Current- Degraded cypress canopy, prolonged flooding at greater depths has led to the decline of the cypress trees. Many of the trees are dying, very limited regeneration. Understory shifted from grasses and shallow water emergents to floating and aquatic species With- Removal of dam and lowering of water levels to reflect historic system. Cypress forest restored through reduced water depths and replanting of the cypress trees. Herbaceous community will shift from a water lily dominated community to an emergent dominated system.</p>

Score = sum of above scores/30 (if uplands, divide by 20)
or w/o pres                      with
0.57                      0.93

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

For impact assessment areas

Delta = [with-current]
0.37

If mitigation
Time lag (t-factor) = 1.46
Risk factor = 1.0

For mitigation assessment areas
Potential Credits = delta/(t-factor x risk) * acres = 6.3

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

Site/Project Name Sand Hills Mit. Bank - "VII" Polygons	Application Number	Assessment Area Name or Number Polygons "VII"
Impact or Mitigation Mitigation	Assessment conducted by:	Assessment date: 11.532 Acres

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

.500(6)(a) Location and Landscape Support  w/o pres or                      with <div>6</div> <div>9</div>	Current-Has sufficient buffer and diversity of surrounding habitat to support the functions. Does not provide full support for the adjacent wetlands because of plantation community and altered hydrologic pattern. With- will ensure continued protection from exotics; will improve the capacity of the area to support adjacent wetlands by providing more natural habitat. Fire will release additional nutrients to and from surrounding lands. optimal support limited by remaining, but diminished bedding and slightly limited potential to recover the full complement of wet flatwoods function
.500(6)(b)Water Environment (n/a for uplands)  w/o pres or                      with <div>7</div> <div>9</div>	Current-Hydrology and water quality are mostly natural and support functions, but are slightly impaired by silviculture practices and light bedding, increased evapo-transpiration (ET) and fire suppression . With - nutrient release with the introduction of fire and more natural ET; some alterations of natural hydrology to remain.
.500(6)(c)Community structure  1. Vegetation and/or 2. Benthic Community  w/o pres or                      with <div>5</div> <div>9</div>	Current- Very few shrubby species and though present, the understory has been greatly reduced in both number and diversity. Overstory dominated by dense planting of slash pine. A few maples and other hardwoods have invaded the historic wet flatwoods. With- The slash pine plantation will be harvest and bumed on a short cycle to restore a wet flatwoods habitat. Wire grass and other forbs will supplemented through the use of collected seed planted in the site. Following the establishment of the understory, a regular fire regime will encourage the wire grass spread. After the understory has become sufficiently stable, pines trees will be planted. Full recovery of groundcover and optimal overstory structure not anticipated within reasonable timeframe, however very good restoration expected within 10 years after success criteria are met.

Score = sum of above scores/30 (if uplands, divide by 20)
or w/o pres                      with <div>0.6</div> <div>0.9</div>

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

For impact assessment areas

Delta = [with-current]
0.3

If mitigation
Time lag (t-factor) = 1.25
Risk factor = 1.25

For mitigation assessment areas
Potential Credits = delta/(t-factor x risk)*acres = 2.2

**Sand Hill Lakes Mitigation Bank Ledger**  
**Permit No. 0227371-001**  
**July 2005**

**ATTACHMENT G: LEDGER**

Freshwater Herbaceous Wetlands: Total Potential Credits = 29.2

<u>Release Mod./</u> <u>Impact Permit</u>	<u>Permit</u> <u>Date</u>	<u>Issuing</u> <u>Agency</u>	<u>Ledger</u> <u>Modification</u>	<u>Credits</u> <u>Added</u>	<u>Credits</u> <u>Used</u>	<u>Balance</u>
--	------------------------------	---------------------------------	--------------------------------------	--------------------------------	-------------------------------	----------------

Freshwater Forested Flatwoods: Total Potential Credits = 123.1

<u>Release Mod./</u> <u>Impact Permit</u>	<u>Permit</u> <u>Date</u>	<u>Issuing</u> <u>Agency</u>	<u>Ledger</u> <u>Modification</u>	<u>Credits</u> <u>Added</u>	<u>Credits</u> <u>Used</u>	<u>Balance</u>
--	------------------------------	---------------------------------	--------------------------------------	--------------------------------	-------------------------------	----------------

Freshwater Mixed Hardwoods: Total Potential Credits = 146.1

<u>Release Mod./</u> <u>Impact Permit</u>	<u>Permit</u> <u>Date</u>	<u>Issuing</u> <u>Agency</u>	<u>Ledger</u> <u>Modification</u>	<u>Credits</u> <u>Added</u>	<u>Credits</u> <u>Used</u>	<u>Balance</u>
--	------------------------------	---------------------------------	--------------------------------------	--------------------------------	-------------------------------	----------------

## ATTACHMENT H – MONITORING PLAN

Monitoring at the Sand Hill Lakes Mitigation Bank consists of both quantitative and qualitative monitoring. The quantitative vegetation monitoring will be conducted annually after enhancement and restoration activities are conducted, and will be submitted prior to credit release requests associated with interim and final success attainment. Parameters to be monitored consist of percent cover by species or grouping, and cover by exotic and nuisance species. Monitoring will also contain information on planted tree height and stem density. Qualitative monitoring information to be included in the annual reports will consist of an overall community assessment of the wetland, an estimation of the percent cover and dominant species in each community, documentation of the presence or spread of nuisance species, wildlife utilization, and general biological integrity of each assessed community. The specific monitoring techniques to be employed in the monitoring of these wetlands are described below and summarized in the following table.

UMAM	Managmt Units	Community Description	Monitoring Requirements
I	12	Sandhill Enhancement by long-leaf planting	Annual quantitative transects for herbaceous cover and belt transect for tree count and canopy. Annual pedestrian survey. Photos.
II	11	Sandhill Restoration from Plantation	Annual quantitative transect for herbaceous cover and belt transect for tree count and canopy. Annual pedestrian survey. Photos.
III	10	Oak/Sandhill Preservation	Annual pedestrian survey. Photos.
IV	1, 4, 6, 7, 8, 13, 14	Pond, marsh and Cypress/Gum Preservation	Annual pedestrian survey (1 in bay slope, 1 in isolated pond/marsh, 2 in cypress. Pond surveillance from shore or boat/canoe, as necessary, for larger ponds. Photos.
V	2	Wet flatwoods Restoration from Plantation	Annual quantitative transect for herbaceous cover and belt transect for tree count and canopy. Annual pedestrian survey. Photos.
VI	5, 9	Cypress/Gum Restoration	Annual quantitative transect/quadrat for herbaceous cover and belt transect/plot for tree count and canopy. Photos.
VII	3	Wet flatwoods Enhancement	Annual quantitative transect for herbaceous cover and belt transect for tree count and canopy. Annual pedestrian survey. Photos.
Erosion	10 sites	Stabilization/Vegetation	Annual quantitative assessment. Photo.
Ponds	14	Ponds	Monthly water level monitoring at ~10 sites for management purposes.

**Inspections:**

An integral part of monitoring and management is frequent surveillance of the site to ensure the early detection and remediation of potential problems. Additionally, site inspections provide valuable information regarding the specific needs and timing for management activities such as prescribed burns, replanting, thinning, etc. On a monthly basis for the first 3 years and at least quarterly thereafter, the site will be inspected as follows:

- a. Perimeter for signs of trespassing, fencing and signage integrity and infestation by exotic or nuisance vegetation;
- b. Internal roads (both public and maintenance) for signs of dumping or trespassing, erosion, bridge and road integrity, and exotic or nuisance vegetation infestation;
- c. All construction areas for stabilization and re-vegetation, structure operation and integrity;
- d. Powerline area for trespassing or disturbance that may affect the integrity of the bank;
- e. At least 3 polygons of each UMAM community, including ponds (or all polygons for those UMAM areas with less than 3 polygons) for fuel load, exotic or nuisance vegetation infestation (including aquatic exotics, such as hydrilla), planted material survival, groundcover and shrub condition.

**Quantitative Monitoring**

Quantitative vegetation monitoring will occur at the end of the growing season (~September; spring site visits would also aid in plant identification) in the first season following restoration activities (as a baseline) and in association with each request for a determination of interim and final success.

The percent vegetation cover will be monitored at locations shown in Figure 1-Monitoring. One-meter square quadrats will be established along transects within UMAM areas V and VII (hydric flatwoods), UMAM area VI (cypress/gum slough) and UMAM areas I and II (pine sandhill), and be placed at appropriate intervals. Quarter-meter square quadrats will be established along transects within the Polygon 5 (Sandhill) habitat area, and be placed at approximately 20 feet intervals. Each transect will contain permanently established photographic documentation stations, where qualitative quadrat (north, east, south, and west) observations will be recorded. Transect termini will be marked using iron rebar surrounded by PVC pipe.

Vegetation species coverage statistics will be developed by observing and recording the approximate coverage of each species within a given quadrat, adding all quadrat observations together, and dividing the total coverage of all quadrats by the number of quadrats within each transect. This represents a modified Daubenmire cover scale where vegetation species statistics are used to determine the percent cover by bare ground, water, individual species and groups, such as wetland species, invasive exotic and nuisance species, and present.

To document tree density, growth and viability in planted areas, tree species, stem density and height will be monitored using the "line strip" (belt transect) technique. These transects will be co-located with each vegetation transect. The belt transects will be 600± feet in length and 30± feet in width. Within each belt transect, the height of each planted tree will be recorded. Water depths and qualitative notes on the condition of each tree, including evidence of seed production or natural recruitment, will also be recorded.



**Exotic Vegetation:**

Currently, the minimal exotic vegetation currently present will be eliminated to attain success criteria. However, to maintain these criteria, during all management, monitoring and inspection activities, bank and game managers will be alert to any signs of exotic vegetation establishment (including aquatics) throughout the bank, and manually or chemically treat the exotics immediately or within 30 days. Additionally, at least once per year, the exotic inspection and treatment will include areas where roads were abandoned, any other hot-spots previously treated, and at least one hour of internal surveillance in areas not previously walked.

**Qualitative monitoring:**

Qualitative vegetation monitoring will include assessment of the vegetation, both ground cover and planted trees, wildlife use observations, and general habitat health. Observation and evaluation will occur at the established monitoring transects, along pedestrian survey tracks located throughout the bank and along or within ponds. Pedestrian surveys increase site coverage and include a 15± minute meandering walk-path intended to provide information useful in management and the determination of success. Figure 1-Monitoring provides the general location and coverage of transects, but all must be field-located to ensure that they are representative, useful for site management, and logistically practical. Notes on general health and reproductive status of vegetation, cover estimates, dominant species, recruitment of new species, the presence or spread of nuisance/exotic species, and the hydrologic condition of each community will be recorded on field data sheets. Sites will be evaluated as to how representative they are of the community being measured, and the degree to which the site is attaining community success. Potential problems and appropriate solutions will be identified.

**Photographic Stations:**

Panoramic photographs will be taken from the permanently established stations at each transect as depicted in the Figure. Additional photographs representing typical conditions will be taken to provide additional documentation on community conditions. Aerial photographs of the site will be taken annually to provide a view of the status of the restoration and vegetation. One or more photos may be used to cover the site and the photographs may be oblique.

**Wildlife Utilization:**

During the vegetation monitoring described above, wildlife observations will be recorded in each community. These observations will consist of direct sightings, scat, tracks, or vocalizations.

**Wet flatwood and sandhill communities:**

Semi-annual status reports will detail the condition of the communities relative to the need and potential for a burn, the conditions required for the next desirable burn, and the anticipated timeframe for the next burn. If a burn does not occur in the anticipated desirable timeframe, the status report will also describe the reasons for the lack of implementation of the prescribed burn. Because these communities are characterized by a relatively open canopy and a diverse and predominantly herbaceous groundcover, a significant management goal will be the control of woody shrubs and saplings. Hopefully, frequent burns will provide adequate control; however, it may be necessary to provide some additional mechanical control in areas or times when fire is not effective to maintain success criteria. Canopy pine and oak cover and woody shrub and seedling cover will be assessed and reported twice per year in the status reports.

## Figure 1 - Monitoring

