

JOINT PUBLIC NOTICE

July 31, 2017

United States Army
Corps of Engineers
New Orleans District
Regulatory Branch
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New Orleans, La. 70118

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Permit Application Number
MVN-2015-01576-MR

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Department of Environmental Quality
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Attn: Water Quality Certifications

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WQC Application Number
WQC # 170719-01

Interested parties are hereby notified that a permit application has been received by the New Orleans District of the U.S. Army Corps of Engineers pursuant to: [] Section 10 of the Rivers and Harbors Act of March 3, 1899 (30 Stat. 1151; 33 USC 403); and/or [X] Section 404 of the Clean Water Act (86 Stat. 816; 33 USC 1344).

Application has also been made to the Louisiana Department of Environmental Quality, for a Water Quality Certification (WQC) in accordance with statutory authority contained in Louisiana Revised Statutes of 1950, Title 30, Chapter 11, Part IV, Section 2074 A(3) and provisions of Section 401 of the Clean Water Act (P.L.95-17).

ABITA CREEK FLATWOODS II MITIGATION BANK IN ST. TAMMANY PARISH

NAME OF APPLICANT: The Nature Conservancy, P.O. Box, 1657, Abita Springs, Louisiana 70420.

LOCATION OF WORK: The 50 acre site is located approximately 6 miles northeast of Abita Springs, Louisiana, in St. Tammany Parish, as shown on enclosed drawings (Latitude: 30.521° N, Longitude: -89.950° W). The Project is located within the Lake Pontchartrain Basin, (Hydrologic Unit 08090201).

CHARACTER OF WORK: Timber and invasive species removal, and prescribed burning will be implemented on the site for the purpose of the construction of a mitigation bank consisting of pine savanna habitat. This area is associated with the Southeast Pine Wetlands Mitigation Bank as implemented in 1996. An umbrella banking instrument will be developed in accordance with the 2008 rule.

The comment period for the Department of the Army Permit and the Louisiana Department of Environmental Quality WQC will close **30 days** from the date of this joint public notice. Written comments, including suggestions for modifications or objections to the proposed work, stating reasons thereof, are being solicited from anyone having interest in this permit and/or this WQC request and must be mailed so as to be received before or by the last day of the comment period. Letters concerning the Corps of Engineers permit application must reference the applicant's name and the Permit Application Number, and be mailed to the Corps of Engineers

at the address above, ATTENTION: REGULATORY BRANCH. Similar letters concerning the Water Quality Certification must reference the applicant's name and the WQC Application number and be mailed to the Louisiana Department of Environmental Quality at the address above.

The application for this proposed project is on file with the Louisiana Department of Environmental Quality and may be examined during weekdays between 8:00 a.m. and 4:30 p.m. Copies may be obtained upon payment of costs of reproduction.

Corps of Engineers Permit Criteria

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

The U.S. Army Corps of Engineers is soliciting comments from the public, federal, state, and local agencies and officials, Indian Tribes, and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the U.S. Army Corps of Engineers to determine whether to make, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

The New Orleans District is unaware of properties listed on the National Register of Historic Places near the proposed work. The possibility exists that the proposed work may damage or destroy presently unknown archeological, scientific, prehistorical, historical sites, or data. Issuance of this public notice solicits input from the State Archeologist and State Historic Preservation Officer regarding potential impacts to cultural resources.

Our initial finding is that the proposed work would neither affect any species listed as endangered, nor affect any habitat designated as critical to the survival and recovery of any endangered species listed by the U.S. Department of Commerce,

Utilizing Standard Local Operating Procedure for Endangered Species in Louisiana (SLOPES), dated October 22, 2014, between the U.S. Army Corps of Engineers, New Orleans and U.S. Fish and Wildlife Service, Ecological Services Office, the Corps has determined that the proposed activity would have no effect on any species listed as endangered by the U.S. Department of the Interior.

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The applicant's proposal would result in the destruction or alteration of N/A acre(s) of EFH utilized by various life stages of red drum and penaeid shrimp. Our initial determination is that the proposed action would not have a substantial adverse impact on EFH or federally managed fisheries in the Gulf of Mexico. Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the National Marine Fisheries Service.

If the proposed work involves deposits of dredged or fill material into navigable waters, the evaluation of the probable impacts will include the application of guidelines established by the Administrator of the Environmental Protection Agency. Also, a certification that the proposed activity will not violate applicable water quality standards will be required from the Department of Environmental Quality, before a permit is issued.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

You are requested to communicate the information contained in this notice to any other parties whom you deem likely to have interest in the matter.

Martin S. Mayer
Chief, Regulatory Branch

Enclosure

PROSPECTUS

Addendum to the Banking Instrument Establishing the SOUTHEAST LOUISIANA PINE FLATWOOD WETLAND MITIGATION BANK

ABITA CREEK FLATWOODS II

St. Tammany Parish, Louisiana

MAY 2017



Sponsor: The Nature Conservancy
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PROSPECTUS FOR ABITA CREEK FLATWOODS II

Addendum to the Banking Instrument Establishing the Southeast Louisiana Pine Flatwood Wetland Mitigation Bank

1.0 INTRODUCTION

This Abita Creek Flatwoods II (ACF II) Prospectus has been prepared by The Nature Conservancy (hereinafter TNC or Sponsor) in accordance with the 2008 Final Rule “Compensatory Mitigation for Losses of Aquatic Resources,” Department of the Army, Corps of Engineers (33 CFR Part 332, Federal Register 2008), and with the guidance provided by the New Orleans District Corps of Engineers (CEMVN) via the Corps’ Regulatory In-lieu Fee and Bank Information Tracking System (RIBITS) website (ribits.usace.army.mil/). Content in this Prospectus follows that required in 33 CFR Part 332.8(d) (2) to provide a summary of the information regarding the proposed ACF II at a sufficient level of detail to support informed public and Interagency Review Team (IRT) comment. This ACF II is an addendum to the agreement establishing the Southeast Louisiana Pine Flatwood Wetland Mitigation Bank made and entered into by The Nature Conservancy (Sponsor) and the U.S. Army Corps of Engineers New Orleans District (CEMVN), the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (FWS) and the Louisiana Department of Wildlife and Fisheries (LDWF) in 1992.

The proposed ACF II is an approximately 50-acre site located in northeastern St. Tammany Parish northeast of the community of Abita Springs (Figure 1). The site is approximately 1100 feet from the Abita Creek Flatwoods Mitigation Bank Unit of the Southeast Louisiana Pine Flatwood Wetland Mitigation Bank – Abita Creek Flatwoods Bank Unit and forms a significant portion of the headwaters of Jacks Branch that drains through the existing bank unit to Abita Creek which is part of the larger Liberty Bayou – Tchefuncte watershed. As it is not contiguous with the existing bank TN unit, we offer this as an addendum to the existing bank.

A mitigation bank is a site where resources (e.g., wetlands, streams, riparian areas) are restored, established, enhanced and/or preserved for the purpose of providing compensatory mitigation for unavoidable impacts to waters of the US that result from activities authorized by US Department of Army permits under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act, or other approved environmental requirements. Restoration through physical, chemical and biological repairing of several aquatic functions will provide pine wetland credits for use for unavoidable, permitted losses of similar wetland habitat types.

1.1 Site Location and Ownership

The ACF II is located approximately 5 miles east of the Town of Abita Springs, St. Tammany Parish, Louisiana (Figure 1). The tract is found in portions of Section 13, Township 6 South, Range 12 East. It is found on the Bush, Louisiana, US Geological Survey 7.5 minute quadrangle (Figure 2a). The northeast corner of the tract slopes southward to a bowl-like depression as more clearly shown on 2-foot contour LiDAR imagery (Figures 2b and 2c). Coordinates for the

approximate center of the proposed bank property are 30.521 North and -89.950 West. A current aerial image of the property is shown in Figure 3.

The ACF II is part of a larger region termed the “Money Hill Conservation Area (MHCA),” which has been recognized by TNC and others as one of the most ecologically important regions in Louisiana and the East Gulf Coastal Plain (see Section 3.3 for further discussion). The MHCA is considered a conservation priority because 1) it contains one of the last remaining functional sites supporting a mosaic of quality or restorable longleaf pine forests and pine wetlands in southeast Louisiana; 2) it supports the federally-listed gopher tortoise and Louisiana Quillwort, both globally threatened species; 3) it supports at least 4 globally-rare plant communities plus more than 40 state and 10 globally at-risk species of plants and animals, as well as over 120 species of birds, at least 13 of which are considered high conservation priorities in the Partners in Flight (PIF) East Gulf Coastal Plain Bird Conservation Plan; and 4) it is a potential restoration area for the federally-listed Red-cockaded Woodpecker (*Picoides borealis*) and Dusky Gopher Frog (*Lithobates sevosus*). The MHCA was identified as a high priority in the East Gulf Coastal Plain Ecoregional Plan that includes portions of five states (The Nature Conservancy 1999, 2001a, 2001b).

The conservation area includes over 12,000 acres that are currently under conservation management as mitigation banks or permittee-responsible mitigation areas (Figure 1). Additionally, other private lands within the MHCA are enrolled in voluntary conservation agreements with the Louisiana Department of Wildlife and Fisheries (“LDWF”). Restoration of ACF II will contribute significantly to biodiversity and wetland habitat conservation in this area and will provide important hydrologic benefits to the Abita Creek Flatwoods Bank Unit.

1.2 Driving Directions to Site

Driving directions to the ACF II are as follows: From Abita Springs, Louisiana, travel east on LA Highway 435 approximately 6 miles to Jack Lloyd Road. Turn north on this road and go 0.8 miles to a powerline crossing. From there continue .2 miles to the property access on the east side, just south of Moonshadow Lane.

1.3 Current Land Condition

The ACF II is comprised of 39.1 acres of degraded forested wetlands and 9.4 acres of degraded uplands (Figure 3). A 60-foot wide strip providing legal access to Jack Lloyd Road consists of 1.5 acres of non-mitigation area.

The ACF II is mainly cutover wet pine-hardwood timberland. It is characterized by degraded slash pine (*Pinus elliotii*) – pond cypress (*Taxodium ascendens*) woodland, longleaf pine (*P. palustris*) wet savanna and upland longleaf pine woodland (all plant nomenclature herein follows USDA NRCS Plants Database; weblink: <http://plants.usda.gov>). There is a small amount of mature bayhead swamp in the interior of the tract. All habitats except the bayhead swamp were cut over in the mid-2000’s. A few residual slash pine and pond cypress are present in the slash pine – pond cypress woodland zone, but no longleaf pine remains on the tract. Fire suppression has altered community composition and structure by permitting fire intolerant trees and shrubs to become prevalent in the slash pine – pond cypress woodland and longleaf pine wet savanna

zones. See section 3.2.1 below for additional information on current site conditions. Current cover by habitat type is provided in Table 1 below.

Land use surrounding the ACF is primarily rural timberland and low-density suburban development (Figure 4) and wetland mitigation bank.

2.0 PROJECT GOALS AND OBJECTIVES

The primary goal of the proposed ACF II is to provide 39.1 acres of rehabilitated pine flatwood savanna (PF/S) habitat and 9.4 acres of restored buffer/upland. Specifically the Bank will provide 2 acres of wet pine flatwood/savanna rehabilitation; 34.3 acres of slash pine – pond cypress woodland enhancement; 2.8 acres of bayhead swamp enhancement; and 9.4 acres of upland longleaf pine woodland restoration. Protection, restoration and management of upland buffer is important to restore and maintain local hydrology and native biodiversity within adjacent wetlands especially due to seepage hydrology present in the area (see Sections 3.1 and 3.2). Once restored, the wetland-upland complex at the ACF II will support a fully functional, sustainable longleaf pine wetland system similar to that present on the area prior to European settlement.

The Sponsor's restoration work will reverse degradation of the proposed bank and will increase aquatic resource functions by helping to restore natural composition and structure of indigenous habitats, reintroducing or improving natural processes such as fire and hydrology, and by removing the bank property from commercial forest management and/or residential and commercial development. The latter activities are prevalent in one of the fastest growing parishes in Louisiana (St. Tammany Economic Development Foundation, 2014).

Because the ACF II will include an important portion of the upper watershed of Jack's Branch, the proposed work will enhance and help maintain water quality and quantity within the Abita Creek Flatwoods Bank Unit and ultimately Abita Creek. Benefits that will accrue from restoration work will include prolonged hydro-periods and floodwater retention, groundwater recharge, stream water quality improvement, wildlife diversity and habitat improvement, including that for rare and endangered species, and habitat connectivity and sustainability improvement.

The primary objective for the ACF II will be rehabilitating the composition, structure and functionality of 39.1 acres of degraded wet pine flatwood wetland habitats on the site. There is no doubt that fire-sustained longleaf pine woodlands and savannas historically dominated the local landscape (see discussion under 3.1 below). In many places in the flatwoods of the far eastern Florida Parishes, slash pine – pond cypress woodlands were a major associated type. High quality, functioning pine wetland natural communities have become very rare in southeast Louisiana and indeed range-wide as a result of increased development, habitat fragmentation, lack of natural fire regimes and other land management activities (Smith 1991). Restoring open pine wetland community composition, structure and functional processes will promote native plant and animal communities indigenous to pine flatwood systems in the area, including an array of grassland birds, many of which are species of conservation concern today (U.S. Fish and Wildlife Service 2008). Restoring key processes (functionality), primarily fire and hydrology, will be instrumental in promoting and maintaining native plant and animal communities, and to

allow the area to perform other important wetland functions, such as flood retention, water quality improvement and biological productivity.

Specifically, the project goals and objectives for the ACF II are to rehabilitate degraded pine flatwood wetlands, and the physical, chemical, and biological functions of pine flatwood wetlands (the “Conservation Values”) as follows:

- Rehabilitate degraded pine flatwood wetlands to open pine flatwood wetland composition and structure important for an extraordinary number of associated plants (many rare, and many endemic or near endemic) and resident and migratory (e.g., migratory birds) wildlife species dependent on open pineland conditions.
- Re-establish surface and ground water hydrology by removal or amelioration of artificial features affecting natural drainage patterns, and by reduction of tree and shrub density across the site (reducing evapotranspiration and increasing water available downslope).
- Replant 2 acres of historic longleaf pine savanna wetlands and 9.4 acres of longleaf pine woodland uplands with suitable genetic stock of longleaf pine.
- Remove excess slash pine and hardwoods and replant pond cypress in historic slash pine – pond cypress woodland zones.
- Conduct prescribed burning every 1 to 4 years on the entire bank site (48.5 acres) to rehabilitate and maintain indigenous PF/S composition and structure
- Expand the area already dedicated to pine wetland conservation in the immediate area (5 other pine wetland mitigation banks or mitigation areas exist in the region), thereby the wetland conservation to further help minimize habitat fragmentation, maximize smoke sheds and the ability to conduct prescribed burns, foster connections (i.e., corridors) between extant habitat conservation areas, and prepare for a future surrounding land-use of higher density suburban development
- Improve water quality, promote sediment retention, and reduce non-point source pollution and chemical runoff by habitat and natural processes restoration and removing the area from commercial timber management and/or potential residential and commercial development
- Ensure long-term viability of the project by employing targeted restoration strategies, including:
 - Reliance upon adaptive management as needed as the project progresses and making any mid-course corrections as dictated by restoration results and current research on longleaf pine wetland system restoration practices.
 - Project monitoring at a frequency and intensity to determine if the compensatory mitigation project is on track to meet performance standards and whether management plan modifications are needed.
 - Invasive species control.
 - Establishment of financial assurances for long-term management to cover annual expenditures associated with maintenance and management of the ACF II.

The Conservation Values will be protected in perpetuity by granting a conservation servitude to a third party conservation organization, which has been approved by the Corps (e.g. the Land Trust for Louisiana).

TABLE 1. Existing Habitat Conditions and Proposed Restoration and Mitigation Types on ACF II.

Current Habitat Type	Proposed Restoration Type	Mitigation Type	Total Credit Acreage	Non-credit Acreage	Buffer Acreage
Slash Pine – Hardwood Timberland	Slash Pine – Pond Cypress Woodland	Enhancement	34.3		
Slash Pine – Hardwood Timberland	Longleaf Pine Flatwood/Savanna	Enhancement	2.0		
Degraded Bayhead Swamp	Bayhead Swamp	Enhancement	2.8		
Slash Pine – Hardwood Timberland	Upland Longleaf Pine Woodland	Restoration			9.4
TOTAL			39.1		9.4

3.0 ECOLOGICAL SUITABILITY OF THE SITE

3.1 Historical Ecological Characteristics of the Site

3.1.1 Geology

The proposed ACF II occurs in the East Gulf Coastal Plain (“EGCP”) Ecoregion as defined by TNC (TNC 2001a). The EGCP Ecoregion is a portion of Bailey’s larger Outer Coastal Plain Mixed Forest Province (Bailey, et al., 1994). Ecoregions are defined as broad regions that possess similar soils, topography, plant and animal species, climate, hydrology and other natural processes. The EGCP ecoregion is physically characterized by generally subtle topography, a warm to hot, humid, maritime climate, and soils derived from unconsolidated sands, silts and clays, transported to the ecoregion by weathering of the Appalachian Mountains and other northern areas. As part of the Southeast Coastal Plain region, other shared features include a high percentage of land area in wetlands, the historically dominant role of frequent fire over a great majority of the landscape, a diversity of river and stream systems and significant large-scale disturbance events (tropical storms/hurricanes).

ACF II is located on what has been termed the Pleistocene High Terraces geologic formation, but very near the Pleistocene Prairie Terraces formation (Snead and McCulloh 1984). The High Terraces are dissected and relatively hilly in contrast to the adjoining Pleistocene Prairie Terrace which is relatively flat and shows little dissection. The area in St. Tammany Parish where the Prairie Terrace is found is considered part of the Gulf Coast Flatwoods region, which is named for broad expanses of poorly-drained flats that were historically dominated by longleaf pine

(Daigle et al. 2006). The close juxtaposition of ACF II to the intersection of these two geologic terraces has influenced both hydrology and vegetation.

3.1.2 Historical Habitat Conditions and Hydrology

According to old historical accounts (e.g., Lockett 1874) and early and mid-1800's U.S. Government General Land Office survey records (e.g., Gray 1821) that contain accounts of witness trees and anecdotal observations, the majority of the hills and flats of St. Tammany Parish were dominated by longleaf pine woodlands and savannas (Smith 2004; Daigle et al. 2006). Included within the general longleaf pine flatwoods landscape were associated flatwoods habitats that occupied slightly lower topographic positions and generally wetter hydrologic settings than longleaf savannas. One of the major associated habitats in the flatwoods of the far eastern Florida Parishes was slash pine – pond cypress woodlands (Penfound and Watkins 1937, LDWF 2009, LDWF 2015). [LDWF 2015 is the Louisiana Wildlife Action Plan; weblink: <http://www.wlf.louisiana.gov/wildlife/wildlife-action-plan> Chapter 5 contains Natural Community descriptions]

Historically, the proposed ACF II supported upland longleaf pine woodlands on the upper slopes and ridge tops, wetland longleaf pine savanna habitat on middle and lower slopes, slash pine – pond cypress woodlands on wet flats, and a bayhead swamp in a central depressional area (Figure 5). Slash pine – pond cypress type occupied the greatest extent on the tract. All of these types were fire-dependent communities. Frequent surface fire was arguably the most significant functional process that created and maintained the composition, structure and character of these habitats.

Slash pine – pond cypress woodlands, the primary wetland habitat historically present, occupied topographically lower positions than longleaf pine savannas but higher positions than bayheads (Smith 1996). The habitat was dominated by slash pine and pond cypress, often intermixed with hardwoods such as swamp black gum (*Nyssa biflora*) and sweet bay (*Magnolia virginiana*). The relative proportion of slash pine and pond cypress varied depending on a variety of site and disturbance factors. As is the case today, surface soils were typically saturated for much of the year, and shallow water was often present in the late fall, winter, and early spring, and after heavy rains during the growing season. Fire played a critical role in sustaining the composition and structure of this type, though fires were less common or not as intense as in adjoining wet longleaf savannas.

The original wet longleaf pine savanna habitat of the region was a very open "forest" (canopy cover averaged less than 50% and more appropriately referred to as "woodland" or "savanna"), with the scattered trees almost exclusively longleaf pine, growing over a dense ground cover of grasses, sedges and forbs (Smith 1996). Low tree density in wet pine savannas was probably attributable to a number of wetland site and soil characteristics, among them: 1) longleaf regeneration is impeded by standing water, which precludes seedling establishment (perhaps the most important factor), 2) high water tables and heavy subsoils inhibit deep root development, thereby encouraging shallow rooting of longleaf, making it more prone to wind-throw, and 3) wetlands are not the ideal environment for longleaf, and trees growing there are under stress, making them more susceptible to insect or disease attack.

A small bayhead swamp occupied the middle part of the tract, in the topographically lowest part of ACF II. Bayheads were (and are) wet floodplain habitats dominated by a particular set of wet-site hardwoods, slash pine and shrubs, in an assemblage quite distinct from bottomland hardwood forest found along larger streams in the general area.

The hydrology of ACF II was driven primarily by rainfall on and around the site. Surface-intersecting high water tables and resulting ground water discharge/seepage on slopes sustained wet longleaf pine savannas on middle and lower slopes. Pine savanna wetlands developed on slopes here and in similar places in the region due to the water table being at or very near the surface over much of the year as ground water discharge/surface seepage, over much of the year. Rainfall and seepage maintained wet conditions in the slash pine – pond cypress flats, and overland flow additionally fed water into the bayhead swamp zone.

3.1.3 Historical Fire Regime

Frequent fire from lightning and burning by Native Americans created and maintained longleaf pine savannas and associated habitats in the longleaf pine range of the south (Garren 1943), and certainly on the land that is now ACF II. Fires are estimated to have occurred on the order of once every 1 to 4 years in the upland longleaf pine woodlands, wet longleaf savannas, and slash pine – pond cypress woodlands, and with somewhat less frequency in bayhead areas. Some fires burned up to or very close to active channels of drains, which naturally confined most trees and shrubs of the bayhead community to a relatively narrow zone flanking those drains. The nature of vegetation and the fuels they provide, combined with the usual wetness of bayheads, acted to reduce fire frequency and intensity, and the habitat typically burned all the way to the stream channel only during periods of extended drought. Thus, bayhead swamps were typically dominated by more fire-sensitive hardwoods with scattered slash pine.

3.1.4 Previous land uses of the site and adjacent properties

Following the harvest of the virgin timber early in the 20th Century, the property was managed primarily as working timberland, with the last timber harvest occurring in mid-2000's. It is probable that grazing of cattle and perhaps horses and/or sheep occurred in the 1800's and early 1900's, as much of the parish was subject to open grazing at that time. ACF II has been used for recreational hunting, mainly for white-tailed deer, for many years. Other than periodic timber harvests and hunting, little else has occurred on the ACF II property in recent years.

The vast majority of adjacent and surrounding lands were historically occupied by longleaf pine woodlands in the higher hills and wet longleaf pine savannas on slopes and flats of the region. As occurred on ACF II, the original forests of longleaf pine and other types were mostly harvested in the early 1900's, over about a 30 year period, after which time the virgin forests in the region had been essentially liquidated (Smith 2004). Commercial forest management, typified by naturally regenerated forests or plantations of pines other than longleaf, eventually became a major practice on much of the land on and near ACF II. In more recent years, residential development has increased in the general vicinity. Adjacent lands encompass relatively low-density residential developments, but also include Money Hill Golf and Country Club to the east and northeast. Other rural residences and managed timber land dominate the remainder of the area. The Abita Creek Flatwoods Mitigation Bank Unit was established very near the project site in 1996.

3.2 Current Ecological Characteristics of the Site

3.2.1. Current Site Conditions

The general current site conditions on the proposed ACF II are shown in Figures 6a and 6b, with example photographs in Appendix 1. The area is currently degraded slash pine – hardwood timberland and a mature but fire-suppressed bayhead swamp. Conditions in the timberland range from altered slash pine – pond cypress woodland to brushy former wet longleaf pine savanna and longleaf uplands (no longleaf remains).

Primarily due to forest management and lack of fire, the wetland zones now support habitats that differ greatly from historical conditions. Lack of fire has altered community structure by permitting an over-abundance of fire intolerant shrubs, slash pine, swamp black gum and other hardwoods to become prevalent in the historic slash pine – pond cypress zone and wet pine savanna zones. Longleaf pine is completely lacking from the historic pine savanna and upland zones. Pond cypress is present to a very limited degree in the degraded slash pine – pond cypress zone.

As discussed above, ACF II is located primarily on the Pleistocene Prairie Terraces geologic formation but lies immediately adjacent to the Pleistocene High Terraces formation that underpins the pine flatwoods region of the area (Snead and McCulloh 1984). Being thus positioned, the floristic composition of the wetlands that occupy much of ACF II is strongly influenced by the flora of both the flatwoods and high terraces, with numerous species in common, including a wide variety of sedges, grasses and characteristic wetland forbs.

The area is currently used mainly for timber production and recreation, primarily hunting. The previous forest that occupied the tract was removed during a series of harvests over the past century, most recently by a clear-cut harvest in the mid-2000's (except in the bayhead swamp). The habitats outside of the small bayhead are still recovering from the last timber harvest and are in a highly degraded condition.

Degraded slash pine – pond cypress type, found on low flats, is the primary wetland habitat present. This type occupies low flats on the tract that are topographically lower than the adjoining pine savanna and upland zones, but topographically higher than the bayhead swamp. Mostly young slash pine, hardwoods and young pond cypress are present, though pond cypress is believed to be present at levels much lower than historically, and slash pine and hardwoods are present at levels higher than they were historically. Brush cover is excessive due to lack of fire in recent years. Rainfall, runoff and seepage input from surrounding uplands maintain wetland conditions in this zone.

Brushy wet pine savannas lacking an overstory are found on gentle lower slopes in the northeast part of the tract. No longleaf pine remains. Pine savanna wetlands are present on slopes in this area due to the water table being at or very near the surface (often as ground water discharge/surface seepage) over much of the year. Direct local upslope precipitation and downslope at/near surface water tables for much of the year is believed to be the primary driver of this wetland development. For this reason all of the uplands within the bank boundary are considered important buffers to help maintain the hydrology for wetlands downslope.

Abita Creek Flatwoods II Prospectus

A brushy thicket lacking an overstory now occupies the uplands in the northeast part of the tract that was historically occupied by open longleaf pine woodland. No longleaf pine remains.

The bayhead swamp present is found in the topographically lowest part on the tract, and contains mature hardwoods. There are few, if any, signs of recent logging history (although very old stumps indicate logging decades ago). The area is dominated by swamp black gum, sweet bay magnolia, and red maple (*Acer rubrum*). Slash pine forms a minor component, but is higher than that historically. Allowing fire to burn into this community type to help restore its natural condition is needed, especially for development of important ecotonal areas that can support several special species of plants.

Invasive, non-native (exotic) species appear to be present on the property only to a limited extent at this time. The species observed that are of most concern, based on potential to spread and become increasingly problematic, are Chinese tallow tree (*Triadica sebifera*) and privet hedge (*Ligustrum sinense*), which are both present scattered about. No sign of feral hogs (*Sus scrofa*) was noted on the property.

There are two primitive trails in the northeast portion of the property (Figure 6a), occurring mostly in the uplands. The trails are grassy and at grade. No roads are present. Legal access to the property is by an unimproved wooded mostly upland strip from Jack Lloyd Road that slopes slightly to the south.

3.2.2. Soils, Topography and Elevation

According to the most recent soil survey of St. Tammany Parish (USDA 1990), soils present on ACF II include, in alphabetical order:

- Myatt fine sandy loam, frequently flooded (hydric)
- Savannah fine sandy loam (non-hydric)
- Stough fine sandy loam (officially designated non-hydric but known to support wetlands in many locations where it is mapped)

The distribution of these soils on ACF II are presented in Figure 7.

Degraded slash pine – pond cypress wetlands are found on soils mapped as Myatt fine sandy loam, frequently flooded. This wetland habitat occupies low flats on the tract that are topographically lower than the adjoining pine savanna and upland zones, but topographically higher than the bayhead swamp.

Pine savanna wetlands on ACF II occur primarily on soils mapped as Stough. Stough soil is officially considered non-hydric but areas mapped as having these soil types in St. Tammany Parish are commonly recognized by experts to support jurisdictional wetlands in many places in the local region (e.g., personal communication, John Bruza, retired wetland scientist, CEMVN). This is supported by the wetland delineation for the tract.

The bayhead swamp is found on soil mapped as Myatt fine sandy loam, frequently flooded.

Non-wet uplands on ACF II are primarily mapped as occurring on Savannah (minimal slope) soils (see Figure 7). The bayhead swamp is found on Myatt fine sandy loam, frequently flooded.

Soils at ACF II have been influenced by the local topography, which consists of gently rolling hills with relatively broad flats along drainages. Elevation change on the ACF II is significant for the flatwoods region and for such a small tract, ranging from a high of approximately 74 feet above sea level in the northeast part of the area, to a low of approximately 48 feet above sea level in the southwest part of the tract (Figures 2a and 2b and 2c).

3.2.3 Watershed

ACF II falls within the Abita River watershed (Hydrologic Unit Code (HUC) 12 Subwatershed: 080902010105; Figure 8). It is part of the larger Liberty Bayou – Tchefuncte Sub-basin (HUC 8: 08090201) ACF II contains some of the upper reach of Jack’s Branch and its tributaries, which is a moderate tributary to Abita Creek north of Louisiana Highway 435. It is in the headwaters of Abita River, a Louisiana-designated Natural and Scenic Stream (Louisiana Department of Wildlife and Fisheries, 2014). Abita Creek becomes Abita River, which is a major tributary to the Bogue Falaya River, which in turn is a major tributary to the Tchefuncte River that enters Lake Pontchartrain.

3.2.4 Hydrology

3.2.4.1 Natural hydrology. The hydrology of ACF II is driven by rainfall on and around the tract. Direct precipitation and groundwater discharge/surface seepage sustain pine savanna wetlands on slopes and slash pine – pond cypress wetlands in the flats. (See Figure 6c for specific drainage patterns). In addition to those water sources, surface water run-off plays a role in maintaining the hydrology of the bayhead swamp in the middle of the tract.

Pine savanna wetlands develop on slopes here and in similar places in the region due to the water table being at or very near the surface during much of the year, often as a result of groundwater discharge/surface seepage. Precipitation in the local uplands percolates into the ground and exits downslope as groundwater discharge at or near the surface. Direct precipitation and groundwater discharge/seepage are believed to be the primary hydrological processes driving pine savanna wetland development on lower slopes.

Direct precipitation, runoff and groundwater discharge/surface seepage are the primary sources of water for slash pine – pond cypress wetlands in the flats, and the bayhead swamp in the middle of the tract. While direct precipitation may be the biggest player, groundwater input as surface or near-surface discharge plays a significant role as well.

3.2.4.2 Current alterations to hydrology. No significant alterations to the hydrology of ACF II other than some deep ruts created from logging equipment. The deepest ruts are acting like ditches redirecting surface flow and need rehabilitation. Two small ponds exist north of the bank and are estimated to have a negligible impact on hydrology on the bank site (Figure 6a) due to its current severe wetness.

3.2.5 Jurisdictional Wetland Determination

A survey of wetlands present on the entire 50-acre Sponsor-owned tract was made in July 2015 and submitted to CEMVN, who issued Preliminary Jurisdictional Determination MVN-2015-01576-SK (“PJD”) on August 27, 2015 (Appendix 2). The wetlands from the PJD can also be seen in Figure 6a where they are overlain in the proposed ACF II boundary with other information. The PJD shows that 39.1 acres of the ACF II acreage are jurisdictional wetlands and 9.4 acres are non-wetland. An additional 1.5 acres of the site are for access only and of which 0.5 acres are wetland.

3.3 General Need for the Project in this Area

Establishment of ACF II which will result in many benefits, including:

1. Enhancement of a significant water source for the Abita Flatwoods Bank Unit in a rapidly developing area. Although small in size, this tract is extremely wet from a combination of small drainages upslope on Money Hill Plantation, and subsurface seepage flow that helps keep the site wet year round. These waters collect on the site and drain into Jack’s Branch that flows through the eastern half of the Abita Creek Flatwoods Mitigation Bank.
2. Will provide a high-quality mitigation option for permitted activities within the proposed service area. ACF II is in St. Tammany Parish, which is one of the fastest growing parishes in Louisiana and in the country (St. Tammany Economic Development Foundation 2014). Much of the growth is in the southern portion of the parish in the wet “flatwoods” region, thus resulting in a relatively high demand for pine savanna mitigation credits and, concomitantly, the potential to support multiple mitigation banks.
3. Will offer an additional commercial mitigation bank that should increase competition for mitigation credits and thus potentially result in a positive effect on pricing for mitigation applicants.
4. Will contribute to protected stream quality and rare species conservation by: a) being located on a tributary to Abita Creek up-stream from state-designated Natural and Scenic Abita River, b) benefits to rare and imperiled aquatic resources (ACF II is part of the upper watershed for Abita Creek, which supports the endangered Louisiana Quillwort (*Isoetes louisianensis*) and numerous other rare wetland plant species tracked by the Louisiana Natural Heritage Program).
5. Will augment the goals of several conservation and land-use plans that have identified the area on and around ACF II as a conservation priority. In 1999, The Nature Conservancy along with others, such as the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program, identified the Money Hill Conservation Area (Figure 1) as a priority conservation area in the East Gulf Coastal Plain (TNC 1999; 2001a; also see discussion above in Section 2). TNC has focused conservation efforts in this region since the mid 1990’s, including the acquisition, restoration and management of 3 mitigation bank units and has worked with other mitigation bankers and landowners in the MHCA. Conservation land in the MHCA currently totals over 12,000 acres; however, many ecologists believe more protected area is needed to provide long-term population and

habitat viability, particularly in growing urban landscapes (the minimum goal for lands under conservation management within MHCA is 20,000 acres). The proposed ACF II will contribute to biodiversity and wetland habitat conservation of this region and reduce land fragmentation, hydrologic degradation and the challenges and complexity of prescribed burning.

The Louisiana Comprehensive Wildlife Conservation Strategy (Wildlife Action Plan), which was developed by the LDWF, identified longleaf pine uplands and wetlands in the EGCP ecoregion as a conservation priority (Lester et al. 2005). Other regional conservation and watershed plans that include at least portions of ACF II are New Directions 2025 Land Use Plan (St. Tammany Parish Gov., 2003b), New Directions 2025 Critical and Sensitive Areas Plan (St. Tammany Parish Gov., 2003a) and St. Tammany Parish Greenprint (St. Tammany Parish Gov., 2007).

ACF II is adjacent to Money Hill Plantation (MHP), which is owned by a private company that has entered into a Safe Harbor Agreement for Red Cockaded Woodpecker (RWC, *Picoides borealis*) with LDWF and the U.S. Fish and Wildlife Service. MHP is conducting longleaf pine restoration including prescribed burning.

3.4 Technical Feasibility

There is little technical difficulty foreseen in achieving the restoration and management goals at the proposed ACF II. The work of TNC and others in similar situations in Louisiana and the Gulf South over the last 20 years has shown that restoration of highly altered pine flatwood wetlands can be successfully accomplished by application of appropriate management actions. Required management activities will consist of various combinations of prescribed fire, targeted hydrologic remediation, off-site timber and brush removal via both chemical and mechanical means, replanting with longleaf pine and pond cypress, and invasive species control. Each of these restoration methods have been successfully conducted at other pine savanna wetland mitigation banks (those operated by TNC and others) and other conservation lands in the area.

As is typical in a rural/urban interface, the most challenging of these management practices may be related to the use of prescribed fire in an increasingly developed landscape; however the state of Louisiana has a progressive “Right to Burn” law that provides that prescribed burning shall be considered a property right (LA. R.S. §3:17, HB773) if naturally occurring vegetative fuels are used. Options for smoke management become limited as development approaches the boundaries of conservation areas and the ability to use fire as a management tool at ACF II is critically important. The small tract size and the fact that it abuts a forested wetland area on MHP which can serve as a smoke screen minimizes this concern significantly. In planning for and implementing prescribed burns on the proposed bank, the Sponsor has a long track record of conducting safe and effective burns in the rural/urban interface in St. Tammany Parish. Hydrologic restoration activities planned entail relatively minor actions in targeted areas, and are not technically difficult or challenging. The Sponsor will provide appropriate financial assurances to provide for long-term management of the site.

4.0 ESTABLISHMENT OF THE MITIGATION BANK

4.1 Site Restoration Plan

4.1.1 Restoration Objectives

The following is a generalized description of desired future habitat conditions on the tract as shown in Figure 5, and thus represents the restoration objectives for ACF II.

- Relative extent and character of each habitat type will be similar to that estimated to have been present originally. In particular, slash pine – pond cypress woodlands, wet longleaf pine savannas and the bayhead swamp will be restored to their original extent and character regarding composition and structure.
- Restoration activities to help sustain the physical, chemical, and biological functions of wetlands and adjacent buffer/upland in perpetuity.
- Slash pine - pond cypress type will be an open woodland with variable proportions of the two overstory dominants, with minimal shrub cover and a highly developed herbaceous ground cover.
- Longleaf pine wetlands and uplands will be open woodlands greatly dominated by longleaf pine, over a rich ground cover comprised mainly of warm season grasses and forbs. Longleaf stand density will be quite variable in these settings to replicate original character of longleaf pine woodlands, but will as a rule average ≤ 90 square feet basal area per acre in uplands and ≤ 50 square feet basal area per acre in wetlands. Few hardwood trees will be mixed in with longleaf pine, other than a limited component of site and fire adapted upland oaks and other hardwoods.
- Forested stands will ultimately be uneven-aged, containing multiple age classes of longleaf pine, with a variety of age classes present on a typical acre.
- Shrub cover will be minimal in slash pine – pond cypress and longleaf pine woodlands and savannas, with cover averaging less than 20%.
- A bayhead swamp will be present in the lowest part of the tract and will be dominated by mature swamp black gum, sweet bay, red maple, and associates, but will include a minor component of slash pine in the overstory. The midstory and understory tree and shrub layer will typically be very well developed, except on outer ecotonal edges, and will include a variety of evergreen and deciduous species.
- Invasive, non-native species will absent or rare anywhere on the tract and will not be considered a threat to plant community structure and composition and will not influence natural processes.
- Hydrologic regimes will be appropriate to sustain the wetland status and indigenous character of all native wetland habitats on the tract, as well as all associated native species.

4.1.2 Restoration Management

To achieve the above objectives, restoration will, by necessity, initially entail a variety of aggressive management practices. These practices may include timber removal, mechanical and chemical control of invasive native and non-native species, and frequent prescribed burning.

The use of these practices is necessary to “push” the area toward the condition state complex (structure and composition) outlined in the Restoration Objectives stated above. All practices must and will be implemented in a careful and ecologically compatible fashion that promotes the overall ecological integrity of the area.

The following is an overview of the principal management activities that will be needed for restoration and maintenance of the wetland habitats on the area.

Prescribed Fire.

Prescribed fire will arguably be the most important regular management tool used on the tract. Fire will be applied in slash pine – pond cypress zones, pine savanna wetlands and surrounding uplands, and allowed to burn into the bayhead swamp. Burning is essential especially for slash pine, pond cypress and longleaf pine regeneration, control of unwanted hardwoods and shrubs, and rehabilitation/perpetuation of rich herbaceous ground-cover communities. It is also important for the edge communities of bayhead swamps. Properly timed fires stimulate native herbaceous plants to grow vigorously, flower and produce seeds, stimulate longleaf pine to grow out of the "grass-stage", and control brown spot needle-blight on young longleaf.

The historical frequency and seasonality of fire should be reestablished through an aggressive, strictly regulated burning program. Historically, most fires occurred during the growing season, which in southeast Louisiana may be considered to be mid-March to late October, with the majority of fires concentrated between late March and mid-June (early thunderstorm season). Early to mid-growing season burns should be favored over late growing season or dormant season burns, though burns at other seasons may be applied to achieve particular objectives. Burn frequency should eventually be in line with the estimated historical frequency of fires in this region, that is, every 1 – 4 years in slash pine – pond cypress zones, longleaf pine upland and wet longleaf pine savanna restoration areas. However, in the initial restoration years, burns may need to be applied more frequently to reduce undesirable woody vegetation (in combination with mechanical and/or chemical treatments) and promote native herbaceous ground cover.

The prescribed fire program should be designed to help restore the area to natural conditions and then support maintenance of those conditions. On-going observation of site conditions will permit modification of the prescribed fire schedule, if needed, to accomplish priority objectives. Existing features that can be used as fire breaks, such as creek bottoms, should be used wherever possible. Where needed, fire breaks will be installed by mechanical and chemical treatment.

Time Line: Application of frequent prescribed fire will be an initial and long-term management practice in slash pine – pond cypress zones, wet longleaf pine savannas and upland longleaf pine woodland. Fire will occasionally burn into and perhaps through the bayhead swamp. Initially, fires may be applied at a frequency greater than the estimated historical frequency of once every 1 – 4 years to help in the control of undesirable woody cover and restoration of the native ground cover. Where commercial removal of off-site timber is needed, timing of application of fire will be determined by a number of factors, including timber marketability (whether better burned or unburned) and estimated results of fires burning under different conditions (e.g., before cut or after). All slash pine – pond cypress, longleaf pine savanna and upland woodland restoration areas should be burned at least once by the end of year 2.

Chemical and/or Mechanical Control of Undesirable Pine, Hardwoods and Brush.

Chemical and, possibly, mechanical methods will be needed initially in all areas other than the bayhead zone to control undesirable trees and brush. Excess slash pine and hardwoods in the slash pine – pond cypress zone will need to be removed. Targeted herbicide treatment with ground crews should be applied, and then evaluations made of the need for follow-up mechanical treatment, if any. All herbicide applications should employ chemicals approved for use in wetlands and that are minimally damaging to native herbaceous ground cover. Herbicide treatment protocols should be carefully designed and implemented, and monitored throughout implementation to ensure compliance with provided guidelines.

Mechanical treatment with appropriate mechanical methods (e.g., brush mowing, mechanical chopping) may be used in very thick areas inaccessible to herbicide ground crews. Once such areas are mechanically treated, a follow-up herbicide application will be made. In most cases, a prescribed burn will be prescribed following the mechanical/chemical brush treatment. Based upon results from other restoration projects in the area, it is likely that more than one herbicide application (a year or more apart) will be needed to fully control undesirable brush and trees.

Time Line: This is an initial restoration activity that should be completed in the early restoration management of the site. Undesirable brush and trees should be greatly controlled across the entire tract by year 2, and reach final desired parameters by year 3 (allowing for two herbicide treatments and at least one prescribed burn).

Hydrology Remediation. As discussed in Section 3.2.4, small ditches, or long deep ruts, created by a logging skidder in the previous logging event, are locally affecting drainage on the west and east sides of the property. The extent of the effect is not known but may be locally significant. To avoid further damaging the exceptionally wet zone where the ditches occurs, we plan to cut and lay saplings of trees such as swamp black gum or slash pine in the ditch to slow water movement and allow sediment to catch and build up over time. The source of these saplings will be those that need to be removed for slash pine – pond cypress savanna restoration work. The hydro-remediation work will result in improved wetland functions and services for the area. Plan views are shown in Appendix 3.

Time Line: This is an initial restoration activity that should be completed in the early restoration management of the site, by end of year 1.

Pond Cypress Plantings.

Pond cypress is generally lacking across much of the slash pine – pond cypress zone and will be planted in much of the area. Planting will follow mechanical/herbicide treatments and prescribed fire

Seedlings will be planted at the appropriate season, ideally December through February, and as soon after brush/tree clearing activities as possible. Though final planting density for pond cypress in slash pine – pond cypress wetlands will be determined by guidance provided in the MBI, a reasonable planting target is approximately 100 - 200 seedlings planted per acre. If more than this number of seedlings are planted and most survive, then a follow-up thinning or herbicide treatment to control excess cypress would be needed. The proportion of relative cover of slash pine and pond cypress will vary on each average acre.

Time Line: This is an initial restoration activity that should be completed fairly early in restoration management of the site. All initial plantings should be completed by year 2, following mechanical/chemical control of undesirable woody brush where needed, and application of at least 1 fire.

Longleaf Plantings.

Because longleaf pine has been eliminated from ACF II, it will be necessary to plant longleaf pine seedlings in former longleaf pine uplands and wet savanna zones. Planting will follow mechanical treatment or herbicide application, and the application of at least one prescribed burn.

Seedlings will be planted at the appropriate season (ideally December through February) and as soon after brush control activities as possible. Though final planting density in savanna wetlands will be determined by guidance provided in the MBI, the current planting target is 300 seedlings planted per acre. Eventual target longleaf abundance is for longleaf pine cover on any acre to fall within a range of 10% – 80%. Containerized longleaf seedlings should be used instead of bare-root seedlings for greatest success. Seedlings should be those grown from seeds obtained from an area geographically and genotypically compatible with southeast Louisiana. Planting should be done as early in the dormant season as possible, and seedlings should be “high planted” in wetter sites.

Time Line: This is an initial restoration activity that should be completed fairly early in restoration management of the site. All initial longleaf plantings should be completed by year 2, following mechanical/chemical control of undesirable woody brush where needed, and application of at least 1 fire.

Chemical Control of Invasive, Non-Native Plants. The species observed that are of most concern, based on potential to spread and become increasingly problematic, are Chinese tallow tree and privet hedge. Tallow tree and privet hedge in pine savanna areas will be principally controlled by frequent fire. However, there are some areas, particularly along drains, that will need herbicide treatment. Tallow and privet in bayheads and other fire-sheltered zones will need direct chemical treatment since fire will probably not be frequent enough to control them in those areas. Personnel should remain constantly vigilant for the appearance of other invasive non-native species, or the appearance of new infestations of known invasive plants. .

Time Line: This is mainly an initial restoration activity that should be primarily completed in the early restoration management of the site, although ongoing monitoring will be needed. All initially identified invasive species infestations should be treated soon after the inception of management. On-going long-term monitoring for invasive species should be conducted and to the extent practicable, any problematic invasive species infestations should be treated as they are detected.

Treatment of tallow and privet in bayhead swamp zones and other areas should be performed by year 2. Some follow-up treatments may be needed as this species is widely established in the local landscape (including a massive infestation in the fields elsewhere on the property) and could continually spread into the area.

Trail and Access Management. The two primitive trails present are grassy, at-grade and unimproved. Occasional mowing (no more than once per year) may take place on the trails, but no other improvement will occur. The trails allow limited access to the site for fire and vegetation monitoring. The access strip to the property, which is not part of the mitigation project, may be cleared and mowed.

Time Line: Annually or bi-annually during dry periods.

4.1.4 Monitoring

The Sponsor will perform initial, interim and long-term monitoring, employing methods and on a schedule set by the MBI, to determine the effectiveness of implemented restoration actions, progress toward set restoration objectives, and whether or not it is recommended that adaptive management measures need to be implemented, such as control of previously undetected or newly arriving invasive species, replanting of longleaf pine, additional hydrologic remediation actions, or other restorative activities.

4.2 Current Site Risks

Because of the growing suburban landscape in the region, there is risk that smoke management issues may constrain the ability to use prescribed fire as a management tool. This issue has been addressed as discussed under 3.4 Technical Feasibility.

ACF II is zoned as low-density suburban districts A1-A and A2, as is the majority of the surrounding area (St. Tammany Parish 2016). It is fully expected that much of the region will slowly develop as rural subdivisions or as planned unit developments with adjacent green-space. Logging may occur on some areas adjacent to ACF II, but this would not be a significant long-term risk.

4.3 Long-Term Sustainability of the Site

There are no issues anticipated with long-term sustainability of the ACF II. The hydrology of pine savanna wetlands is primarily driven by rainfall falling directly on-site, thus once initial hydrological restoration plans are implemented, there will not be any long-term hydrological management or maintenance required. Subsurface water flow is an additional influence on hydrology. A conservation servitude will be placed on ACF II prior to any credit release and the servitude holder will independently monitor the site annually to document compliance with the terms of the conservation servitude. Any violations detected during annual monitoring will be reported to the Corps of Engineers and the IRT will determine required remediation. The Sponsor will provide financial assurances as required in the 2008 Rule to ensure that long-term stewardship needs will be met (US Army Corps of Engineers 2008). Once all credits have been released, the Sponsor may decide to transfer fee title and/or long-term management responsibility to another party. Should that occur, Sponsor will also provide an endowment or other financial assurances to ensure appropriate long-term management of ACEMB II.

5.0 PROPOSED SERVICE AREA

The Bank is established to provide compensation for impacts to pine flatwoods/savanna wetlands in the Lake Pontchartrain Basin which shall be the Primary Service Area (Figure 9). This includes U.S.G.S. Hydrologic Cataloging Unit codes (HUC) 08090201 and 08070205, the Liberty Bayou – Tchefuncta and Tangipahoa River drainage basins respectively. No secondary service area is proposed, as it would include areas that do not support EGCP pine flatwoods/savanna wetlands.

6.0 OPERATION OF MITIGATION BANK

ACF II will be owned and operated by the Sponsor, The Nature Conservancy. A conservation servitude that encumbers all of ACF II will be held by an approved third party conservation organization, such as Land Trust for Louisiana.

6.1 Project Representatives

Sponsor and Landowner	The Nature Conservancy P.O. Box 4125 Baton Rouge, LA 70821 Attn: Nelwyn McInnis nmcinnis@tnc.org 985-809-1414
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6.2 Qualifications of the Sponsor and Landowners

The Nature Conservancy (TNC) is the largest, private land-based conservation organization in existence with an extensive track record of successful science-based land management and restoration activities. The Louisiana Chapter of TNC has been a leader in pine wetland mitigation in Louisiana since 1992 with establishment of the Southeast Louisiana Pine Flatwood Savanna Mitigation Bank that includes approximately 5,000 acres under management in St Tammany Parish. TNC has also helped to establish pine wetland restoration criteria and management strategies that are used by all pine wetland bank managers in the state. TNC owns and operates pine wetland mitigation banks in both southeast and southwest Louisiana and has helped entrepreneurial banks become established in those same regions.

6.3 Long-Term Ownership and Management

The proposed long-term manager for ACF II is TNC.

6.4 Site Protection

TNC, as Sponsor and Long-term Manager shall be responsible for protecting the lands contained within the Abita Creek Flatwoods Mitigation Bank II in perpetuity, unless the obligations are transferred pursuant to paragraph 4.3. Protection will be accomplished via a conservation servitude held by a qualified, third-party, non-profit conservation organization, such as the Land

Trust for Louisiana, an accredited land trust organization, that will monitor the site annually in accordance with the terms of the conservation servitude. The boundary of the servitude will be the same as the ACF II boundary. A right-of-way providing access to the bank site will be provided to the servitude holder.

The version of the ACF II conservation servitude proposed for execution and recording in the real estate records of the Mortgage and Conveyance Office of St. Tammany Parish shall be provided to CEMVN for review and approval prior to filing. After filing, a copy of the recorded conservation servitudes, clearly showing the book, page and date of filing, will be provided to CEMVN. Any change to the ACF II conservation servitude must be subject to a 60-day advance notification and approval by CEMVN.

6.5 Long-Term Strategy

Long-term management will consist of monitoring, prescribed burning, invasive species control, boundary maintenance and site protection. Wetland habitats will be managed to increase and maintain the biological, chemical and physical wetland functions of ACF II, which will provide important habitat capable of supporting populations of rare species and priority wildlife species (e.g., grassland birds). Once initial hydrological restoration actions are completed and proposed management plans are in place, it is assumed that hydrological conditions will be maintained without additional hydrologic management. Some forest management may be needed in the event of severe wind storms, or insect outbreaks such as southern pine bark beetle (*Dendroctonus frontalis*), damage from wildfire, or other unforeseen factors. In such an event, the Sponsor will submit a forest restoration management plan to the IRT for approval prior to initiation of any work. The forest management plan will be consistent with the goals and intent of the ACF II MBI and conservation servitude.

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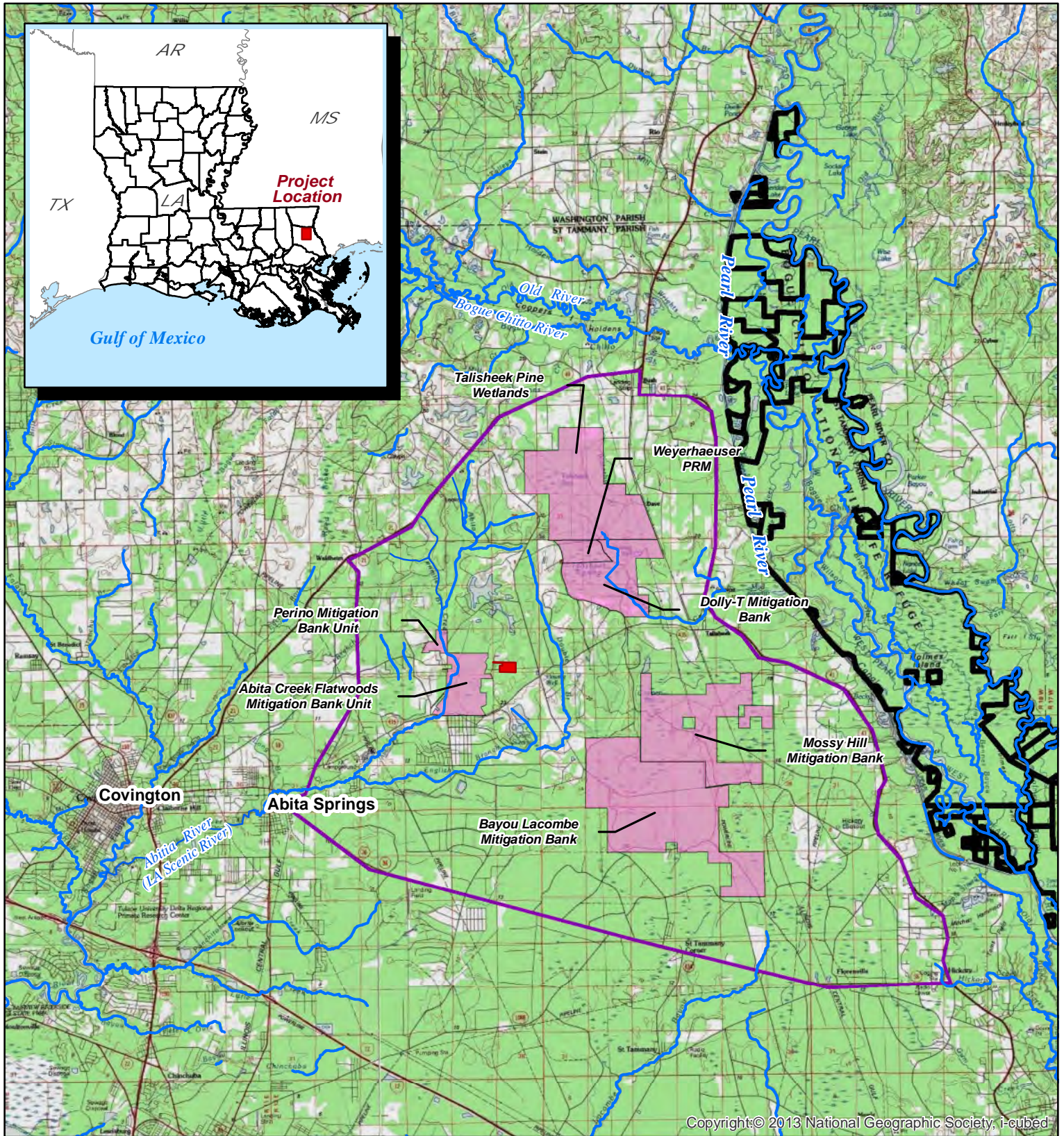
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- The Nature Conservancy. 1999. East Gulf Coastal Plain Ecoregional Plan. Internal report, Southeast Regional Office, Chapel Hill, NC. 50pp plus maps and appendices.
- The Nature Conservancy 2001a. East Gulf Coastal Plain Ecoregional Plan, March 1999, Revised 2001. Unpublished document. Chapel Hill, NC. 36 pp + appendices.
- The Nature Conservancy 2001b. Implementing Conservation by Design. Louisiana's Priority Conservation Areas: The First Fifteen. Internal document. The Nature Conservancy of Louisiana, Baton Rouge.
- US Army Corps of Engineers. 2008. Compensatory Mitigation for Losses of Aquatic Resources, Final Rule; 40 CFR Part 230, Federal Register, Vol 73, No. 70, 19593 – 19687.
- US Department of Agriculture, Natural Resources Conservation Service. The PLANTS Database [website]. U.S. Department of Agriculture, Natural Resources Conservation Service, National Plant Data Center. Weblink: <http://plants.usda.gov>.
- USDA Soil Conservation Service. 1990. Soil survey of St. Tammany Parish. USDA. 141 pp. + appendices.

Abita Creek Flatwoods II Prospectus

U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp. [Weblink: <http://www.fws.gov/migratorybirds/NewReportsPublications/SpecialTopics/BCC2008/BCC2008.pdf>]

FIGURES






**Figure 1. Vicinity Map - Abita Creek Flatwoods II
St. Tammany Parish, Louisiana**

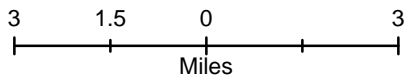


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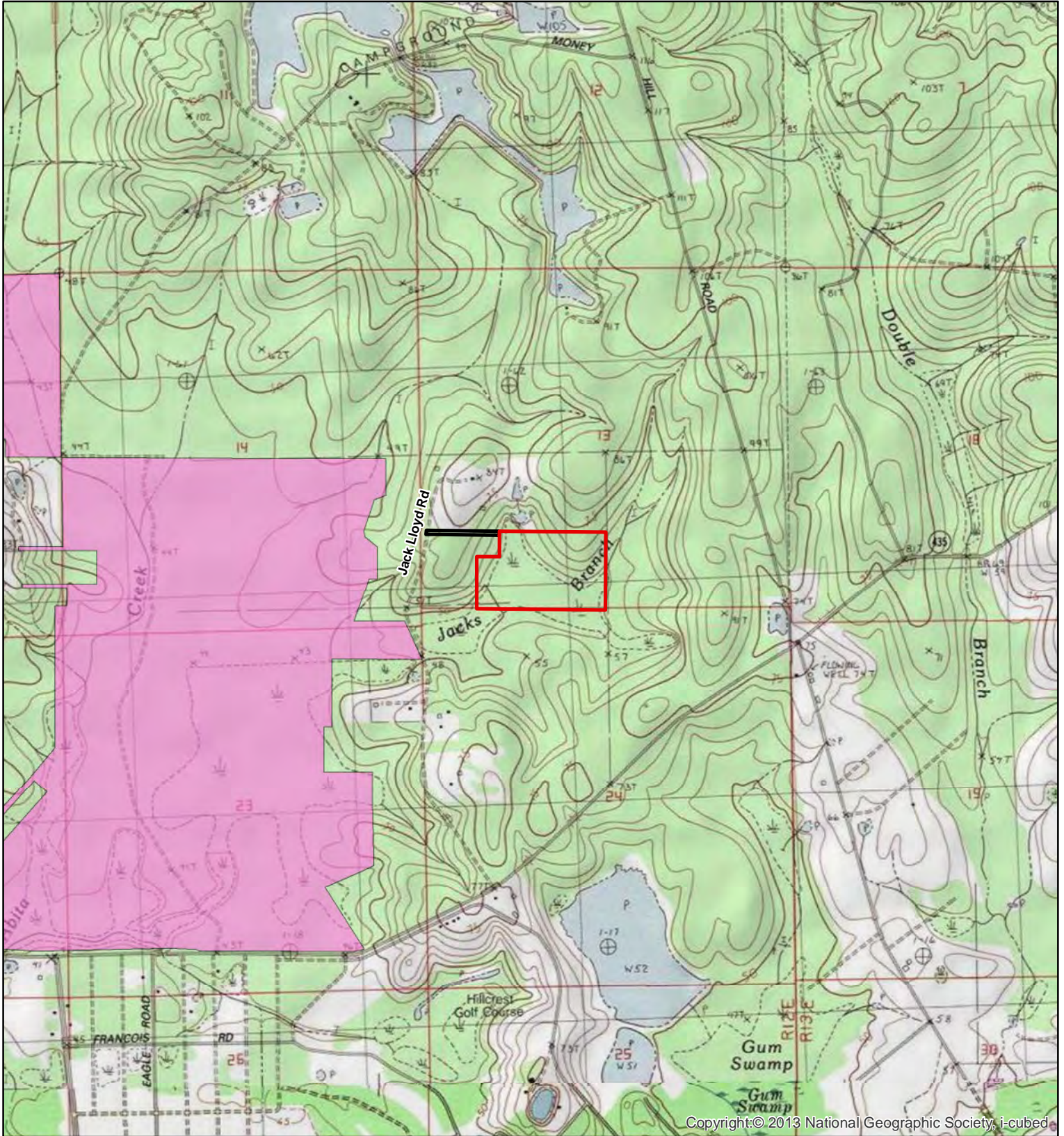
Map Created by: Baton Rouge, Louisiana Field Office (JA)
Date: 7 June 2017

1:190,080
1 in = 3 miles

-  ACF II Project Boundary
-  Bogue Chitto National Wildlife Refuge
-  Wetland Mitigation Banks
-  Money Hill Conservation Area
-  Rivers and Streams






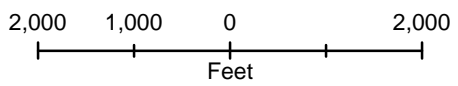
**Figure 2a. Bush 7.5' Topographic Map -
Abita Creek Flatwoods II,
St. Tammany Parish, Louisiana**



Copyright: © 2013 National Geographic Society, i-cubed

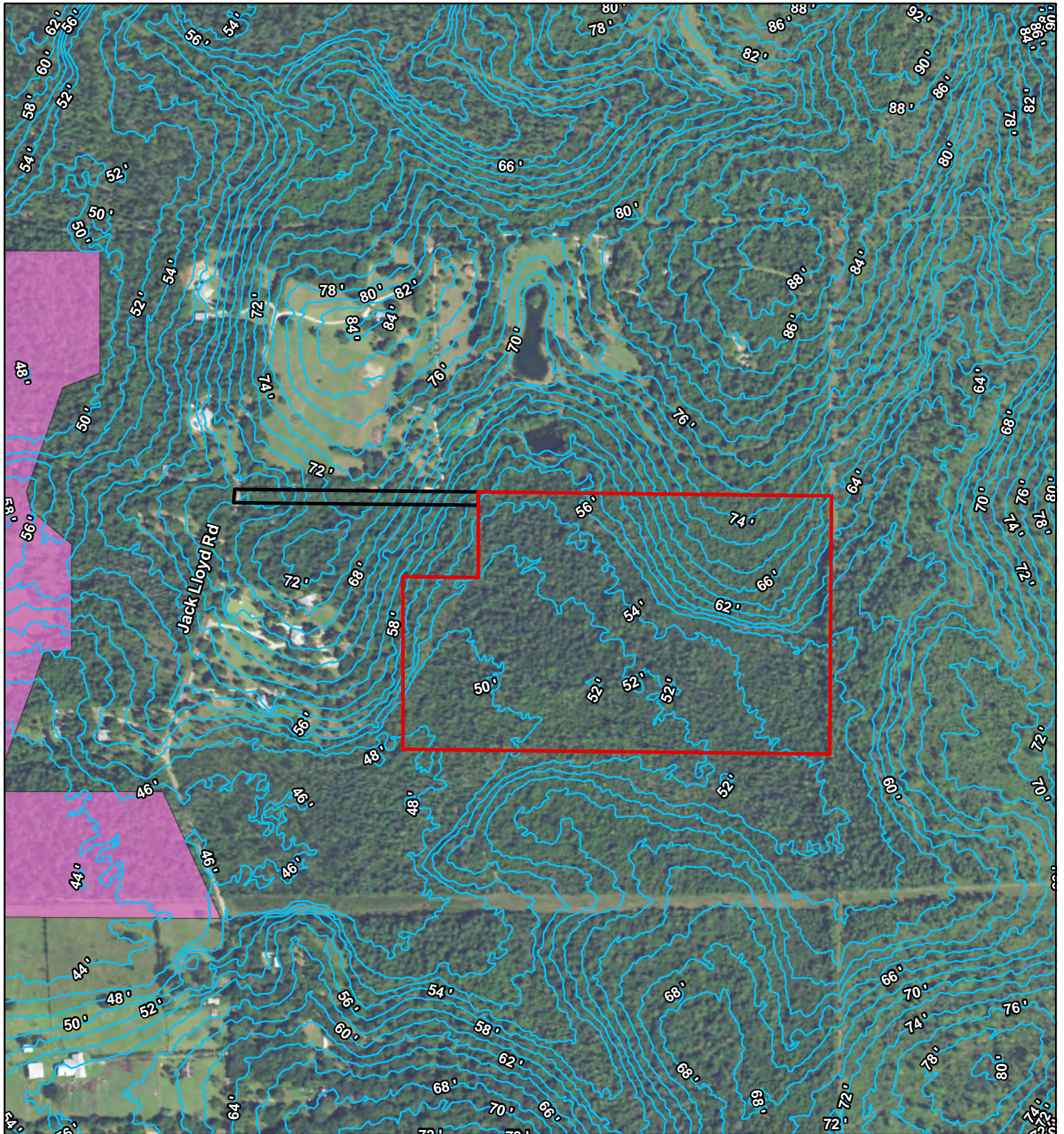
Map Created by: Baton Rouge,
Louisiana Field Office (JA)
Date: 6 June 2017




-  ACF II Project Boundary - 48.5 ac.
-  Bank Access (Sponsor-owned) - 1.5 ac.
-  Abita Creek Flatwoods Mitigation Bank Unit

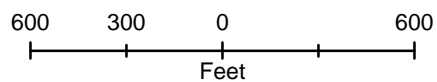


1:24,000
1 in = 2,000 ft

Figure 2b. Contour Map - Abita Creek Flatwoods II, St. Tammany Parish, Louisiana



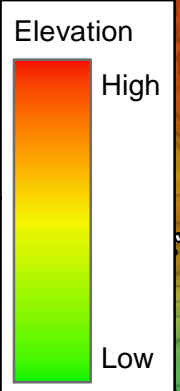
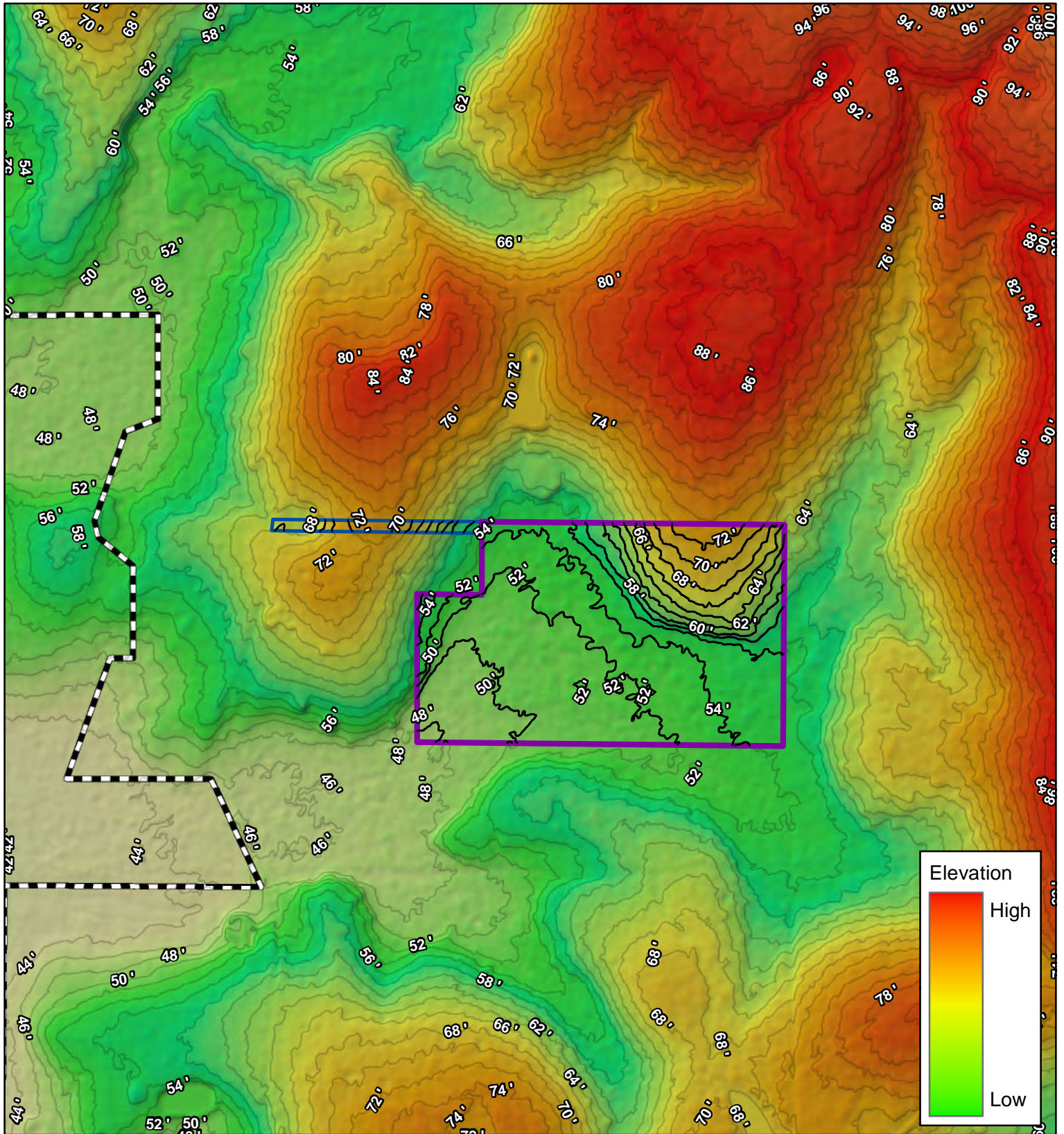
-  ACF II Project Boundary - 48.5 ac.
-  Bank Access (Sponsor-owned) - 1.5 ac.
-  Abita Creek Flatwoods Mitigation Bank Unit
-  Contours (2-ft.)







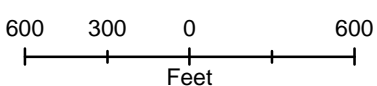
Map Created by: Baton Rouge, Louisiana Field Office (JA)
Date: 6 June 2017

1:7,200
1 in = 600 ft

Figure 2c. Elevation Map - Abita Creek Flatwoods II, St. Tammany Parish, Louisiana



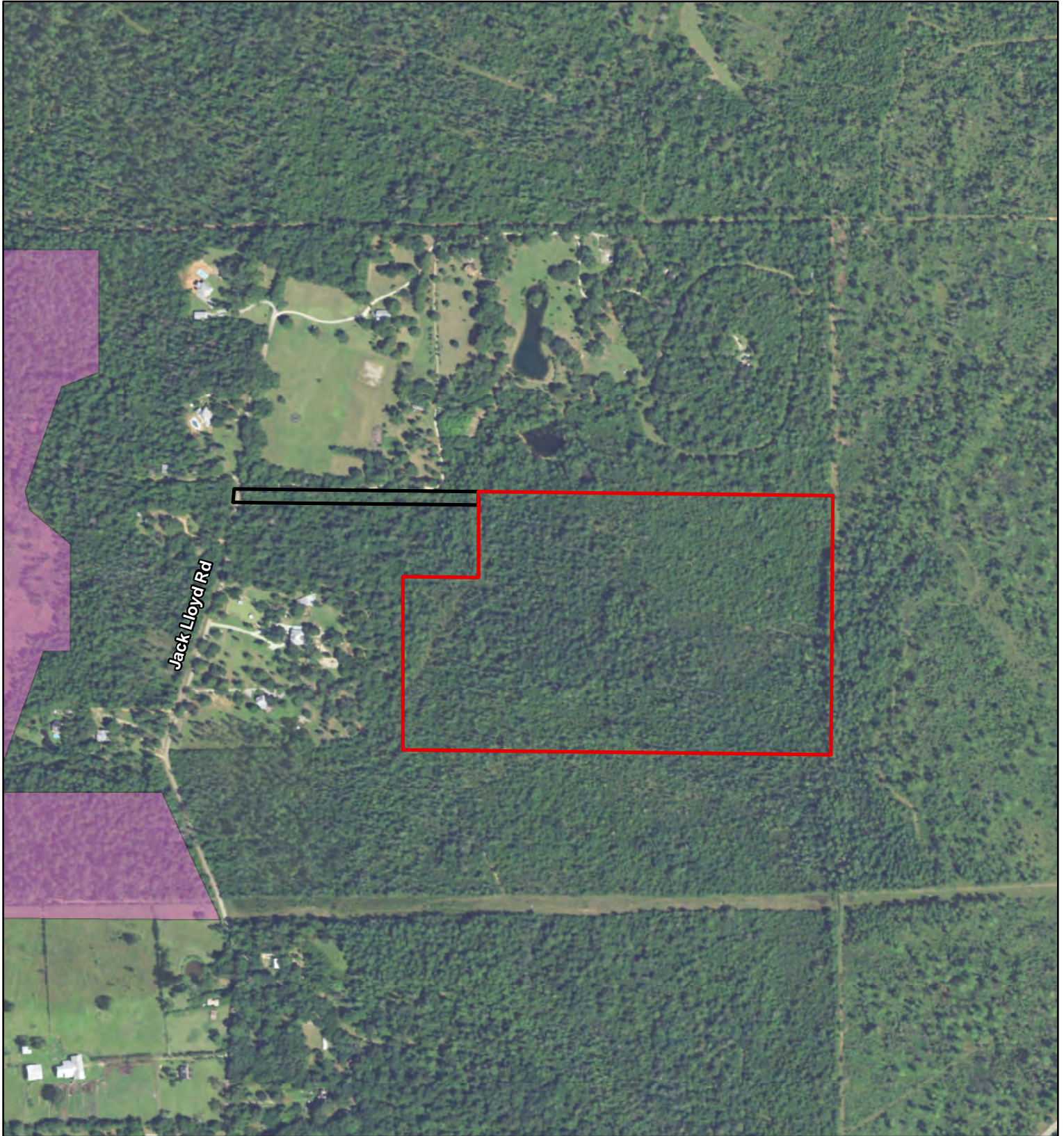
-  ACF II Project Boundary 48.5 ac.
-  Bank Access (Sponsor-owned) 1.5 ac.
-  Abita Creek Flatwoods Mitigation Bank Unit
-  Contours (2-ft)






Map Created by: Baton Rouge, Louisiana Field Office (JA)
Date: 6 June 2017

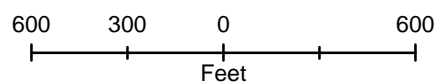
1:8,400
1 in = 700 ft

Figure 3a. NAIP Aerial Photograph - Abita Creek Flatwoods II, St. Tammany Parish, Louisiana



Map Created by: Baton Rouge,
Louisiana Field Office (JA)
Date: 6 June 2017

-  ACF II Project Boundary - 48.5 ac.
-  Bank Access (Sponsor-owned) - 1.5 ac.
-  Abita Creek Flatwoods Mitigation Bank Unit





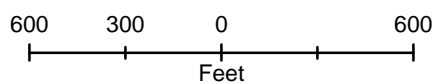
1:7,200
1 in = 600 ft

Figure 3b 1998 Infrared Aerial Photograph -
Abita Creek Flatwoods II,
St. Tammany Parish, Louisiana



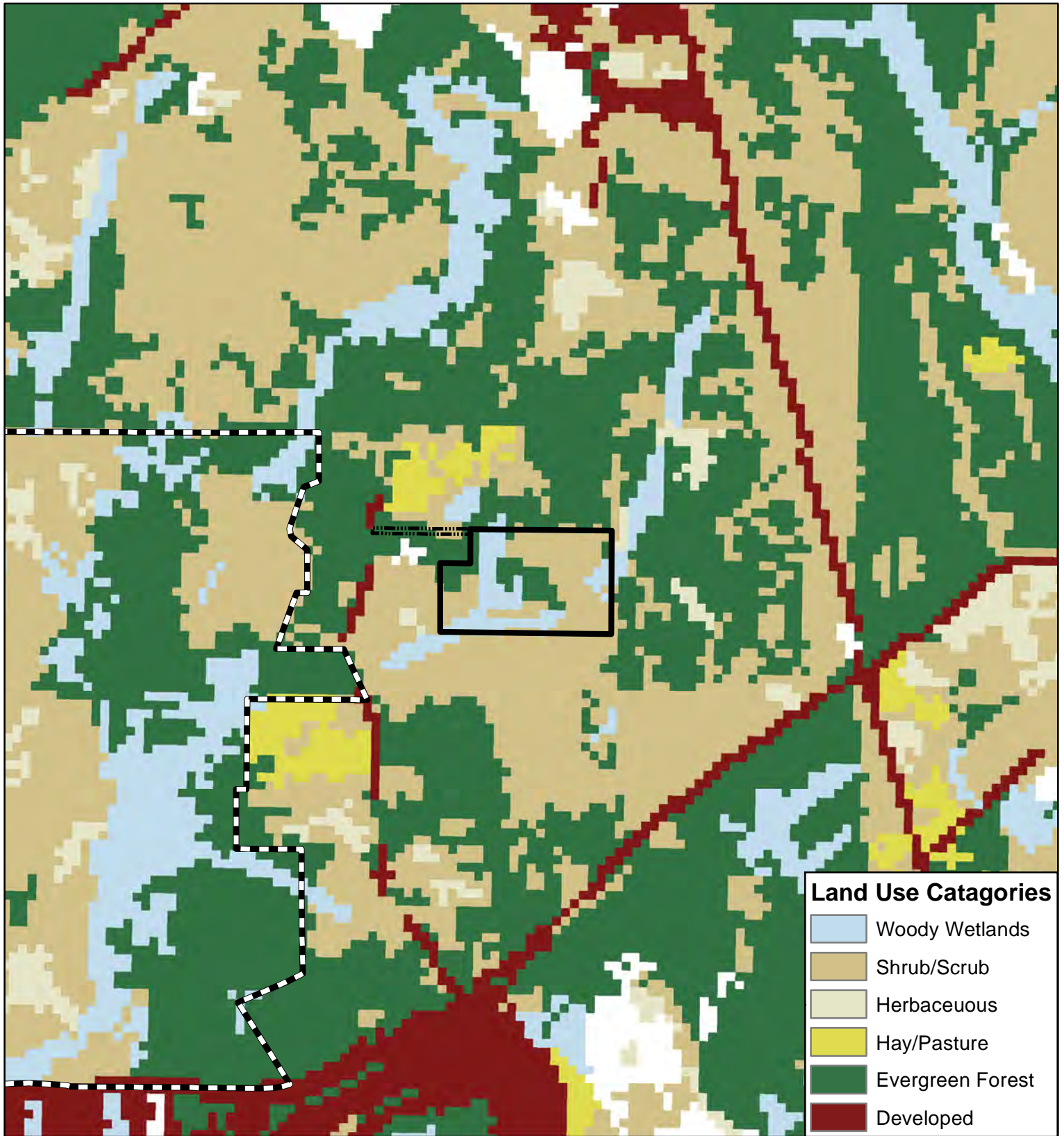
Map Created by: Baton Rouge,
Louisiana Field Office (JA)
Date: 6 June 2017

-  ACF II Project Boundary
-  Bank Access (Sponsor-owned)









1:7,200
1 in = 600 ft

**Figure 4. 2011 National Land Cover Dataset -
Abita Creek Flatwoods II,
St. Tammany Parish, Louisiana**






Land Use Categories

-  Woody Wetlands
-  Shrub/Scrub
-  Herbaceous
-  Hay/Pasture
-  Evergreen Forest
-  Developed

Map Created by: Baton Rouge,
Louisiana Field Office (JA)
Date: 6 June 2017

1:18,000
1 in = 1,500 ft

-  ACF II Project Boundary
-  Bank Access (Sponsor-owned)
-  Abita Creek Flatwoods Mitigation Bank Unit

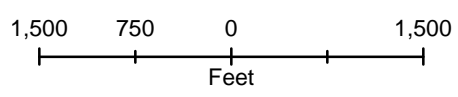
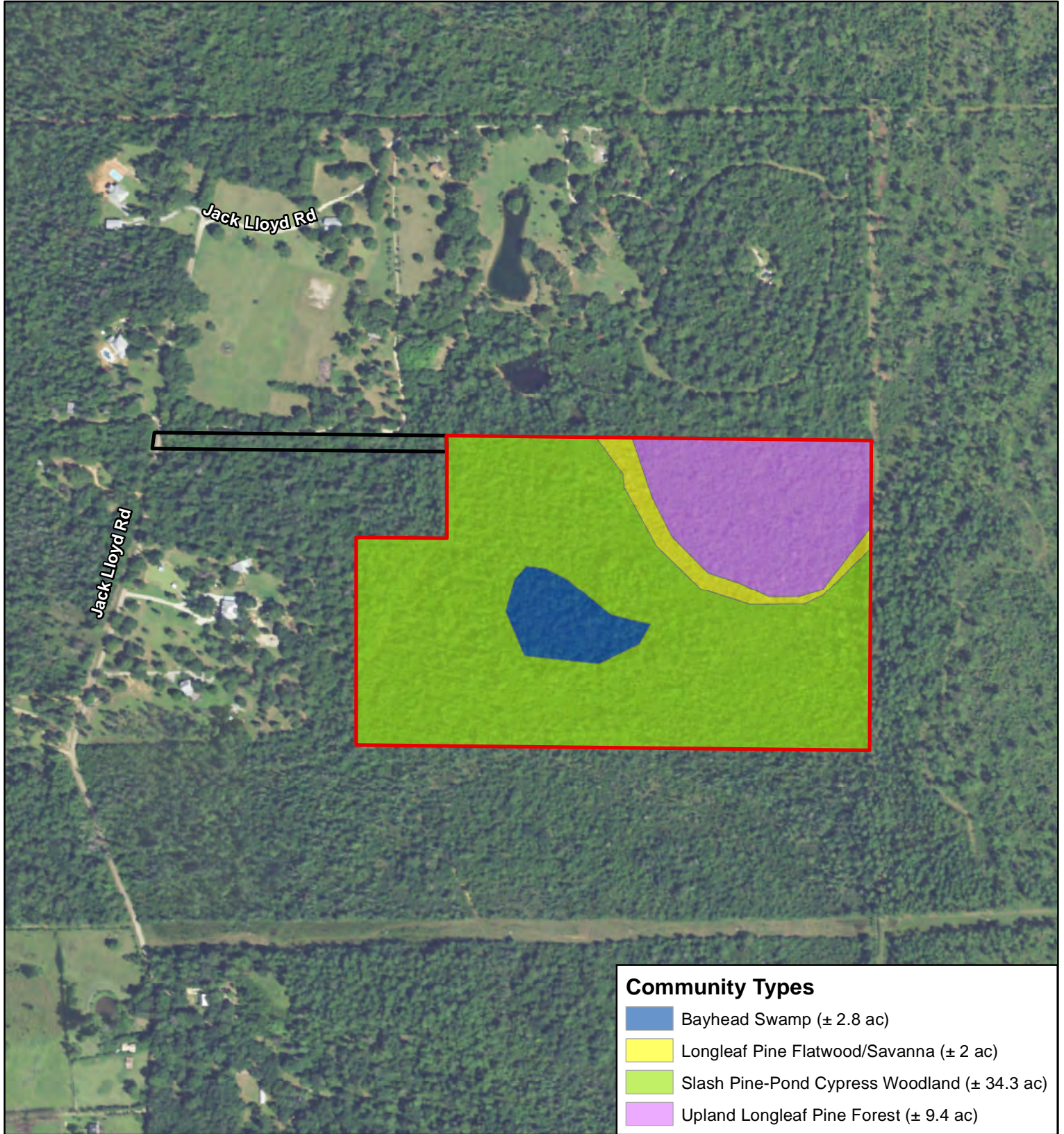








Figure 5. Estimated Historical Habitats/Natural Communities and Proposed Management Types - Abita Creek Flatwoods II, St. Tammany Parish, Louisiana

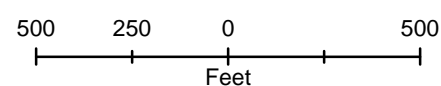


Community Types

-  Bayhead Swamp (± 2.8 ac)
-  Longleaf Pine Flatwood/Savanna (± 2 ac)
-  Slash Pine-Pond Cypress Woodland (± 34.3 ac)
-  Upland Longleaf Pine Forest (± 9.4 ac)

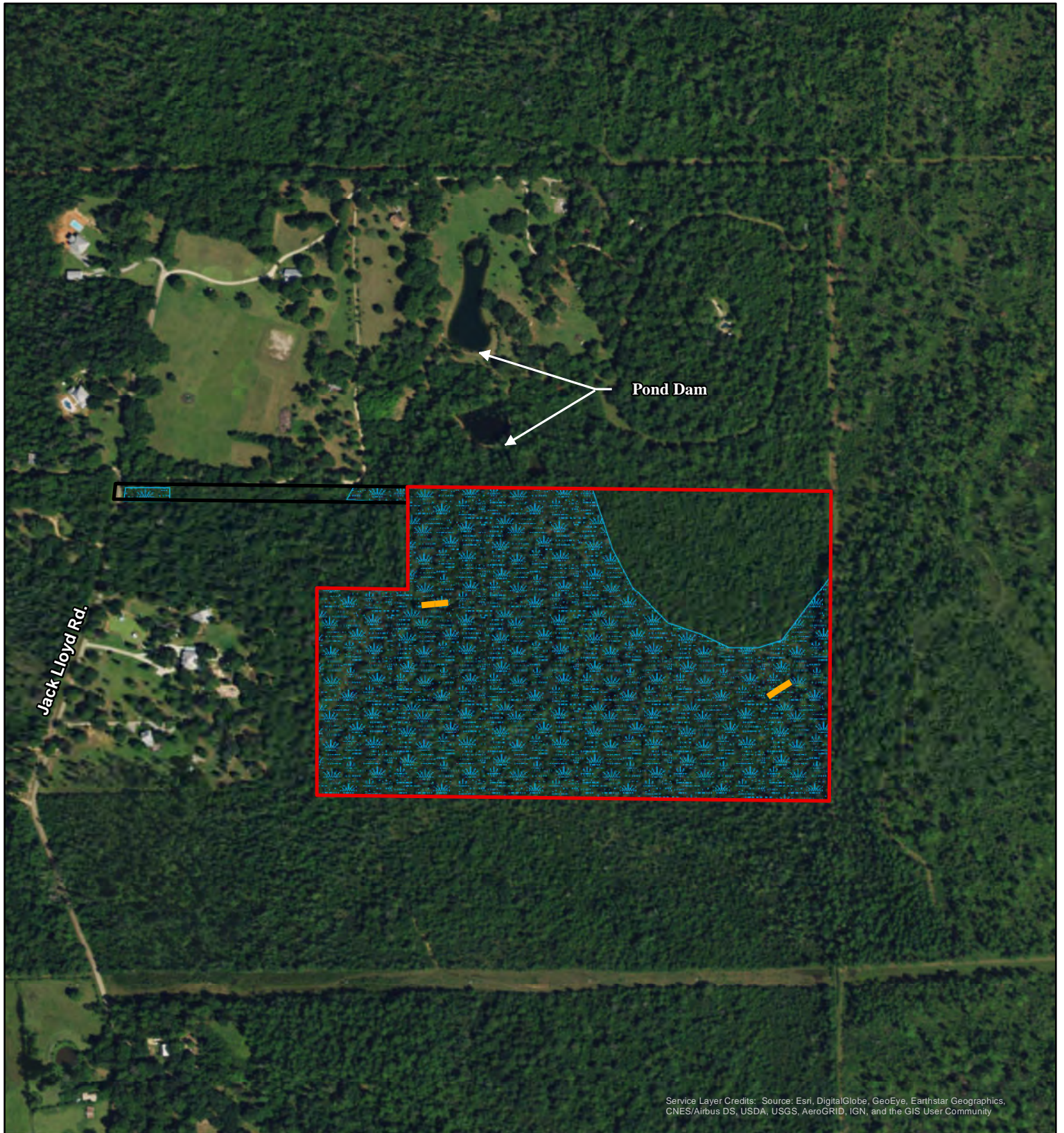
Map Created by: Baton Rouge, Louisiana Field Office (JA)
Date: 30 May 2017

 ACF II Project Boundary - 48.5 ac.
 Bank Access (Sponsor-owned) - 1.5 ac.



1:6,000
1 in = 500 ft

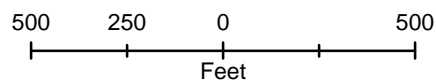
Figure 6a. Current Conditions - Artificial Features -
Abita Creek Flatwoods II,
St. Tammany Parish, Louisiana



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

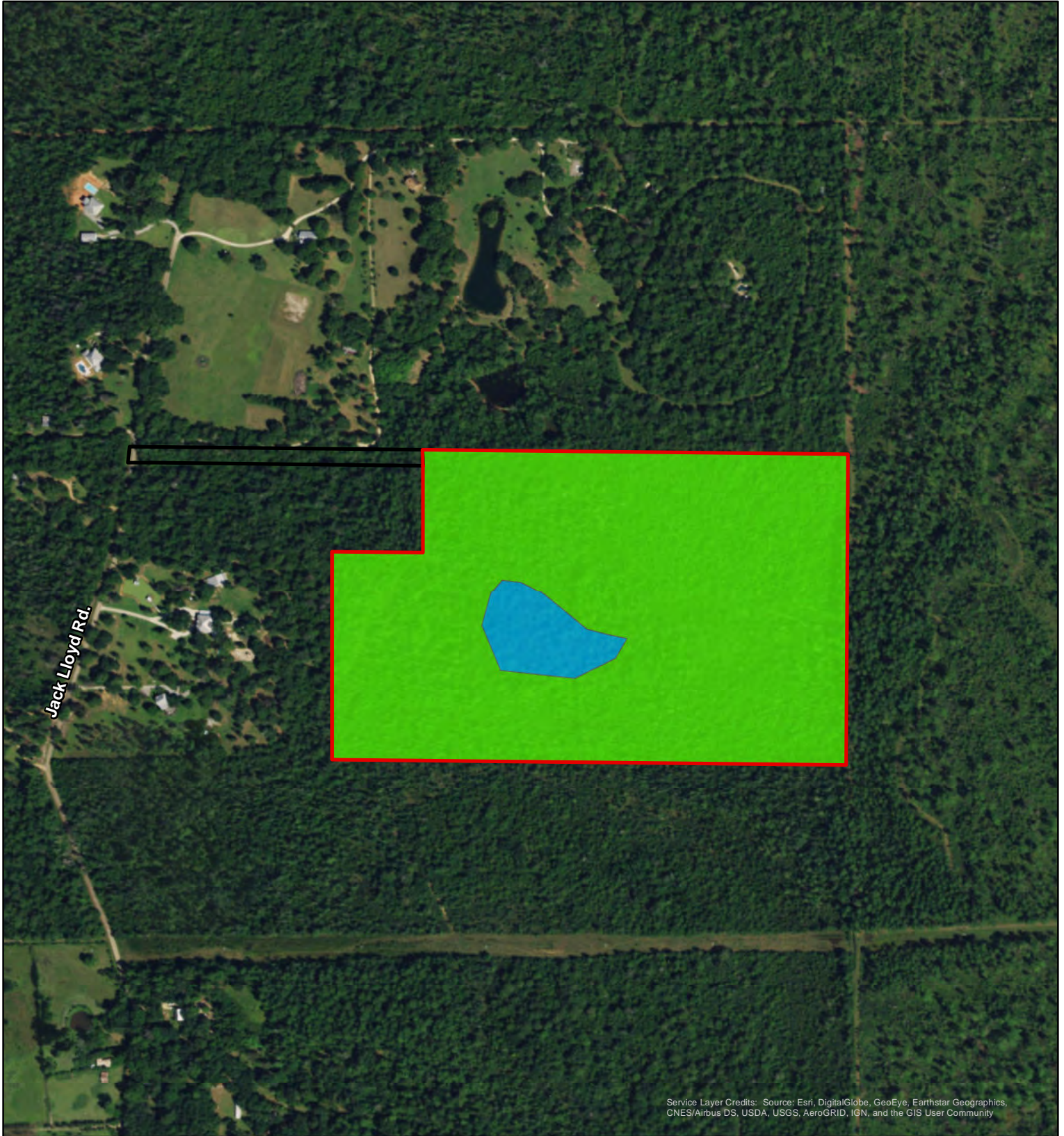
Map Created by: Baton Rouge,
Louisiana Field Office (JA)
Date: 6 June 2017

-  ACF II Project Boundary
-  Bank Access (Sponsor-owned)
-  Wetlands
-  Logging Rut Areas




1:6,000
1 in = 500 ft


**Figure 6b. Current Habitat Conditions -
Abita Creek Flatwoods II,
St. Tammany Parish, Louisiana**




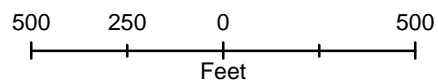
 ACF II Project Boundary

 Bank Access (Sponsor-owned)

Current Habitats

 Bayhead Swamp (± 2.8 ac.)

 Slash Pine - Hardwood Timberland (± 45.7 ac.)



*Map Created by: Baton Rouge,
Louisiana Field Office (JA)
Date: 6 June 2017*

1:6,000
1 in = 500 ft



**Figure 6c. Drainage Patterns - Abita Creek Flatwoods II
St. Tammany Parish, Louisiana**

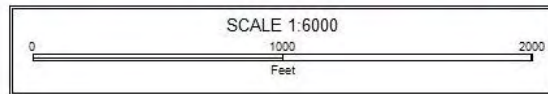
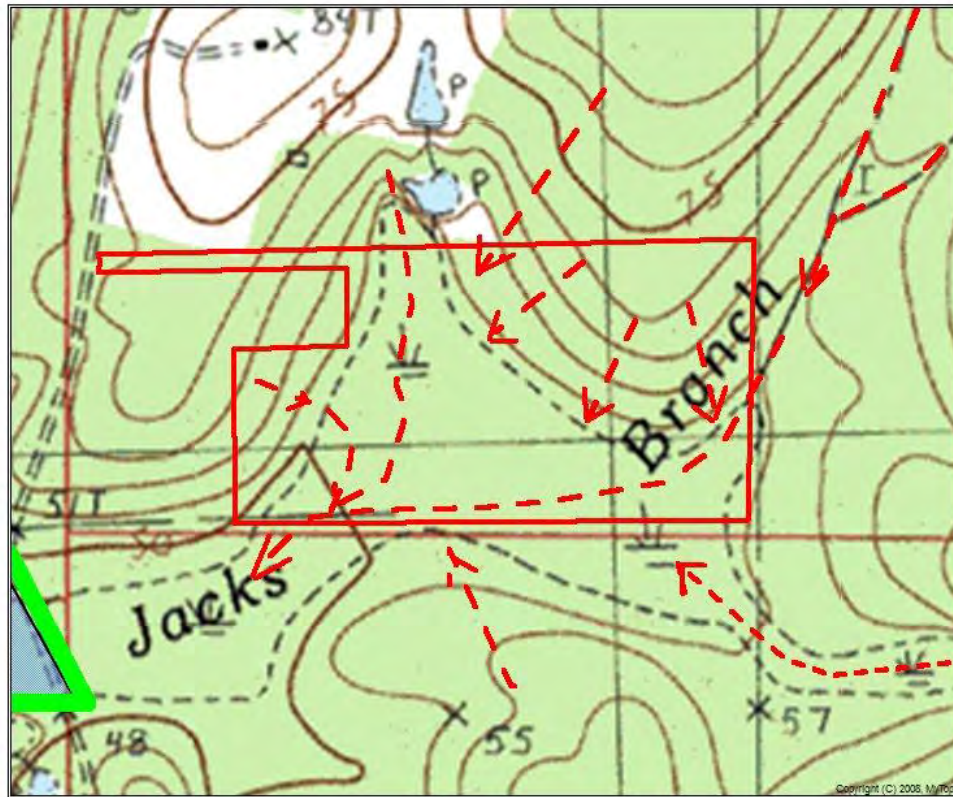
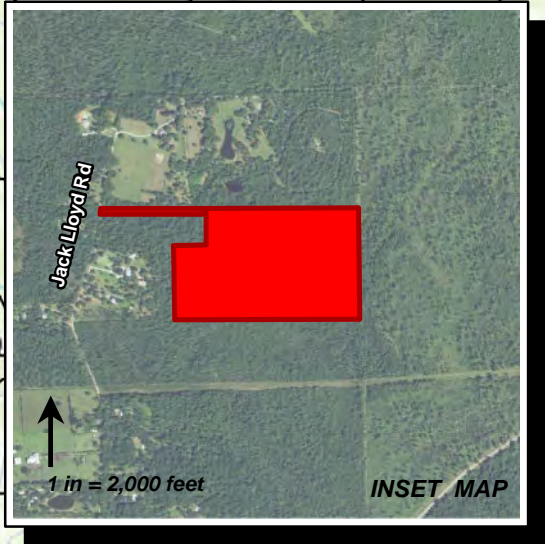
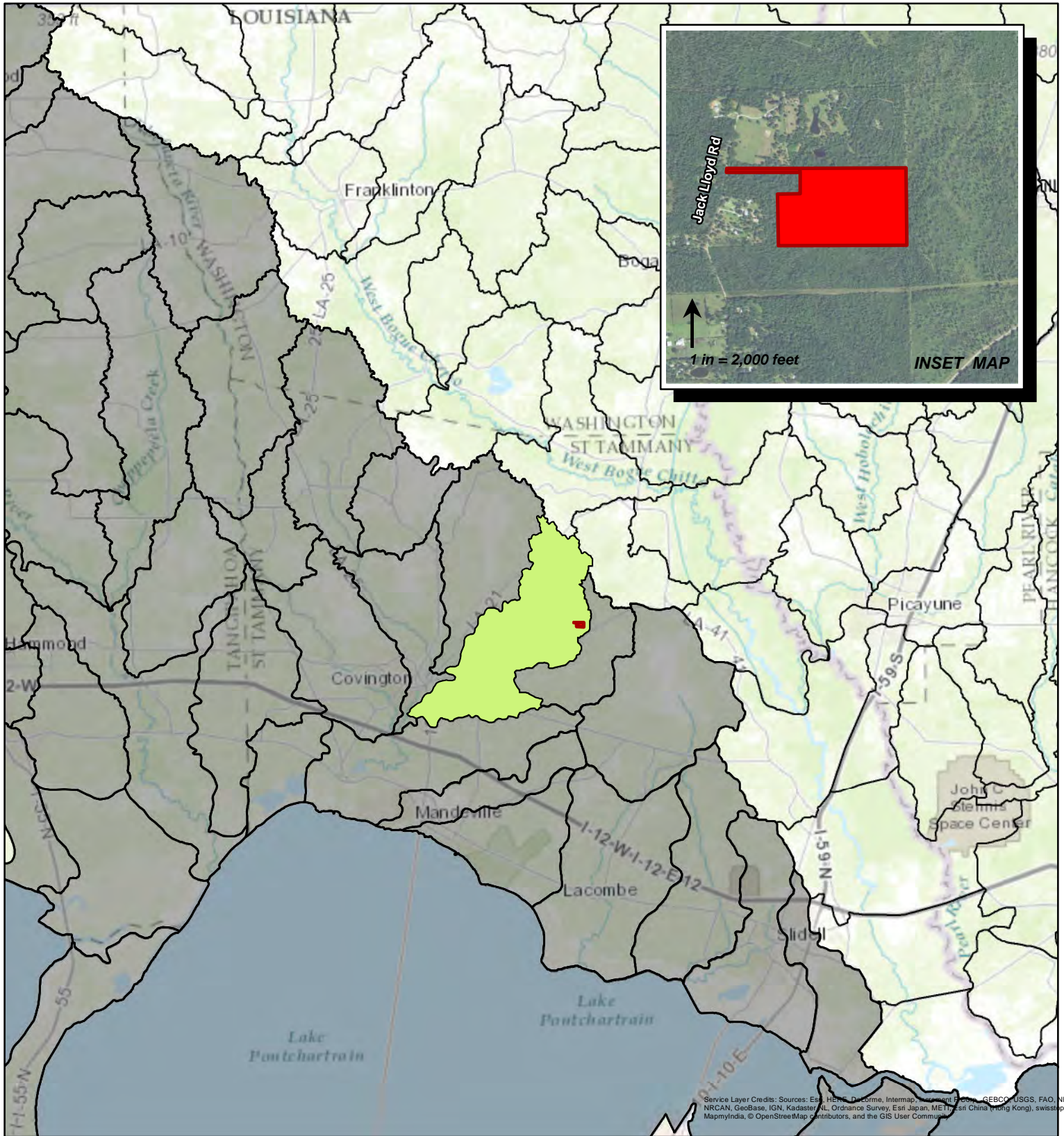




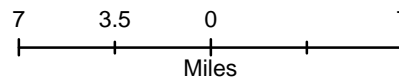


Figure 7. Abita River Watershed Map - Abita Creek Flatwoods II, St. Tammany Parish, Louisiana



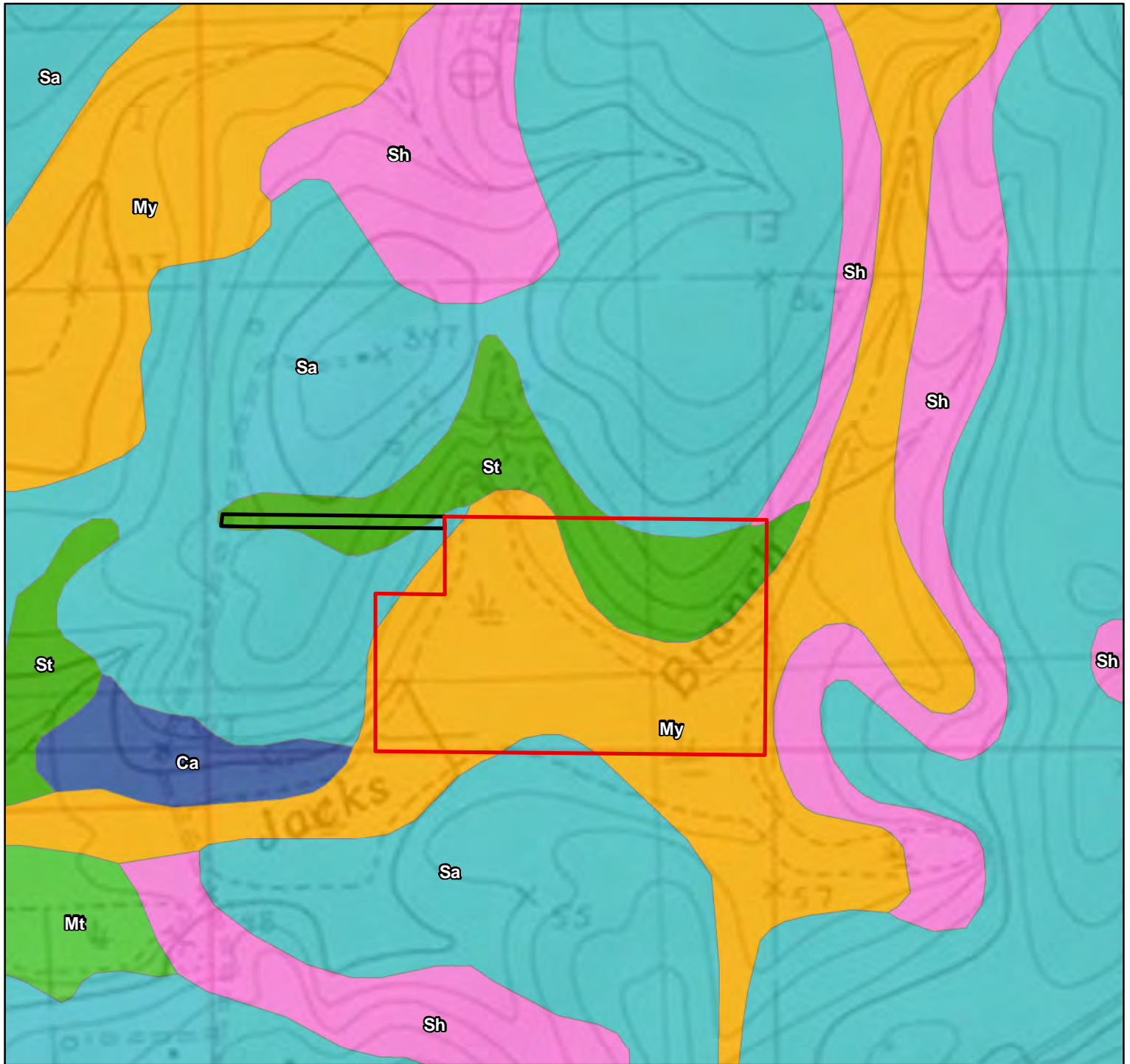
-  ACF II Project Boundary
-  Abita River Watershed (HUC 12)
-  Watershed Boundaries (HUC 12)
-  Lake Pontchartrain Basin



Map Created by: Baton Rouge, Louisiana Field Office (JA)
Date: 6 June 2017



1 inch = 7 miles





Figure 8. Soils - Abita Creek Flatwoods II, St. Tammany Parish, Louisiana



St. Tammany Parish Soils

Soil Unit Symbol : Soil Unit Name



-  Ca : Cahaba fine sandy loam, 1 to 3 percent slopes
-  Mt : Myatt fine sandy loam

-  My : Myatt fine sandy loam, frequently flooded
-  Sa : Savannah fine sandy loam, 1 to 3 percent slopes
-  Sh : Savannah fine sandy loam, 3 to 6 percent slopes
-  St : Stough fine sandy loam

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Map Created by: Baton Rouge, Louisiana Field Office (JA)
Date: 6 June 2017

1:8,400

-  ACF II Project Boundary
-  Bank Access (Sponsor-owned)

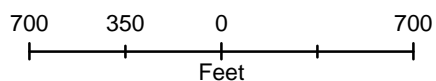
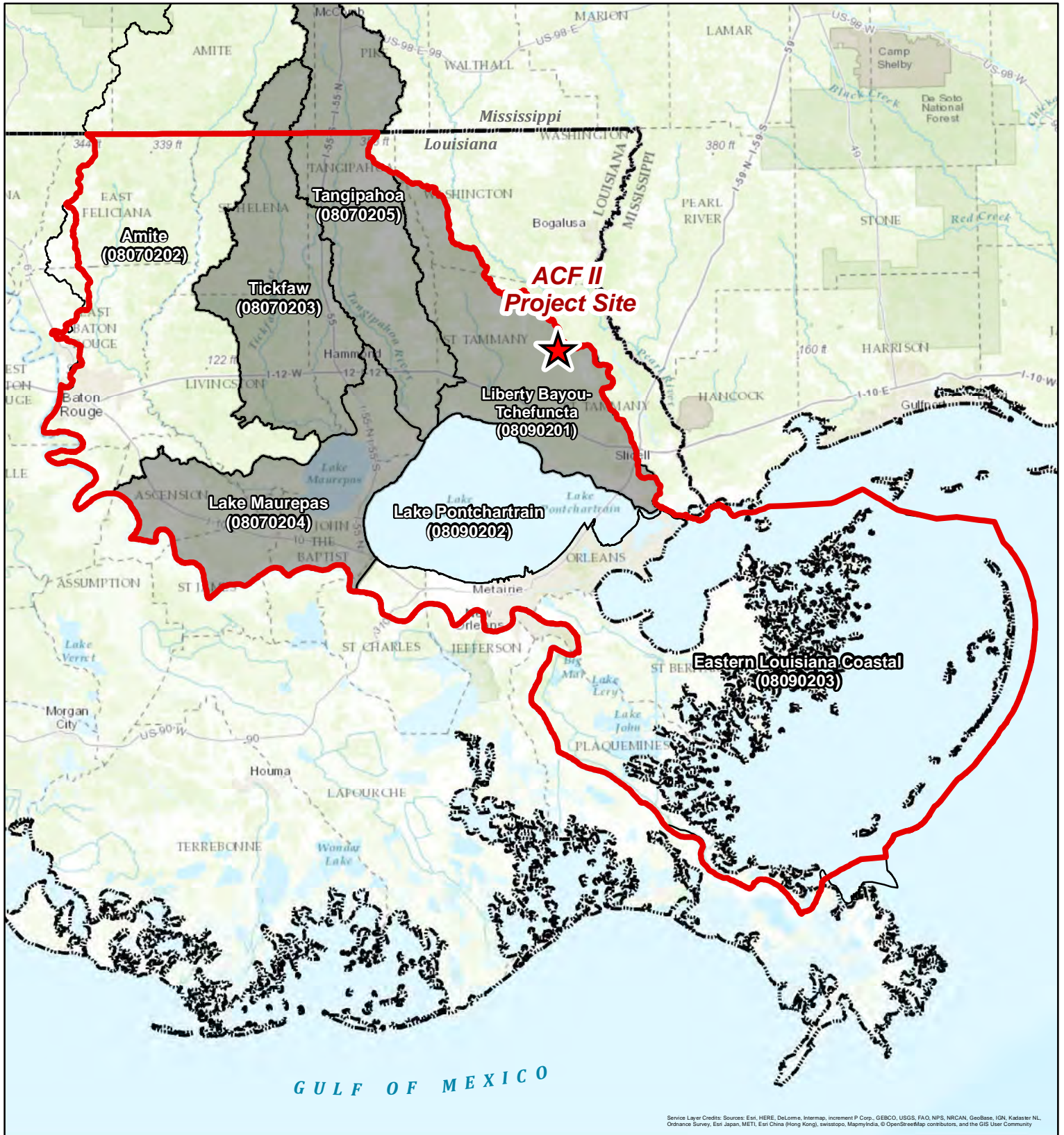





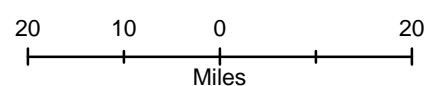
Figure 9. Geographic Service Area - Abita Creek Flatwoods II, St. Tammany Parish, Louisiana



Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, Mapbox, © OpenStreetMap contributors, and the GIS User Community

Map Created by: Baton Rouge, Louisiana Field Office (JA)
Date: 6 June 2017

-  Lake Pontchartrain Basin
-  Primary Service Area within Lake Pontchartrain Basin
-  HUC 8 Watershed Boundaries



1:1,267,200
1 in = 20 miles

Source: World Topo Map (ESRI)
USDA Watershed Boundary Dataset (HUC 8) &
DEQ Basin Boundaries

APPENDICES

APPENDIX 1

ACF II PROSPECTUS PHOTOGRAPHS

ACF II - Altered Slash Pine – Pond Cypress Zone



ACF II - Altered Wet Longleaf Pine Savanna Zone



ACF II - Bayhead Swamp Zone



ACF II - Altered Upland Longleaf Zone



APPENDIX 2

ACF II

PRELIMINARY JURISDICTIONAL DETERMINATION



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
P.O. BOX 60267
NEW ORLEANS LA 70160-0267

REPLY TO
ATTENTION OF

Operations Division
Surveillance and Enforcement Section

AUG 27 2015

Mr. Thomas Brown
Biological Surveys, Inc.
P.O. Box 94
Covington, LA 70434

Dear Mr. Brown:

Reference is made to your request, on behalf of The Nature Conservancy, for a U.S. Army Corps of Engineers' (Corps) jurisdictional determination on property located in Section 13, Township 6 South, Range 12 East, St. Tammany Parish, Louisiana (enclosed map). Specifically, this property is identified as a 50-acre tract on and east of Jack Lloyd Road, in Abita Springs.

A field inspection of the property was conducted on August 20, 2015. Based on the results of this investigation, we have determined that part of the property is wetland and may be subject to Corps' jurisdiction. The approximate limits of the wetland are designated in red on the map. A Department of the Army permit under Section 404 of the Clean Water Act will be required prior to the deposition or redistribution of dredged or fill material into wetlands that are waters of the United States.

You are advised that this preliminary jurisdictional determination is valid for a period of 5 years from the date of this letter unless new information warrants revision prior to the expiration date or the District Commander has identified, after public notice and comment, that specific geographic areas with rapidly changing environmental conditions merit re-verification on a more frequent basis.

Should there be any questions concerning these matters, please contact Mr. Michael Windham at (504) 862-1235 and reference our Account No. MVN-2015-01576-SK. If you have specific questions regarding the permit process or permit applications, please contact our Eastern Evaluation Section at (504) 862-2292.



Sincerely,

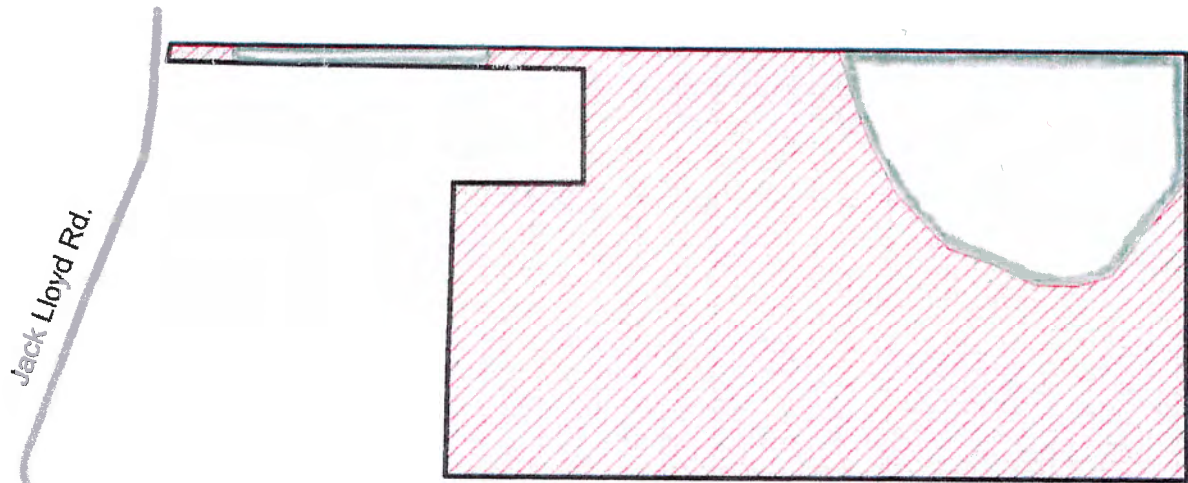
Martin S. Mayer
Chief, Regulatory Branch

Enclosures

+/- 50 Acres in Abita Springs, LA
The Nature Conservancy

USACE	
FSV / IH	Date: 2/20/15
Botanist: WINDHAM	
Requestor: BROWN	
# MVN-2015-01576-SK	

-  - NONWETLAND
-  - WETLAND (prelim 404)



U.S. ARMY CORPS OF ENGINEERS
PRELIMINARY
JURISDICTIONAL DETERMINATION

Biological Surveys, Inc.
P.O. Box 94
Covington, LA 70433
Date: July 14, 2015

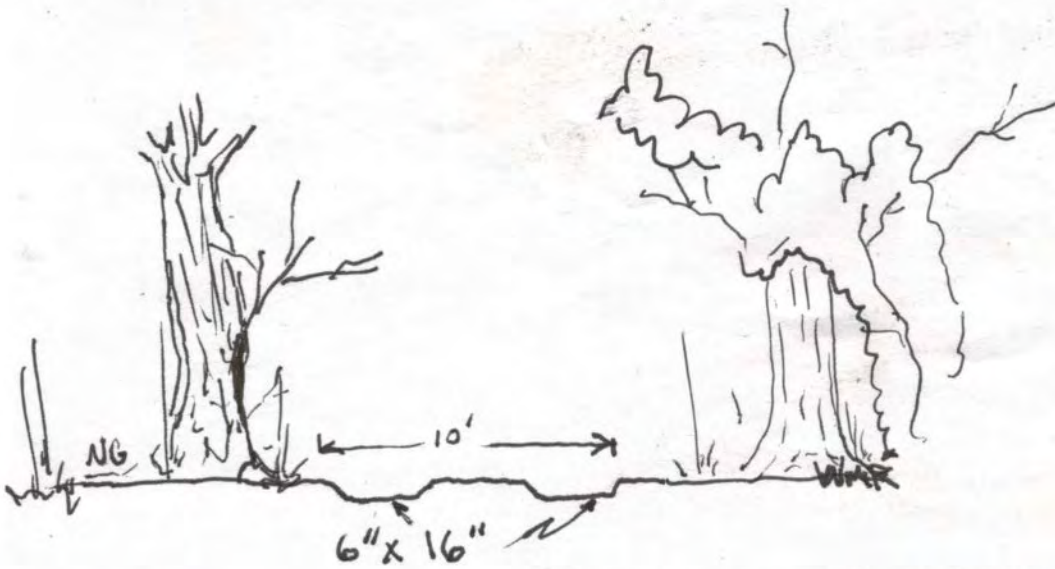
**Note this is NOT a Boundary Survey
and should not be utilized as one.

Legend
 Boundary



APPENDIX 3

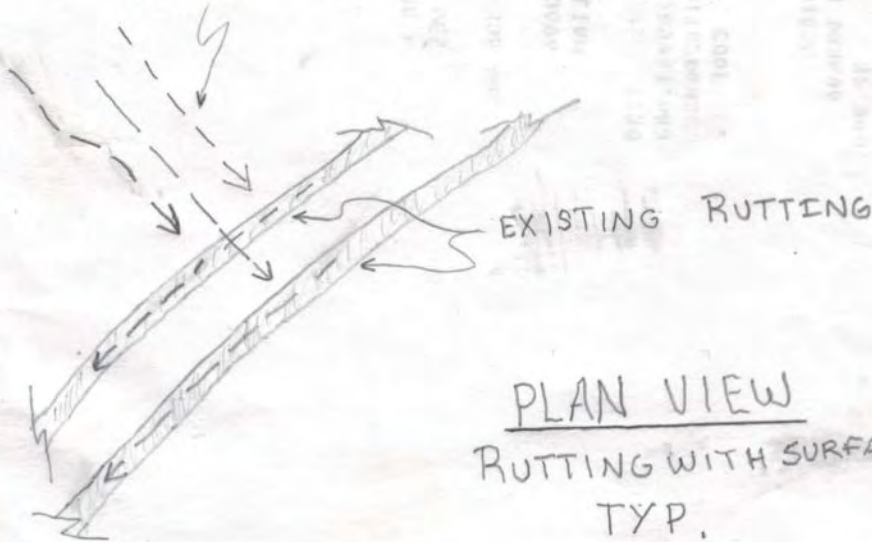
ACF II PROSPECTUS HYDRO-RESTORATION PLAN VIEWS



RUT CROSS SECTION

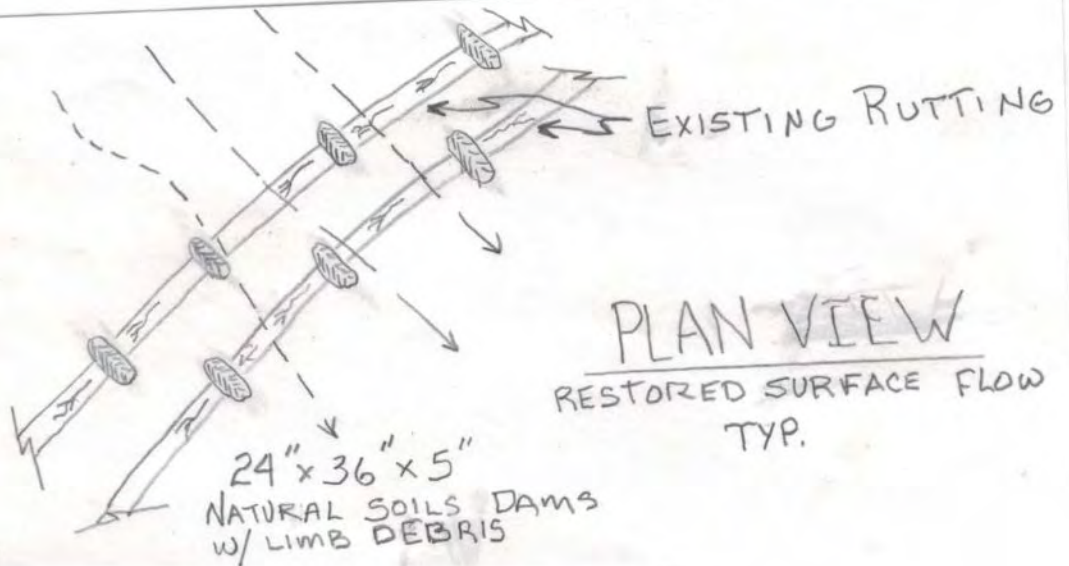
NTS

WATER FLOW DASHED LINES



PLAN VIEW

RUTTING WITH SURFACE FLOW EFFECTS
TYP.



PLAN VIEW

RESTORED SURFACE FLOW
TYP.